



FORM 20-F
2019

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 20-F/A
Amendment No. 1

(Mark One)

- REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR 12(g) OF THE SECURITIES EXCHANGE ACT OF 1934
OR
 ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2019
OR
 TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from ... to
OR
 SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
Date of event requiring this shell company report
Commission file number: 1-10888

TOTAL S.A.

(Exact Name of Registrant as Specified in Its Charter)
N/A

(Translation of Registrant's name into English)

Republic of France

(Jurisdiction of Incorporation or Organization)

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Securities registered or to be registered pursuant to Section 12(b) of the Act.

Title of each class	Trading symbol(s)	Name of each exchange on which registered
Shares		New York Stock Exchange*
American Depositary Shares	TOT	New York Stock Exchange

* Not for trading, but only in connection with the registration of American Depositary Shares, pursuant to the requirements of the Securities and Exchange Commission.
Securities registered or to be registered pursuant to Section 12(g) of the Act.

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act.
None

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report.

2,601,881,075 Shares, par value €2.50 each, as of December 31, 2019

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or an emerging growth company. See definition of "large accelerated filer", "accelerated filer", and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer Non-accelerated filer
Emerging growth company

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards*** provided pursuant to Section 13(a) of the Exchange Act.

*** The term "new or revised financial accounting standard" refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP International Financial Reporting Standards as issued by the International Accounting Standards Board Other

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow. Item 17 Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

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Explanatory Note

This Amendment No.1 on Form 20-F/A (the “Amendment No.1”) to the annual report on Form 20-F of TOTAL S.A (the “Company”) for the fiscal year ended December 31, 2019 (the “2019 Form 20-F”) is being filed solely for the purpose of providing an amended Exhibit 15.1, containing excerpted pages and sections of the amended Universal Registration Document 2019 of the Company, which cancels and replaces the version of such document filed with the French *Autorité des marchés financiers* on March 20, 2020. The change to Exhibit 15.1 consists of the rectification of an error on page 236 related to the human rights impact assessment carried out on the oil pipeline project in Uganda and Tanzania which was wrongly attributed to the Danish Institute for Human Rights instead of to the consultancies LKL International Consulting and Triple R Alliance. The remainder of the Universal Registration Document 2019 remains unchanged except for the redaction of certain titles in the table of contents of Chapters 4 and 5 (pages 129 and 203, respectively) and minor rectifications made to align with the French version (page 7 – correction in the legend of the pie chart “Shareholding structure by shareholder type” ; page 238 – correction of the title concerning the Yemen LNG insert). All references to the “Universal Registration Document 2019” in the 2019 Form 20-F are references only to those pages, points and chapters in Exhibit 15.1 to this Amendment No. 1.

Other than as expressly set forth above, the Company has not modified or updated any other disclosures and has made no changes to the items or sections in the Company’s 2019 Form 20-F. Other than as expressly set forth above, this Amendment No.1 does not, and does not purport to, amend, update or restate the information in any part of the Company’s 2019 Form 20-F or reflect any events that have occurred after the 2019 Form 20-F was filed on March 20, 2020. The filing of this Amendment No.1, and the inclusion of newly executed certifications, should not be understood to mean that any other statements contained in the original filing are true and complete as of any date subsequent to March 20, 2020. Accordingly, this Amendment No.1 and Exhibit 15.1 hereto should be read in conjunction with the 2019 Form 20-F and the documents filed with or furnished to the Securities and Exchange Commission by the Company subsequent to March 20, 2020, including any amendments to such documents.

Basis of presentation

References in this annual report on Form 20-F to pages and sections of the Universal Registration Document 2019 are references only to those pages and sections of TOTAL’s Universal Registration Document for the year ended December 31, 2019 attached in Exhibit 15.1 to this Form 20-F. Other than as expressly provided herein, the Universal Registration Document 2019 is not incorporated herein by reference.

TOTAL’s Consolidated Financial Statements, which start on page 281 of the Universal Registration Document 2019 and are incorporated herein by reference, are prepared in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB) and IFRS as adopted by the European Union (EU) as of December 31, 2019.

In addition, this annual report on Form 20-F and the Universal Registration Document 2019 contain certain measures that are not defined by generally accepted accounting principles (GAAP) such as IFRS. Our management uses these financial measures, along with the most directly comparable GAAP financial measures, in evaluating our operating performance. We believe that presentation of this information, along with comparable GAAP measures, is useful to investors because it allows investors to understand the primary method used by management to evaluate performance on a meaningful basis. Non-GAAP financial measures should not be considered in isolation from, or as a substitute for, financial information presented in compliance with GAAP. Non-GAAP financial measures as reported by us may not be comparable with similarly titled amounts reported by other companies.

Statements regarding competitive position

Unless otherwise indicated, statements made in “Item 4. Information on the company” referring to TOTAL’s competitive position are based on the Company’s estimates, and in some cases rely on a range of sources, including investment analysts’ reports, independent market studies and TOTAL’s internal assessments of market share based on publicly available information about the financial results and performance of market participants.

Additional information

This annual report on Form 20-F reports information primarily regarding TOTAL’s business, operations and financial information relating to the fiscal year ended December 31, 2019. For more recent updates regarding TOTAL, you may inspect any reports, statements or other information TOTAL files with the United States Securities and Exchange Commission (“SEC”). All of TOTAL’s SEC filings made after December 31, 2001 are available to the public at the SEC website at <http://www.sec.gov> and from certain commercial document retrieval services. See also “Item 10. - 10.8 Documents on display”.

No material on the TOTAL website forms any part of this annual report on Form 20-F. References in this annual report on Form 20-F to documents on the TOTAL website are included as an aid to the location of such documents and such documents are not incorporated by reference.

Certain terms, abbreviations and conversion table

For the meanings of certain terms used in this document, as well as certain abbreviations and a conversion table, refer to the “Glossary” starting on page 467 of the Universal Registration Document 2019, which is incorporated herein by reference.

Cautionary statement concerning forward-looking statements

TOTAL has made certain forward-looking statements in this document and in the documents referred to in, or incorporated by reference into, this annual report. Such statements are subject to risks and uncertainties. These statements are based on the beliefs and assumptions of the management of TOTAL and on the information currently available to such management. Forward-looking statements include information concerning forecasts, projections, anticipated synergies, and other information concerning possible or assumed future results of TOTAL, and may be preceded by, followed by, or otherwise include the words “believes”, “expects”, “anticipates”, “intends”, “plans”, “targets”, “estimates” or similar expressions.

Forward-looking statements are not assurances of results or values. They involve risks, uncertainties and assumptions. TOTAL's future results and share value may differ materially from those expressed in these forward-looking statements. Many of the factors that will determine these results and values are beyond TOTAL's ability to control or predict. Except for its ongoing obligations to disclose material information as required by applicable securities laws, TOTAL does not have any intention or obligation to update forward-looking statements after the distribution of this document, even if new information, future events or other circumstances have made them incorrect or misleading.

Various factors, certain of which are discussed elsewhere in this document and in the documents referred to in, or incorporated by reference into, this document, could affect the future results of TOTAL and could cause actual results to differ materially from those expressed in such forward-looking statements, including:

- material adverse changes in general economic conditions or in the markets served by TOTAL, including changes in the prices of oil, natural gas, refined products, petrochemical products and other chemicals;
- changes in currency exchange rates and currency devaluations;
- the success and the economic efficiency of oil and natural gas exploration, development and production programs, including, without limitation, those that are not controlled and/or operated by TOTAL;
- uncertainties about estimates of changes in proven and potential reserves and the capabilities of production facilities;
- uncertainties about the ability to control unit costs in exploration, production, refining and marketing (including refining margins) and chemicals;
- changes in the current capital expenditure plans of TOTAL;
- the ability of TOTAL to realize anticipated cost savings, synergies and operating efficiencies;
- the financial resources of competitors;
- changes in laws and regulations, including tax and environmental laws and industrial safety regulations;
- the quality of future opportunities that may be presented to or pursued by TOTAL;
- the ability to generate cash flow or obtain financing to fund growth and the cost of such financing and liquidity conditions in the capital markets generally;
- the ability to obtain governmental or regulatory approvals;
- the ability to respond to challenges in international markets, including political or economic conditions (including national and international armed conflict) and trade and regulatory matters (including actual or proposed sanctions on companies that conduct business in certain countries);
- the ability to complete and integrate appropriate acquisitions, strategic alliances and joint ventures;
- changes in the political environment that adversely affect exploration, production licenses and contractual rights or impose minimum drilling obligations, price controls, nationalization or expropriation, and regulation of refining and marketing, chemicals and power generating activities;
- the possibility that other unpredictable events such as labor disputes or industrial accidents will adversely affect the business of TOTAL; and
- the risk that TOTAL will inadequately hedge the price of crude oil or finished products.

For additional factors, please refer to “Item 3. - 3.2 Risk factors”, “Item 5. Operating and financial review and prospects” and “Item 11. Quantitative and qualitative disclosures about market risk”.

ITEM 1. IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISERS

Not applicable.

ITEM 2. OFFER STATISTICS AND EXPECTED TIMETABLE

Not applicable.

ITEM 3. KEY INFORMATION

3.1 Selected financial data

The following table presents selected consolidated financial data for TOTAL on the basis of IFRS as issued by the IASB and IFRS as adopted by the EU for the years ended December 31, 2019, 2018, 2017, 2016 and 2015. Effective January 1, 2014, TOTAL changed the presentation currency of the Group's Consolidated Financial Statements from the Euro to the US Dollar. ERNST & YOUNG Audit and KPMG Audit, a division of KPMG S.A., independent registered public accounting firms and the Company's auditors, audited the historical Consolidated Financial Statements of TOTAL for these periods from which the financial data presented below for such periods are derived. All such data should be read in conjunction with the Consolidated Financial Statements and the Notes thereto starting on page 281 of the Universal Registration Document 2019, which are incorporated herein by reference.

<i>(in millions of dollars, except share and per share data)</i>	2019	2018	2017	2016	2015
INCOME STATEMENT DATA					
Revenues from sales	176,249	184,106	149,099	127,925	143,421
Net income, Group share	11,267	11,446	8,631	6,196	5,087
Earnings per share (\$)	\$4.20	\$4.27	\$3.36	\$2.52	\$2.17
Fully diluted earnings per share (\$)	\$4.17	\$4.24	\$3.34	\$2.51	\$2.16
CASH FLOW STATEMENT DATA					
Cash flow from operating activities	24,685	24,703	22,319	16,521	19,946
Total expenditures	19,237	22,185	16,896	20,530	28,033
BALANCE SHEET DATA					
Total assets	273,294	256,762	242,631	230,978	224,484
Non-current financial debt	47,773	40,129	41,340	43,067	44,464
Non-controlling interests	2,527	2,474	2,481	2,894	2,915
Shareholders' equity - Group share	116,778	115,640	111,556	98,680	92,494
• Common shares	8,123	8,227	7,882	7,604	7,670
DIVIDENDS					
Dividend per share (€)	€2.68 ^(a)	€2.56	€2.48	€2.45	€2.44
Dividend per share (\$)	\$2.95 ^{(a), (b)}	\$2.94	\$2.96	\$2.61	\$2.67
COMMON SHARES^(c)					
Average number outstanding of common shares €2.50 par value (shares undiluted)	2,601,621,815	2,607,456,934	2,481,802,636	2,379,182,155	2,295,037,940
Average number outstanding of common shares €2.50 par value (shares diluted)	2,618,007,888	2,623,716,444	2,494,756,413	2,389,713,936	2,304,435,542

(a) Subject to approval by the shareholders' meeting on May 29, 2020.

(b) Estimated dividend in dollars includes the first quarterly interim ADR dividend of \$0.72 paid in October 2019 and the second quarterly interim ADR dividend of \$0.73 paid in January 2020, as well as the third quarterly interim ADR dividend of \$0.75 payable in April 2020 and the proposed final interim ADR dividend of \$0.75 payable in July 2020. The third quarterly interim ADR dividend of \$0.75 payable in April 2020 and the proposed final interim ADR dividend of \$0.75 payable in July 2020 were both converted at a rate of \$1.11/€.

(c) The number of common shares shown has been used to calculate per share amounts.

3.2 Risk factors

The Group conducts its activities in an ever-changing environment. It is exposed to risks that, if they were to occur, could have a material adverse effect on its business, financial condition, reputation, outlook, or the TOTAL S.A.'s share price. Points 3.1.1 ("Environmental parameters") to 3.1.6 ("Innovation") of chapter 3 of the Universal Registration Document 2019 (starting on page 83), which are incorporated herein by reference, present the significant risk factors specific to the Group, to which it believes it is exposed as of the filing date of this annual report on Form 20-F. However, the Group may be exposed to other non-specific risks, or of which it may not be aware, or which it may be underestimating the potential consequences of, or other risks that may not have been considered by the Group as being likely to have a material adverse impact on the Group, its business, financial condition, reputation or outlook.

For additional information on the risks to which TOTAL believes it is exposed as of the filing date of this annual report on Form 20-F, along with TOTAL's approaches to managing certain of these risks, please refer to "Item 5. Operating and financial review and prospects" and "Item 11. Quantitative and qualitative disclosures about market risk", as well as points 3.3 ("Internal control and risk management procedures") and 3.6 ("Vigilance Plan") of chapter 3 (starting on pages 93 and 102, respectively) of the Universal Registration Document 2019, which are incorporated herein by reference.

ITEM 4. INFORMATION ON THE COMPANY

The following information providing an integrated overview of the Group from the Universal Registration Document 2019 is incorporated herein by reference:

- presentation of the Group and its governance (points 1.1 and 1.5 of chapter 1, starting on pages 4 and 18 respectively);
- the Group's collective ambition and strategy (point 1.2 of chapter 1, on page 7);
- history, employees, integrated business model and geographic presence (point 1.3 of chapter 1, starting on page 8);
- an overview of the Group's R&D, investment policy and sustainable development initiatives (point 1.4 of chapter 1, on page 14); and
- organizational structure (points 1.5.2 and 1.5.3 of chapter 1, starting on page 20).

The following information providing an overview of the Group's businesses and activities from the Universal Registration Document 2019 is incorporated herein by reference:

- business overview for fiscal year 2019 (points 2.1 to 2.5 of chapter 2, starting on page 32);
- information concerning the Group's principal capital expenditures and divestitures (point 2.6 of chapter 2, starting on page 74). See also "Item 5. Operating and financial review and prospects"; and
- geographical breakdown of the Group's sales, property, plants and equipment, intangible assets and capital expenditures over the past three years (Note 4 to the Consolidated Financial Statements, on page 308).

The following other information from the Universal Registration Document 2019 is incorporated herein by reference:

- insurance policy (point 3.4 of chapter 3, starting on page 100);
- non-financial performance (points 5.1 to 5.11 of chapter 5, starting on page 204); and
- investor relations (point 6.6 of chapter 6, starting on page 271).

ITEM 4A. UNRESOLVED STAFF COMMENTS

None.

ITEM 5. OPERATING AND FINANCIAL REVIEW AND PROSPECTS

This section is the Company's analysis of its financial performance and of significant trends that may affect its future performance. It should be read in conjunction with the Consolidated Financial Statements and the Notes thereto in the Universal Registration Document 2019 (starting on page 281), which are incorporated herein by reference. The Consolidated Financial Statements and the Notes thereto are prepared in accordance with IFRS as issued by the IASB and IFRS as adopted by the EU.

This section contains forward-looking statements that are subject to risks and uncertainties. For a list of important factors that could cause actual results to differ materially from those expressed in the forward-looking statements, see "Cautionary Statement Concerning Forward-Looking Statements" starting on page ii.

Critical accounting policies and standards applicable in the future

For an overview of TOTAL's critical accounting policies, including policies involving management's judgment and estimates and significant accounting policies applicable in the future, refer to the Introduction and Note 1.2 ("Significant accounting policies applicable in the future") of the Notes to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on pages 292 and 294, respectively), which is incorporated herein by reference.

5.1 Overview

TOTAL's results are affected by a variety of factors, including changes in crude oil and natural gas prices as well as refining and marketing margins, which are all generally expressed in dollars, and changes in exchange rates, particularly the value of the euro compared to the dollar. Higher crude oil and natural gas prices generally have a positive effect on the income of TOTAL, since the Exploration & Production segment's oil and gas business and Integrated Gas, Renewables & Power segment's downstream gas business are positively impacted by the resulting increase in revenues. Lower crude oil and natural gas prices generally have a corresponding negative effect. The effect of changes in crude oil prices on the activities of TOTAL's Refining & Chemicals and Marketing & Services segments depends upon the speed at which the prices of refined petroleum products adjust to reflect such changes. TOTAL's results are also significantly affected by the costs of its activities, in particular those related to exploration and production, and by the outcome of its strategic decisions with respect to cost reduction efforts. In addition, TOTAL's results are affected by general economic and political conditions and changes in governmental laws and regulations, as well as by the impact of decisions by OPEC on production levels. For more information, refer to "Item 3. - 3.2 Risk factors".

In 2019, the Group generated cash flow (DACF)⁽¹⁾ of \$28.5 billion, a strong growth of \$2.4 billion compared to 2018, due to a positive contribution from all segments. This performance was achieved despite the decrease in oil prices and European gas prices of respectively 10% and 38%, corresponding to a decrease of the price environment by approximately 20% on average in 2019. The Group reported solid adjusted net income for 2019 of \$11.8 billion, a decrease of 13%, and a return on equity above 10%. The Group reduced its pre-dividend organic cash breakeven to less than \$25/b.

In the Upstream⁽²⁾, start-ups and ramp-ups including Yamal LNG in Russia and Ichthys in Australia, Egina in Nigeria and Kaombo in Angola, generated strong cash flow and fueled production growth of 9% for the year, with an increase in LNG production of nearly 50%.

The Exploration & Production segment's cash flow⁽³⁾ increased to \$18 billion, despite the deterioration of the environment. The iGRP segment generated a cash flow⁽³⁾ of \$3.7 billion, an increase of 81% compared to 2018, mostly due to the increase in LNG sales of nearly 60%.

The Downstream⁽⁴⁾ generated a cash flow⁽³⁾ of \$6.6 billion, notably due to its non-cyclical activities and despite a decrease in refining and petrochemical margins of approximately 10% in 2019.

Net investments⁽⁵⁾ rose to \$17.4 billion and reflect in particular the strategy to strengthen LNG and deep offshore, as demonstrated by the acquisition of Mozambique LNG and the launch of Arctic LNG 2 in Russia and Mero 2 in Brazil. More than one-third of the Group's 2019 net investments were made in the iGRP segment, which leads the Group's low carbon ambition. The Group enters the gas and renewables market in India in partnership with Adani and will build a giant 800 MW solar power plant in Qatar.

In 2019, the Group maintained a solid financial position with gearing⁽⁶⁾ ratio of 16.7% excluding capitalized leases (20.7% including).

In accordance with the decision of the board of directors of TOTAL S.A. announced on September 24, the Group increased the 2019 final dividend by 6% to €0.68 per share. Including the interim dividends, the full-year 2019 dividend increased by 5% to €2.68 per share. Finally, the Group bought back \$1.75 billion of its shares in 2019.

Outlook

The environment remains volatile, given the uncertainty about hydrocarbon demand related to the outlook for global economic growth and a context of geopolitical instability.

The Covid-19 epidemic that began in December 2019, in China, has been impacting demand since the beginning of the first quarter 2020 and has caused oil prices to fall significantly.

In this context of oversupply, the decision on March 6, 2020 by OPEC and Russia to stop their cooperation on the markets caused crude oil prices to fall sharply, by around 30%.

A decrease in the average sales price of liquids of 10 dollars per barrel results over a quarter in a decrease of an adjusted net operating income of approximately \$725 million and a decrease in cash flow from operating activities of approximately \$825 million.

Despite the uncertainties related to Covid-19 and oil supply policies, the Group's fundamentals remain strong.

The Group has an organic cash break-even less than 25 \$/b and a controlled level of debt (gearing excluding leases of 17% as at December 31, 2019). Since 2015, it has implemented a spending discipline policy and announced in September 2019 the extension of its savings programs beyond 2020. In addition, it has flexibility on its investment programs since almost 20% of the upstream CAPEX are short cycle capex, i.e. flexible in the short term.

The Group expects to continue to implement its strategy for profitable growth on the integrated gas and low-carbon electricity chains. LNG sales are expected to benefit, notably in 2020, from the start-ups of Yamal LNG train 4 as well as Cameron LNG train 3 and are expected to be higher than 30 million tons per year.

(1) Cash flow refers to DACF. "DACF" = debt adjusted cash flow, is defined as cash flow from operating activities before changes in working capital at replacement cost, without financial charges.

(2) The Group Upstream hydrocarbons activities include the oil and gas exploration and production activities of the Exploration & Production and the Integrated Gas, Renewables & Power segments. They do not include power generation facilities based on renewable sources or natural gas such as combined-cycle natural gas power plants.

(3) Operating cash flow before working capital changes is defined as cash flow from operating activities before changes in working capital at replacement cost, without financial charges except those related to leases.

(4) Refining & Chemicals and Marketing & Services segments.

(5) Net investments = organic investments + net acquisitions.

(6) "Gearing" refers to the net-debt-to-capital-ratio. "Net-debt-to-capital-ratio" = net debt / (net debt + shareholders' equity). For additional information, refer to Note 15.1 (E) ("Net-debt-to-capital ratio") to the Consolidated Financial Statements in the Universal Registration Document 2019 (on page 357), which is incorporated herein by reference.

As such, in an environment of 60\$/b, the Group's cash-flow would be increasing approximately 1 billion dollars per year starting from 2019.

Spending discipline is maintained and the Group continues its cost reduction program with an objective of more than \$5 billion in cumulative savings in 2020. In a 60 \$/b environment, net investments⁽⁷⁾ in 2020 would be in the range of \$18 billion, with the Group expecting to complete its \$5 billion asset sale program over the years 2019-2020 (~\$3 billion were already announced).

Organic production growth is expected to be above 2% in 2020, due to ramp-ups of projects started in 2019 and expected start-ups in 2020, notably Iara 2 in Brazil. However, the exportations in Libya have stopped since mid-February; if this situation were to continue over the full year, it would impact almost 2% of the growth in annual production.

Since the start of the fourth quarter 2019 until the OPEC decision on March 6, 2020, global refining margins were weak as a result of high product inventories and oil prices supported by OPEC. These margins increased, however, following the sharp drop in the price of oil. The Downstream will continue to rely on its diversified portfolio, notably its integrated platforms in the Refining & Chemicals segment as well as its non-cyclical businesses.

5.2 Group results 2017-2019

As of and for the year ended December 31 (in millions of dollars, except per share data)	2019	2018	2017
Non-Group sales	200,316	209,363	171,493
Adjusted net operating income from business segments ^(a)			
• Exploration & Production ^(b)	7,509	8,547	4,541
• Integrated Gas, Renewables & Power ^(b)	2,389	2,419	1,929
• Refining & Chemicals	3,003	3,379	3,790
• Marketing & Services	1,653	1,652	1,676
Net income (loss) from equity affiliates	3,406	3,170	2,015
Fully-diluted earnings per share (\$)	4.17	4.24	3.34
Fully-diluted weighted-average shares (millions)	2,618	2,624	2,495
Net income (Group share)	11,267	11,446	8,631
Organic investments ^(c)	13,397	12,427	14,395
Net acquisitions ^(d)	4,052	3,141	(2,759)
Net investments ^(e)	17,449	15,568	11,636
Cash flow from operations	24,685	24,703	22,319
Of which:			
• (increase)/decrease in working capital ^(f)	(1,718)	769	827
• financial charges	(2,069)	(1,538)	(1,048)

2019 data take into account the impact of the new rule IFRS 16 "Leases", effective January 1, 2019.

- (a) Adjusted results are defined as income using replacement cost, adjusted for special items, excluding the impact of changes in fair value. See "5.3 Business segment reporting" below for further details.
- (b) 2018 and 2017 data restated to reflect the new reporting structure for the business segments' financial information, effective January 1, 2019.
- (c) "Organic investments" = net investments excluding acquisitions, divestments and other operations with non-controlling interests. For additional information on investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference.
- (d) "Net acquisitions" = acquisitions - assets sales - other operations with non-controlling interests.
- (e) "Net investments" = organic investments + net acquisitions. For additional information on investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference.
- (f) The change in working capital as determined using the replacement cost method was \$(1,747) million in 2019 and \$174 in 2018. For information on the replacement cost method, refer to Note 3 ("Business segment information") to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference.

Environment - liquids and gas price realizations ^(a) , refining margins	2019	2018	2017
Brent (\$/b)	64.2	71.3	54.2
Henry Hub (\$/Mbtu)	2.5	3.1	3.0
NBP (\$/Mbtu) ^(b)	4.9	7.9	5.9
JKM (\$/Mbtu) ^(c)	5.5	9.7	7.1
Average liquids price (\$/b)	59.8	64.3	49.9
Average gas price (\$/Mbtu)	3.88	4.87	4.09
Variable cost margin – European refining, VCM ^(d) (\$/t)	34.9	38.2	45.6

- (a) Consolidated subsidiaries.
- (b) NBP (National Balancing Point) is a virtual natural gas trading point in the United Kingdom for transferring rights in respect of physical gas and which is widely used as a price benchmark for the natural gas markets in Europe. NBP is operated by National Grid Gas plc, the operator of the UK transmission network.
- (c) JKM (Japan-Korea Marker) measures the prices of spot LNG trades in Asia. It is based on prices reported in spot market trades and/or bids and offers collected after the close of the Asian trading day at 16:30 Singapore time.
- (d) VCM (variable cost margin - Refining Europe) represents the average margin on variable costs realized by the Group's European refining business (equal to the difference between the sales of refined products realized by the Group's European refining and the crude purchases as well as associated variable costs, divided by refinery throughput in tons). The previous ERMI indicator was intended to represent the margin after variable costs for a hypothetical complex refinery located around Rotterdam in Northern Europe that processes a mix of crude oil and other inputs commonly supplied to this region to produce and market the main refined products at prevailing prices in this region.

(7) Net investments = organic investments + net acquisitions.

Hydrocarbon production	2019	2018	2017
Combined production (kb/d)	3,014	2,775	2,566
• Oil (including bitumen) (kb/d)	1,431	1,378	1,167
• Gas (including condensates and associated NGL) (kboe/d)	1,583	1,397	1,399

Hydrocarbon production	2019	2018	2017
Combined production (kboe/d)	3,014	2,775	2,566
• Liquids (kb/d)	1,672	1,566	1,346
• Gas (Mcf/d)	7,364	6,599	6,662

For a discussion of the Group's proved reserves, refer to point 2.3.1 ("Hydrocarbons reserves") of chapter 2 of the Universal Registration Document 2019 (starting on page 49), which is incorporated herein by reference. See also point 9.1 ("Oil and gas information pursuant to FASB Accounting Standards Codification 932") of chapter 9 of the Universal Registration Document 2019 (starting on page 402), which is incorporated herein by reference, for additional information on proved reserves, including tables showing changes in proved reserves by region.

2019 vs. 2018

In 2019, market conditions were less favorable than in 2018. The Brent price decreased to \$64.2/b on average in 2019 from \$71.3/b on average in 2018, while remaining volatile. In 2019, TOTAL's average liquids price realization⁽⁸⁾ decreased by 7% to \$59.8 in 2019 from \$64.3/b in 2018. TOTAL's average gas price realization⁽⁸⁾ decreased by 20% to \$3.88/Mbtu in 2019 from \$4.87/Mbtu in 2018. The Group's European refining variable cost margin ("VCM") decreased by 9% to \$34.9/t on average in 2019 compared to \$38.2/t in 2018, mainly due to decreasing crude oil prices.

For the full-year 2019, hydrocarbon production was 3,014 kboe/d, an increase of 9% compared to 2,775 in 2018, due to:

- +13% related to the start-up and ramp-up of new projects, including Yamal LNG in Russia, Egina in Nigeria, Ichthys in Australia, Kaombo in Angola, Culzean in the United Kingdom and Johan Sverdrup in Norway;
- -3% due to the natural decline of the fields; and
- -1% due to maintenance, notably in Nigeria, Norway and the Tyra redevelopment project in Denmark.

The euro-dollar exchange rate averaged \$1.1195/€ in 2019, compared to \$1.1810/€ in 2018.

Non-Group sales were \$200,316 million in 2019 compared to \$209,363 million in 2018, a decrease of 4% reflecting the decreased hydrocarbon prices, partially offset by the increase of the Group's production in 2019. In 2019, Non-Group sales decreased by 27% for the Exploration & Production segment, 5% for the Refining & Chemicals segment and 3% for the Marketing & Services segment. The Integrated Gas, Renewables & Power segment's Non-Group sales increased by 5% in 2019.

Net income (Group share) decreased by 2% to \$11,267 million in 2019 compared to \$11,446 million in 2018, mainly due to lower hydrocarbon prices, partially offset by growth of the Group's hydrocarbon production. In 2019, adjustments to net income (Group share), which include the after-tax inventory effect, special items and the impact of changes in fair value, had a negative impact of \$561 million mainly due to impairments on assets mainly located in the United States (Utica, Chinook). For a detailed overview of adjustment items for 2019, refer to Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference. In 2018, adjustments to net income (Group share), which include the after-tax inventory effect, special items and the impact of changes in fair value, had a negative impact of \$2,113 million, mainly due to an inventory effect and an impairments on Ichthys related to the sale of a partial interest by the Group, as well as the impairment of production facilities by SunPower⁽⁹⁾.

Income taxes in 2019 amounted to \$5,872 million, a decrease of 9.9% compared to \$6,516 in 2018, due to the relative weight and lower tax rates in the Upstream and a lower hydrocarbon price environment.

In 2019, the Company bought back 52,389,336 TOTAL shares on the market, i.e. 2.01% of the Company's outstanding share capital as of December 31, 2019. See also "- 5.4.4 Shareholders' equity", below. In 2018, the Company bought back 72,766,481 TOTAL shares on the market, i.e., 2.76% of the Company's outstanding share capital as of December 31, 2018.

Fully-diluted earnings per share was \$4.17 in 2019 compared to \$4.24 in 2018, a decrease of 2%.

Asset sales completed were \$1,939 million for the full-year 2019, comprised notably of the payment received upon the take-over of the Toshiba LNG portfolio in the United States, the sale of the interest in the Wepec refinery in China, the sale of the Group's interest in the Hazira terminal in India and polystyrene activities in China. Asset sales completed were \$5,172 million for the full-year 2018, comprised of the sale of a 4% interest in the Ichthys project in Australia and the sale of the Group's share of the LNG re-gas terminal at Dunkirk, as well as the sale of Joslyn in Canada, Rabi in Gabon, the Martin Linge and Visund fields in Norway, an interest in Fort Hills in Canada, SunPower's sale of its interest in 8point3, the marketing activities of TotalErg in Italy, the Marketing & Services network in Haiti, and the contribution of the Bayport polyethylene unit in the United States to the joint venture formed with Borealis and Nova in which TOTAL holds 50%.

Acquisitions⁽¹⁰⁾ completed were \$5,991 million for the full-year 2019, comprised mainly of the acquisition of Anadarko's interest in Mozambique LNG, the acquisition of a 10%-stake in the Arctic LNG 2 project in Russia and the acquisition of Chevron's

(8) Consolidated subsidiaries, excluding stock value variation.

(9) As at December 31, 2019, TOTAL held an interest of 46.74% in SunPower. As at December 31, 2018, TOTAL held an interest of 55.66% in SunPower, an American company listed on NASDAQ and based in California.

(10) Acquisitions net of operations with non-controlling interests.

interest in the Danish Underground Consortium in Denmark. Acquisitions⁽¹⁰⁾ completed were \$8,314 million for the full-year 2018, including \$4,493 million in resource acquisitions⁽¹¹⁾, comprised of the extension of licenses in Nigeria and the acquisition of a network of service stations in Brazil, as well as notably the acquisitions of Direct Énergie, Engie's LNG business, the increase in the share of Novatek to 19.4%, interests in the Iara and Lapa fields in Brazil, two new 40-year offshore concessions in Abu Dhabi, which follow the previous Abu Dhabi Marine Areas Ltd (ADMA) offshore concession, and the acquisition of offshore assets from Cobalt in the Gulf of Mexico.

The Group's cash flow from operating activities for the full-year 2019 was \$24,685 million compared to \$24,703 million for the full-year 2018. The change in working capital at replacement cost for the full-year 2019, which is the increase in working capital of \$1,718 million as determined in accordance with IFRS adjusted for the pre-tax inventory valuation effect of \$446 million, was \$1,272 million, compared to \$174 million for the full-year 2018. Operating cash flow excluding the change in working capital at replacement cost for the full-year 2019 was \$26,432 million⁽¹²⁾, an increase of 8% compared to \$24,529 million for the full-year 2018. Operating cash flow excluding the change in working capital at replacement cost and excluding financial charges (DACF) for the full-year 2019 was \$28,501 million, an increase of 9% compared to \$26,067 million for the full-year 2018. The Group's net cash flow⁽¹³⁾ remained stable in 2019 at \$8,983 million for the full-year 2019, compared to 8,961 for the full-year 2018. The start-up of strong cash flow generating projects such as Yamal LNG in Russia, Ichthys in Australia, Kaombo in Angola and Egina in Nigeria offset the impact of lower Brent and gas prices.

See also "- 5.4 Liquidity and Capital Resources", below.

2018 vs. 2017

In 2018, market conditions were more favorable than in 2017. The Brent price rose to \$71.3/b on average in 2018 from \$54.2/b in 2017, while remaining volatile. In 2018, TOTAL's average liquids price realization⁽¹⁴⁾ increased by 28% to \$64.2/b in 2018 from \$50.2/b in 2017. TOTAL's average gas price realization⁽¹⁴⁾ increased by 19% to \$4.87/Mbtu in 2018 from \$4.09/Mbtu in 2017. The Group's VCM Indicator decreased by 16% to \$38.2/t on average in 2018 compared to \$45.6/t in 2017.

For the full-year 2018, hydrocarbon production was 2,775 kboe/d, an increase of more than 8% compared to 2,566 in 2017, due to:

- +9% for start-ups and ramp-ups on new projects, notably Yamal LNG, Moho Nord, Fort Hills, Kashagan, Kaombo Norte and Ichthys;
- +3% portfolio effect. The addition of Maersk Oil, Al Shaheen in Qatar, Waha in Libya, Lapa and Iara in Brazil as well as the acquisition of an additional 0.5% of Novatek were partially offset by the expiration of the Mahakam permit at the end of 2017 and the sales of Visund in Norway and Rabi in Gabon; and
- -4% for natural field declines and PSC price effect⁽¹⁵⁾.

The euro-dollar exchange rate averaged \$1.1810/€ in 2018, compared to \$1.1297/€ in 2017.

Non-Group sales were \$209,363 million in 2018 compared to \$171,493 million in 2017, an increase of 22% reflecting the increased hydrocarbon prices and Group production. Non-Group sales increased by 52% for the Exploration & Production segment, 16% for the Integrated Gas, Renewables & Power segment, 22% for the Refining & Chemicals segment and 21% for the Marketing & Services segment.

Net income (Group share) in 2018 increased by 33% to \$11,446 million in 2018 compared to \$8,631 million in 2017, mainly due to higher hydrocarbon prices and growth of the Group's production. Adjustments to net income (Group share), which include the after-tax inventory effect, special items and the impact of changes in fair value, had a negative impact of \$2,113 million in 2018, mainly due to an inventory effect and impairments on Ichthys related to the sale of a partial interest by the Group, as well as the impairment of production facilities by SunPower⁽¹⁶⁾. For a detailed overview of adjustment items for 2018, refer to Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference. In 2017, adjustments to net income (Group share), which included special items of \$(2,213) million and after-tax inventory valuation effect of \$282 million, had a negative impact on net income (Group share) of \$1,947 million. Special items in 2017 included mainly impairments of Fort Hills in Canada (following the operator announcement of the increase of the project's costs), Gladstone LNG in Australia and assets in Congo, partially offset by a gain on the sale of Atotech. Excluding these items, adjusted net income increased by 28% to \$13,559 million in 2018, compared to \$10,578 million in 2017, in line with the contribution from the segments.

Income taxes in 2018 amounted to \$6,516 million, 2.2 times higher than \$3,029 million in 2017, due to the relative weight and higher tax rates in the Exploration & Production segment in a higher hydrocarbon price environment.

(11) "Resource acquisitions" = acquisition of a participating interest in an oil and gas mining property by way of an assignment of rights and obligations in the corresponding permit or license and related contracts, with a view to producing the recoverable oil and gas.

(12) Operating cash flow before working capital changes is defined as cash flow from operating activities before changes in working capital at replacement cost.

(13) Net cash flow = operating cash flow before working capital changes - net investments (including other transactions with non-controlling interests).

(14) Consolidated subsidiaries, excluding stock value variation.

(15) The "PSC price effect" refers to the impact of changing hydrocarbon prices on entitlement volumes from production sharing and buyback contracts. For example, as the price of oil or gas increases above certain pre-determined levels, TOTAL's share of production generally decreases.

(16) As at December 31, 2019, TOTAL held an interest of 46.74% in SunPower. As at December 31, 2018, TOTAL held an interest of 55.66% in SunPower, an American company listed on NASDAQ and based in California.

In 2018, the Company bought back 72,766,481 TOTAL shares on the market, i.e., 2.76% of the Company's outstanding share capital as of December 31, 2018. See also "5.4.4 Shareholders' equity", below. In 2017, the Company did not buy back any shares.

Fully-diluted earnings per share was \$4.24 in 2018 compared to \$3.34 in 2017, an increase of 27%.

Asset sales completed were \$5,172 million for the full-year 2018, comprised mainly of the sale of a 4% interest in the Ichthys project in Australia and the sale of the Group's share of the LNG re-gas terminal at Dunkirk, as well as the sale of Joslyn in Canada, Rabi in Gabon, the Martin Linge and Visund fields in Norway, an interest in Fort Hills in Canada, SunPower's sale of its interest in 8point3, the marketing activities of TotalErg in Italy, the Marketing & Services network in Haiti, and the contribution of the Bayport polyethylene unit in the United States to the joint venture formed with Borealis and Nova in which TOTAL holds 50%. Asset sales were \$4,239 million in 2017.

Acquisitions completed were \$8,314 million for the full-year in 2018, including \$4,493 million in resource acquisitions, comprised of the extension of licenses in Nigeria and the acquisition of a network of service stations in Brazil, as well as notably the acquisitions of Direct Énergie, Engie's LNG business, the increase in the share of Novatek to 19.4%, interests in the Iara and Lapa fields in Brazil, two new 40-year offshore concessions in Abu Dhabi, which follow the previous Abu Dhabi Marine Areas Ltd (ADMA) offshore concession, and the acquisition of offshore assets from Cobalt in the Gulf of Mexico. Acquisitions⁽¹⁷⁾ were \$1,476 million in 2017, including \$714 million in resource acquisitions.

The Group's cash flow from operating activities for the full-year 2018 was \$24,703 million, an increase of 11% compared to \$22,319 million for the full-year 2017. The change in working capital at replacement cost for the full-year 2018, which is the decrease in working capital of \$769 million as determined in accordance with IFRS adjusted for the pre-tax inventory valuation effect of \$(595) million, was \$174 million compared to \$1,184 million for the full-year 2017. Operating cash flow excluding the change in working capital at replacement cost for the full-year 2018 was \$24,529 million, an increase of 16% compared to \$21,135 million for the full-year 2017. Operating cash flow excluding the change in working capital at replacement cost and excluding financial charges (DACF) for the full-year 2018 was \$26,067 million, an increase of 18% compared to \$22,183 million for the full-year 2017. The Group's net cash flow⁽¹⁸⁾ was \$8,961 million for the full-year 2018 compared to \$9,499 million for the full-year 2017, due to an increase of \$3,932 million in net investments partially offset by a \$3,394 million increase in operating cash flow before changes in working capital.

See also "5.4 Liquidity and Capital Resources", below.

5.3 Business segment reporting

The financial information for each business segment is reported on the same basis as that used internally by the chief operating decision-maker in assessing segment performance and the allocation of segment resources. Due to their particular nature or significance, certain transactions qualifying as "special items" are excluded from the business segment figures. In general, special items relate to transactions that are significant, infrequent or unusual. In certain instances, certain transactions such as restructuring costs or asset disposals, which are not considered to be representative of the normal course of business, may qualify as special items although they may have occurred in prior years or are likely to recur in following years.

In accordance with IAS 2, the Group values inventories of petroleum products in its financial statements according to the First-In, First-Out (FIFO) method and other inventories using the weighted-average cost method. Under the FIFO method, the cost of inventory is based on the historic cost of acquisition or manufacture rather than the current replacement cost. In volatile energy markets, this can have a significant distorting effect on the reported income. Accordingly, the adjusted results of the Refining & Chemicals and Marketing & Services segments are presented according to the replacement cost method in order to facilitate the comparability of the Group's results with those of its competitors and to help illustrate the operating performance of these segments excluding the impact of oil price changes on the replacement of inventories. In the replacement cost method, which approximates the Last-In, First-Out (LIFO) method, the variation of inventory values in the statement of income is, depending on the nature of the inventory, determined using either the month-end price differential between one period and another or the average prices of the period. The inventory valuation effect is the difference between the results under the FIFO and replacement cost methods.

The effect of changes in fair value presented as an adjustment item reflects, for trading inventories and storage contracts, differences between internal measures of performance used by TOTAL's management and the accounting for these transactions under IFRS, which requires that trading inventories be recorded at their fair value using period-end spot prices. In order to best reflect the management of economic exposure through derivative transactions, internal indicators used to measure performance include valuations of trading inventories recorded at their fair value based on forward prices. Furthermore, TOTAL, in its trading activities, enters into storage contracts, the future effects of which are recorded at fair value in the Group's internal economic performance. IFRS, by requiring accounting for storage contracts on an accrual basis, precludes recognition of this fair value effect.

The adjusted business segment results (adjusted operating income and adjusted net operating income) are defined as replacement cost results, adjusted for special items, excluding the effect of changes in fair value. For further information on the adjustments affecting operating income on a segment-by-segment basis, and for a reconciliation of segment figures to figures reported in the Company's audited Consolidated Financial Statements, see Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference.

The Group measures performance at the segment level on the basis of adjusted net operating income. Net operating income comprises operating income of the relevant segment after deducting the amortization and the depreciation of intangible assets other than leasehold rights, translation adjustments and gains or losses on the sale of assets, as well as all other income and

(17) Acquisitions net of operations with non-controlling interests.

(18) Net cash flow = cash flow from operating activities before working capital changes at replacement costs – net investments (including other transactions with non-controlling interests).

expenses related to capital employed (dividends from non-consolidated companies, income from equity affiliates and capitalized interest expenses) and after income taxes applicable to the above. The income and expenses not included in net operating income that are included in net income are interest expenses related to long-term liabilities net of interest earned on cash and cash equivalents, after applicable income taxes (net cost of net debt and non-controlling interests). Adjusted net operating income excludes the effect of the adjustments (special items and the inventory valuation effect) described above. For further discussion of the calculation of net operating income and the calculation of return on average capital employed (ROACE⁽¹⁹⁾), see Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference.

The profitable growth in the gas and low carbon electricity integrated value chains is one of the key axes of TOTAL's strategy. In order to give more visibility to these businesses, a new reporting structure for the business segments' financial information has been implemented effective January 1, 2019. The organization of the Group's activities is structured around the following four segments: Exploration & Production (EP), Integrated Gas, Renewables & Power (iGRP - comprising TOTAL's integrated gas (including LNG) and low carbon electricity businesses and the upstream and midstream LNG activity that was previously reported in the EP segment), Refining & Chemicals and Marketing & Services. Certain figures for the years 2017 and 2018 have been restated in order to reflect the new reporting structure for the business segments' financial information.

5.3.1 Exploration & Production segment

Hydrocarbon production	2019	2018	2017
EP (kbl/d)	2,454	2,394	2,165
• Liquids (kbl/d)	1,601	1,527	1,298
• Gas (Mcf/d)	4,653	4,724	4,728
<hr/>			
Results (in millions of dollars except effective tax rate and ROACE)	2019	2018	2017
Non-Group sales	7,261	9,889	6,527
Operating income ^(a)	10,542	12,502	2,290
Net income (loss) from equity affiliates and other items	610	1,365	657
Effective tax rate ^(b)	41.5%	46.2%	40.5%
Tax on net operating income	(4,572)	(5,770)	(1,836)
Net operating income ^(a)	6,580	8,097	1,111
Adjustments affecting net operating income	929	450	3,430
Adjusted net operating income ^(c)	7,509	8,547	4,541
• of which income from equity affiliates	996	1,140	827
Organic investments ^(d)	8,635	7,953	9,110
Net acquisitions ^(e)	14	2,162	(896)
Net investments ^(f)	8,649	10,115	8,214
ROACE	8.4%	9.9%	5.5%

(a) For the definitions of "operating income" and "net operating income", refer to Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference.

(b) "Effective tax rate" = tax on adjusted net operating income/(adjusted net operating income - income from equity affiliates - dividends received from investments - impairment of goodwill + tax on adjusted net operating income).

(c) Adjusted for special items, inventory valuation effect and the effect of changes in fair value. See Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference.

(d) "Organic investments" = net investments excluding acquisitions, divestments and other operations with non-controlling interests. For additional information on investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference.

(e) "Net acquisitions" = acquisitions - assets sales - other operations with non-controlling interests.

(f) "Net investments" = organic investments + net acquisitions. For additional information on investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference.

2019 vs. 2018

Non-Group sales for the EP segment in 2019 were \$7,261 million compared to \$9,889 million in 2018, a decrease of 27%.

The EP segment's adjusted net operating income was \$7,509 million in 2019, a decrease of 12% compared to \$8,547 million in 2018, due to the decrease in hydrocarbon prices, despite strong production growth.

The effective tax rate decreased from 46.2% in 2018 to 41.5% in 2019, in line with the decrease in oil prices.

Adjusted net operating income for the EP segment excludes special items. In 2019, the exclusion of special items had a positive impact of \$929 million on the EP segment's adjusted net operating income (for additional information, refer to Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference). In 2018, the exclusion of special items had a positive impact on the EP segment's adjusted net operating income of \$450 million due to impairments on assets located mainly in Algeria, Colombia and Congo (for additional information, refer to Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296)).

(19) "ROACE" = ratio of adjusted net operating income to average capital employed at replacement cost between the beginning and the end of the period.

In 2019, the EP segment's cash flow from operating activities excluding financial charges, except those related to leases was \$16,917 million, a decrease of 9% compared to \$18,537 for the full-year 2018. In 2019, the EP segment's operating cash flow excluding the change in working capital at replacement cost⁽²⁰⁾ and excluding financial charges, except those related to leases was \$18,030 million, an increase of 1% compared to \$17,832 million for the full-year 2018. The start-up of strong cash flow generating projects offset the impact of lower Brent and gas prices.

For additional information on the EP segment's capital expenditures, refer to points 2.3.2 ("Exploration") (on page 50) and 2.6 ("Investments") (starting on page 74) of chapter 2 of the Universal Registration Document 2019, which are incorporated herein by reference. See also "- 5.4 Liquidity and Capital Resources", below.

In this context, the EP segment's ROACE for the full-year 2019 was 8.4% compared to 9.9% for the full-year 2018.

2018 vs. 2017

Non-Group sales for the EP segment in 2018 were \$9,889 million compared to \$6,527 million in 2017, an increase of 51%.

The EP segment's adjusted net operating income was \$8,547 million in 2018, an increase of 88% compared to \$4,541 million in 2017, mainly due to the increase in hydrocarbon prices, despite a tax rate that increased in line with the increase in hydrocarbon prices, and strong production growth.

The effective tax rate increased from 40.5% in 2017 to 46.2% in 2018, in line with the increase in oil prices.

Adjusted net operating income for the EP segment excludes special items. In 2018, the exclusion of special items had a positive impact on the segment's adjusted net operating income of \$450 million due to impairments on assets located mainly in Algeria, Colombia and Congo (for additional information, refer to Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference). In 2017, the exclusion of special items had a positive impact on the segment's adjusted net operating income of \$3,430 million. Special items mainly included impairments of Fort Hills in Canada (following the operator announcement of the increase of the project's costs), assets in the Republic of the Congo and gas assets in the United Kingdom, as well as assets in the United States and Norway.

In 2018, the EP segment's cash flow from operating activities excluding financial charges, except those related to leases was \$18,537 million, an increase of 73% compared to \$10,719 million for the full-year 2017. In 2018, the EP segment's operating cash flow excluding the change in working capital at replacement cost and excluding financial charges, except those related to leases was \$17,832 million, an increase of 39.7% compared to \$12,758 million for the full-year 2017.

For information on the EP segment's capital expenditures, refer to points 2.3.2 ("Exploration") (on page 50) and 2.6 ("Investments") (starting on page 74) of chapter 2 of the Universal Registration Document 2019, which are incorporated herein by reference. See also "- 5.4 Liquidity and Capital Resources", below.

In this context, the EP segment's ROACE for the full-year 2018 was 9.9% compared to 5.5% for the full-year 2017.

5.3.2 Integrated Gas, Renewables & Power segment

Hydrocarbon production	2019	2018	2017
IGRP (kboe/d)	560	381	401
• Liquids (kb/d)	71	39	48
• Gas (Mcf/d)	2,711	1,875	1,935
LNG (in Mt)	2019	2018	2017
Overall LNG sales	34.3	21.8	15.6
• including sales from equity production*	16.3	11.1	11.2
• including sales by TOTAL from equity production and third-party purchases	27.9	17.1	7.6

*The Group's equity production may be sold by TOTAL or by joint ventures

Results (in millions of dollars except ROACE)	2019	2018	2017
Non-Group sales	18,167	17,236	14,804
Operating income ^(a)	1,184	(72)	226
Net income (loss) from equity affiliates and other items	2,330	1,639	920
Tax on net operating income	(741)	(471)	(537)
Net operating income ^(a)	2,773	1,096	609
Adjustments affecting net operating income	(384)	1,323	1,320
Adjusted net operating income ^(b)	2,389	2,419	1,929
• of which income from equity affiliates	1,009	1,249	804
Organic investments ^(c)	2,259	1,745	2,553
Net acquisitions ^(d)	3,921	1,701	845
Net investments ^(e)	6,180	3,445	3,398
ROACE	6.3%	7.5%	6.5%

(a) For the definitions of "operating income" and "net operating income", refer to Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference.

(b) Adjusted for special items, inventory valuation effect and the effect of changes in fair value. See Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference.

(c) "Organic investments" = net investments excluding acquisitions, divestments and other operations with non-controlling interests. For additional information on investments, refer to point 2.6 of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference.

(d) "Net acquisitions" = acquisitions - assets sales - other operations with non-controlling interests.

(e) "Net investments" = organic investments + net acquisitions. For additional information on investments, refer to point 2.6 of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference.

(20) Operating cash flow excluding the change in working capital at replacement cost provides information on underlying cash flow without the short-term impacts of changes in inventory and other working capital elements at replacement cost. For information on the replacement cost method, refer to Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference.

2019 vs. 2018

Production growth in 2019 was essentially related to the start-up of Ichthys in Australia in the third quarter of 2018 and the successive start-ups of Yamal LNG trains in Russia and the start-up of the first Cameron LNG train in the United States in the second quarter of 2019.

In 2019, LNG sales increased by 57% compared to 2018 for the same reasons and the acquisition of the Engie portfolio of LNG contracts in the third quarter of 2018.

Non-Group sales for the Integrated Gas, Renewables & Power segment in 2019 were \$18,167 million compared to \$17,236 million in 2018, an increase of 5%.

The iGRP segment's adjusted net operating income was \$2,389 million in 2019, a decrease of 1% compared to \$2,419 million in 2018, impacted by lower gas prices in Europe and Asia as well as higher depreciation, depletion and amortization expenses on new projects such as Ichthys in Australia and Yamal LNG in Russia.

Adjusted net operating income for the iGRP segment excludes special items. In 2019, the exclusion of special items had a negative impact of \$384 million on the iGRP segment's adjusted net operating income (for additional information, refer to Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296)). In 2018, the exclusion of special items had a positive impact on the segment's adjusted net operating income of \$1,323 million. Special items included impairments on Ichthys related to the sale of a partial interest by the Group and the impairment of production facilities by SunPower (for additional information, refer to Note 3(D) to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 306), which is incorporated herein by reference).

In 2019, the iGRP segment's cash flow from operating activities excluding financial charges, except those related to leases was \$3,461 million, compared to \$596 million for the full-year 2018 due to strong increases in production and LNG sales. In 2019, the iGRP segment's operating cash flow excluding the change in working capital at replacement cost and excluding financial charges, except those related to leases was \$3,730 million, an increase of 81% compared to \$2,055 million for the full-year 2018 due to strong increases in production and LNG sales.

For information on the segment's investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference. See also "5.4 Liquidity and Capital Resources", below.

In this context, the iGRP segment's ROACE for the full-year 2019 was 6.3% compared to 7.5% for the full-year 2018.

2018 vs. 2017

Non-Group sales for the iGRP segment in 2018 were \$17,236 million compared to \$14,804 million in 2017, an increase of 16%.

The iGRP segment's adjusted net operating income was \$2,419 million in 2018, 25% higher than \$1,929 million in 2017, notably due to the good performance of LNG and gas/power trading activities. The acquisitions of Direct Énergie and the LNG business of Engie account for the increase in investments to \$3.5 billion in the full-year 2018, 4.4 times higher than \$797 million in the full-year 2017.

Adjusted net operating income for the iGRP segment excludes special items. The exclusion of special items had a positive impact on the segment's adjusted net operating income in 2018 of \$1,323 million. Special items included impairments on Ichthys related to the sale of a partial interest by the Group and the impairment of production facilities by SunPower (for additional information, refer to Note 3(D) to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 306), which is incorporated herein by reference). In 2017, the exclusion of special items had a positive impact on the segment's adjusted net operating income of \$1,320 million.

The iGRP segment's cash flow from operating activities excluding financial charges, except those related to leases was for the full-year 2018 was \$596 million compared to \$3,157 million for the full-year 2017. The increase in working capital related to the consolidation of the acquisitions of Direct Énergie and the LNG business of Engie was mainly responsible for the negative cash flow from operations in the full-year 2018. The iGRP segment's operating cash flow excluding the change in working capital at replacement cost and excluding financial charges was \$2,055 million for the full-year 2018, a decrease of 10% compared to \$2,289 million for the full-year 2017.

For information on the iGRP segment's investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference. See also "5.4 Liquidity and Capital Resources", below.

In this context, the iGRP segment's ROACE for the full-year 2018 was 7.5% compared to 6.5% for the full-year 2017.

5.3.3 Refining & Chemicals segment

Refinery throughput and utilization rates ^(a)	2019	2018	2017
Total refinery throughput (kb/d)	1,671	1,852	1,827
• France	456	610	624
• Rest of Europe	754	755	767
• Rest of World	462	487	436
Utilization rates based on crude only ^(b)	80%	88%	88%

(a) Includes refineries in Africa reported in the Marketing & Services segment.

(b) Based on distillation capacity at the beginning of the year.

Results (in millions of dollars except ROACE)	2019	2018	2017
Non-Group sales	87,598	92,025	75,505
Operating income ^(a)	3,342	2,513	4,170
Net income (loss) from equity affiliates and other items	322	782	2,979
Tax on net operating income	(470)	(445)	(944)
Net operating income ^(a)	3,194	2,850	6,205
Adjustments affecting net operating income	(191)	529	(2,415)
Adjusted net operating income ^(b)	3,003	3,379	3,790
Organic investments ^(c)	1,426	1,604	1,625
Net acquisitions ^(d)	(44)	(742)	(2,711)
Net investments ^(e)	1,382	862	(1,086)
ROACE	26.3%	31%	33%

(a) For the definitions of "operating income" and "net operating income", refer to Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference.

(b) Adjusted for special items, inventory valuation effect and the effect of changes in fair value. See Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference.

(c) "Organic investments" = net investments excluding acquisitions, divestments and other operations with non-controlling interests. For additional information on investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference.

(d) "Net acquisitions" = acquisitions - assets sales - other operations with non-controlling interests.

(e) "Net investments" = organic investments + net acquisitions. For additional information on investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference.

2019 vs. 2018

Refinery throughput volumes decreased by 10% in 2019 notably due to the shutdown for nearly six months of Grandpuits in France.

Non-Group sales for the Refining & Chemicals segment in 2019 were \$87,598 million compared to \$92,025 million in 2018, a decrease of 5%.

Refining & Chemicals segment's adjusted net operating income was \$3,003 million for the full-year 2019, a decrease of 11% compared to \$3,379 million in 2018 notably due to a decrease of around 10% in refining and petrochemical margins as well as lower throughput.

Adjusted net operating income for the Refining & Chemicals segment excludes any after-tax inventory valuation effect and special items. In 2019, the exclusion of the inventory valuation effect had a negative impact of \$371 million on the Refining & Chemicals segment's adjusted net operating income, compared to a positive impact of \$413 million for the full-year 2018. In 2019, the exclusion of special items had a positive impact of \$180 million on the Refining & Chemicals segment's adjusted net operating income, compared to a positive impact of \$116 million for the full-year 2018.

In 2019, the Refining & Chemicals segment's cash flow from operating activities excluding financial charges, except those related to leases was \$3,837 million compared to \$4,308 million for the full-year 2018 due to a decrease of approximately 10% in refining and petrochemical margins as well as lower throughput. In 2019, the Refining & Chemicals segment's operating cash flow excluding the change in working capital at replacement cost and excluding financial charges, except those related to leases decreased by 7% compared to the full-year 2018, from \$4,388 million to \$4,072 due to a decrease of approximately 10% in refining and petrochemical margins as well as lower throughput.

For information on the Refining & Chemicals segment's investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference. See also "- 5.4 Liquidity and Capital Resources", below.

In this context, the Refining & Chemicals segment's ROACE for the full-year 2019 was 26.3% compared to 31% for the full-year 2018.

2018 vs. 2017

Refinery throughput was stable in full-year 2018 compared to full-year 2017. Lower throughput in Europe linked to planned maintenance, notably at Antwerp during the second quarter, was offset by higher throughput outside Europe.

Non-Group sales for the Refining & Chemicals segment in 2018 were \$92,025 million compared to \$75,505 million in 2017, an increase of 22%.

The Refining & Chemicals segment's adjusted net operating income was resilient at \$3,379 million for the full-year 2018, a decrease of 11% compared to \$3,790 million in 2017.

Adjusted net operating income for the Refining & Chemicals segment excludes any after-tax inventory valuation effect and special items. The exclusion of the inventory valuation effect had a positive impact on the segment's adjusted net operating income in 2018 of \$413 million compared to a negative impact of \$298 million in 2017. The exclusion of special items had a positive impact on the segment's adjusted net operating income in 2018 of \$116 million, compared to a negative impact of \$2,117 million in 2017.

In 2018, the Refining & Chemicals segment's cash flow from operating activities excluding financial charges was \$4,308 million, a decrease of 42% compared to \$7,411 million for the full-year 2017. In 2018, the Refining & Chemicals segment's operating cash flow excluding the change in working capital at replacement cost and excluding financial charges was \$4,388 million compared to \$4,728 million for the full-year 2017, a decrease of 7%.

For information on the Refining & Chemicals segment's investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference. See also "- 5.4 Liquidity and Capital Resources", below.

In this context, the Refining & Chemicals segment's ROACE for the full-year 2018 was 31% compared to 33% for the full-year 2017.

5.3.4 Marketing & Services segment

Petroleum product sales ^(a) (kb/d)	2019	2018	2017
Total Marketing & Services sales	1,845	1,801	1,779
• Europe	1,021	1,001	1,049
• Rest of world	824	800	730

(a) Excludes trading and bulk refining sales.

Results (in millions of dollars except ROACE)	2019	2018	2017
Non-Group sales	87,280	90,206	74,634
Operating income ^(a)	2,052	1,841	1,819
Net income (loss) from equity affiliates and other items	101	307	497
Tax on net operating income	(598)	(532)	(561)
Net operating income ^(a)	1,555	1,616	1,755
Adjustments affecting net operating income	98	36	(79)
Adjusted net operating income ^(b)	1,653	1,652	1,676
Organic investments ^(c)	969	1,010	1,019
Net acquisitions ^(d)	162	20	25
Net investments ^(e)	1,131	1,030	1,044
ROACE	22.3%	25%	26%

(a) For the definitions of "operating income" and "net operating income", refer to Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference.

(b) Adjusted for special items, inventory valuation effect and the effect of changes in fair value. See Note 3 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 296), which is incorporated herein by reference.

(c) "Organic investments" = net investments excluding acquisitions, divestments and other operations with non-controlling interests. For additional information on investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference.

(d) "Net acquisitions" = acquisitions - assets sales - other operations with non-controlling interests.

(e) "Net investments" = organic investments + net acquisitions. For additional information on investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference.

2019 vs. 2018

In 2019, petroleum product sales increased by 2% compared to 2018, notably due to business developments in the African and American regions, notably Mexico and Brazil.

Non-Group sales for the Marketing & Services segment in 2019 were \$87,280 million compared to \$90,206 million in 2018, a decrease of 3%.

The Marketing & Services segment's adjusted net operating income remained stable in 2019 at \$1,653 million compared to \$1,652 million in 2018.

Adjusted net operating income for the Marketing & Services segment excludes any after-tax inventory valuation effect and special items. In 2019, the exclusion of the inventory valuation effect had a positive impact of \$14 million on the Marketing & Services segment's adjusted net operating income, compared to a positive impact of \$5 million for the full-year 2018. In 2019, the exclusion of special items had a positive impact of \$84 million on the Marketing & Services segment's adjusted net operating income, compared to a positive impact of \$31 million for the full-year 2018.

In 2019, the Marketing & Services segment's cash flow from operating activities excluding financial charges, except those related to leases decreased by 6% compared to the full-year 2018, from \$2,759 million to \$2,604 million. In 2019, the Marketing & Services segment's operating cash flow excluding the change in working capital at replacement cost and excluding financial charges, except those related to leases was \$2,546 million, an increase of 18% compared to \$2,156 million for the full-year 2018.

For information on the Marketing & Services segment's investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference. See also "- 5.4 Liquidity and Capital Resources", below.

In this context, the Marketing & Services segment's ROACE for the full-year 2019 was 22.3% compared to 25% for the full-year 2018.

2018 vs. 2017

In 2018, petroleum product sales increased by 1% compared to 2017. The sale of TotalErg in Italy was offset by higher sales in the rest of the world.

Non-Group sales for the Marketing & Services segment in 2018 were \$90,206 million compared to \$74,634 million in 2017, an increase of 21%.

The segment's adjusted net operating income was stable in 2018 at \$1,652 million, a decrease of 1% compared to \$1,676 million in 2017.

Adjusted net operating income for the Marketing & Services segment excludes any after-tax inventory valuation effect and special items. The exclusion of the inventory valuation effect had a positive impact on the segment's adjusted net operating income in 2018 of \$5 million compared to a positive impact of \$3 million in 2017. The exclusion of special items had a positive impact on the segment's adjusted net operating income in 2018 of \$31 million compared to a negative impact of \$82 million in 2017.

In 2018, the Marketing & Services segment's cash flow from operating activities excluding financial charges was \$2,759 million, an increase of 24% compared to \$2,221 million for the full-year 2017. In 2018, operating cash flow excluding the change in working capital at replacement cost and without financial charges was \$2,156 million compared to \$2,242 million for the full-year 2017, a decrease of 4%.

For information on the Marketing & Services segment's investments, refer to point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference. See also "- 5.4 Liquidity and Capital Resources", below.

In this context, the Marketing & Services segment's ROACE for the full-year 2018 was 25% compared to 26% for the full-year 2017.

5.4 Liquidity and capital resources

(M\$)	2019	2018	2017
Cash flow from operating activities	24,685	24,703	22,319
Including (increase) decrease in working capital	(1,718)	769	827
Cash flow used in investing activities	(17,177)	(14,946)	(11,632)
Total expenditures	(19,237)	(22,185)	(16,896)
Total divestments	2,060	7,239	5,264
Cash flow used in financing activities	(7,709)	(13,925)	(5,540)
Net increase (decrease) in cash and cash equivalents	(201)	(4,168)	5,147
Effect of exchange rates	(354)	(1,110)	3,441
Cash and cash equivalents at the beginning of the period	27,907	33,185	24,597
Cash and cash equivalents at the end of the period	27,352	27,907	33,185

TOTAL's cash requirements for working capital, capital expenditures, acquisitions and dividend payments over the past three years were financed primarily by a combination of funds generated from operations, borrowings and divestments of non-core assets. In the current environment, TOTAL expects its external debt to be principally financed from the international debt capital markets. The Group continually monitors the balance between cash flow from operating activities and net expenditures. In the Company's opinion, its working capital is sufficient for its present requirements.

5.4.1 Capital expenditures

The largest part of TOTAL's capital expenditures in 2019 of \$19,237 million was made up of additions to intangible assets and property, plant and equipment (approximately 66%), with the remainder attributable to equity-method affiliates and to acquisitions of subsidiaries. In the Exploration & Production segment, as described in more detail under point 9.1.6 ("Cost incurred") of chapter 9 of the 2019 Registration Document (on page 414), which is incorporated herein by reference, capital expenditures in 2019 were principally development costs (approximately 84%, mainly for construction of new production facilities), exploration expenditures (successful or unsuccessful, approximately 13%) and acquisitions of proved and unproved properties (approximately 3%). In the Integrated Gas, Renewables & Power segment, approximately 74% of capital expenditures in 2019 were acquisitions, with the balance being related mainly to facilities investments. In the Refining & Chemicals segment, approximately 77% of capital expenditures in 2019 were related to refining and petrochemical activities (essentially 78% for existing units including maintenance and major turnarounds and 22% for new constructions), the balance being related mainly to Hutchinson. In the Marketing & Services segment, approximately 18% of capital expenditures in 2019 were acquisitions, with the balance being related to expenditures mainly in Europe and Africa. For additional information on capital expenditures, refer to the discussion above in "- 5.1 Overview", "- 5.2 Group results 2017-2019" and "- 5.3 Business segment reporting", above, as well as points 1.4.3 ("A targeted investment policy") of chapter 1 (on page 14) and 2.6 ("Investments") of chapter 2 (starting on page 74) of the 2019 Registration Document, which are incorporated herein by reference.

5.4.2 Cash flow

Cash flow from operating activities in 2019 was \$24,685 million compared to \$24,703 million in 2018 and \$22,319 million in 2017. The decrease of \$18 million from 2018 to 2019 was mainly due to the decrease in net income.

Cash flow used in investing activities in 2019 was \$17,177 million compared to \$14,946 million in 2018 and \$11,632 million in 2017. The increase of \$2,231 million from 2018 to 2019 was mainly due to lower divestments in the Exploration & Production segment. The increase of \$3,314 million from 2017 to 2018 was mainly due to higher expenditures in the portfolio of Exploration & Production segment (acquisition of Iara/Lapa in Brazil and Umm Shaif & Nasr and Lower Zakum in Abu Dhabi) and Integrated Gas, Renewables & Power segments (acquisitions of Direct Énergie and Engie's upstream LNG business). Total expenditures in 2019 were \$19,237 million compared to \$22,185 million in 2018 and \$16,896 million in 2017. During 2019, 47% of the expenditures were made by the Exploration & Production segment (as compared to 62% in 2018 and 59% in 2017), 37% by the Integrated Gas, Power & Renewables segment (as compared to 23% in 2018 and 21% in 2017), 9% by the Refining & Chemicals segment (compared to 8% in 2018 and 10% in 2017) and 7% by the Marketing & Services segment (compared to 7% in 2018 and 9% in 2017). The main source of funding for these expenditures was cash from operating activities and issuances of non-current debt. For additional information on expenditures, please refer to the discussions in "- 5.1 Overview", "- 5.2 Group results 2017-2019" and "- 5.3 Business segment reporting", above, and point 2.6 ("Investments") of chapter 2 of the Universal Registration Document 2019 (starting on page 74), which is incorporated herein by reference.

Divestments, based on selling price and net of cash sold, in 2019 were \$2,060 million compared to \$7,239 million in 2018 and \$5,264 million in 2017. In 2019, the Group's principal divestments were assets sales of \$1,939 million, consisting mainly of the sales described in "- 5.2 Group results 2017-2019" above. In 2018, the Group's principal divestments were assets sales of \$5,172 million, consisting mainly of sales of a 4% interest in the Ichthys project in Australia, the Group's share of the LNG re-gas terminal at Dunkirk, Joslyn in Canada, Rabi in Gabon, the Martin Linge and Visund fields in Norway, an interest in Fort Hills in Canada, SunPower's sale of its interest in 8point3, the marketing activities of TotalErg in Italy, the sale of the Marketing & Services network in Haiti and the contribution of the Bayport polyethylene unit in the United States to the joint venture formed with Borealis and Nova in which TOTAL holds 50%. In 2017, the Group's principal divestments were asset sales of \$4,239 million, consisting mainly of sales of Atotech, interests in the Gina Krog field in Norway and in various mature assets in Gabon.

Cash flow from/(used in) financing activities in 2019 was \$(7,709) million compared to \$(13,925) million in 2018 and \$(5,540) million in 2017. The decrease in cash flow used in financing activities in 2019 compared to 2018 was primarily due to the decrease in buyback of shares (\$2,810 million in 2019 compared to \$4,328 million in 2018), the increase in the net issuance of non-current debt (\$8,131 million in 2019 compared to \$649 million in 2018) and the decrease in current financial assets and liabilities (\$536 million in 2019 compared to \$797 million in 2018).

The decrease in cash flow from financing activities in 2018 compared to 2017 was primarily due to the buyback of shares in 2018 (\$4,328 million in 2018 compared to \$0 in 2017), the decrease in the net issuance of non-current debt (\$649 million in 2018 compared to \$2,277 million in 2017) and the decrease in current financial assets and liabilities (\$797 million in 2018 compared to an increase of \$1,903 million in 2017).

5.4.3 Indebtedness

The Company's non-current financial debt at year-end 2019 was \$47,773 million⁽²¹⁾ compared to \$40,129 million at year-end 2018 and \$41,340 million at year-end 2017. For further information on the Company's level of borrowing and the type of financial instruments, including maturity profile of debt and currency and interest rate structure, see Note 15 ("Financial structure and financial costs") to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 352), which is incorporated herein by reference. For further information on the Company's treasury policies, including the use of instruments for hedging purposes and the currencies in which cash and cash equivalents are held, see "Item 11. Quantitative and Qualitative Disclosures About Market Risk".

Cash and cash equivalents at year-end 2019 were \$27,352 million compared to \$27,907 million at year-end 2018 and \$33,185 million at year-end 2017.

(21) Excludes net current and non-current financial debt of \$301 million as of December 31, 2019, related to assets classified in accordance with IFRS 5 "non-current assets held for sale and discontinued operations" and \$(15) million as of December 31, 2018.

On February 26, 2019, Standard and Poor's revised TOTAL's outlook from stable to positive, with a long-term credit rating remaining at A+. On November 28, 2019, Moody's revised TOTAL's outlook from positive to stable, with a long-term credit rating remaining at Aa3.

5.4.4 Shareholders' equity

Shareholders' equity at year-end 2019 was \$119,305 million compared to \$118,114 million at year-end 2018 and \$114,037 million at year-end 2017. Changes in shareholders' equity in 2019 were primarily due to the impacts of comprehensive income, dividend payments, the issuance of common shares of TOTAL S.A. and the buy-back of TOTAL S.A.'s shares. Changes in shareholders' equity in 2018 were primarily due to the impacts of comprehensive income, dividend payments, the issuance of common shares of TOTAL S.A. and perpetual subordinated notes in April 2019 (callable in 2021) recorded as equity for €1.5 billion (or approximately \$1.7 billion using the €/€ exchange rate on April 19, 2019 of €1 = \$1.1246 as released by the Board of Governors of the Federal Reserve System on April 22, 2019) proceeds of which were used to repurchase €1.5 billion notional amount of existing perpetual subordinated notes issued by TOTAL S.A. in 2015, and the buy-back of TOTAL S.A.'s shares in the context of the shareholder return policy announced in February 2018. Changes in shareholders' equity in 2017 were primarily due to the impacts of comprehensive income, dividend payments and the issuance of common shares of TOTAL S.A..

In 2019, TOTAL S.A. bought back 52,389,336 TOTAL S.A.'s shares on the market, i.e. 2.01% of the share capital as of December 31, 2019.

48,800,301 TOTAL S.A.'s shares were bought back for cancellation, including:

- 16,076,936 TOTAL S.A.'s shares in order to cancel the dilution related to the TOTAL S.A.'s shares issued for payment of the second and third interim dividends for the fiscal year ended December 31, 2018; and
- 32,723,365 TOTAL S.A.'s shares for an amount of \$1.75 billion⁽²²⁾, within the framework of the \$5 billion share buyback program over the 2018-2020 period.

3,589,035 TOTAL S.A.'s shares were bought back in order to cover the performance share plans approved by the Board of Directors.

Finally, the Board of Directors, at a meeting held on December 11, 2019, decided, following the authorization of the Extraordinary Shareholders' Meeting on May 26, 2017, to cancel 65,109,435 treasury shares of TOTAL S.A. including:

- 34,860,133 TOTAL S.A.'s shares issued, with no discount, in 2019 for payment of the first, second and third interim dividends for the fiscal year ended December 31, 2018; and
- 30,249,302 TOTAL S.A.'s shares repurchased within the framework of the \$5 billion share buyback program over the 2018-2020 period.

This transaction had no impact on the consolidated financial statements of TOTAL S.A., the number of fully-diluted weighted-average shares or on the earnings per share.

In 2018, the Company bought back 72,766,481 TOTAL S.A.'s shares on the market, i.e., 2.76% of the share capital as of December 31, 2018.

71,950,977 TOTAL S.A.'s shares were bought back for cancellation, including:

- 47,229,037 TOTAL S.A.'s shares in order to cancel the dilution related to the TOTAL S.A.'s shares issued for payment (i) of the second and third interim dividends and the final dividend for fiscal year 2017, as well as (ii) the first interim dividend for fiscal year 2018; and
- 24,721,940 TOTAL S.A.'s shares for \$1.5 billion⁽²³⁾, following the Board's decision to buy back shares of the Company up to an amount of \$5 billion over the 2018-2020 period.

815,504 TOTAL S.A.'s shares were bought back in order to cover the performance share plans approved by the Board of Directors on July 27, 2016, and July 26, 2017.

Finally, the Board of Directors of TOTAL S.A., at a meeting held on December 12, 2018, decided, following the authorization of the Extraordinary Shareholders' Meeting on May 26, 2017, to cancel 44,590,699 treasury shares of TOTAL S.A., including:

- 28,445,840 TOTAL S.A.'s shares issued, with no discount, in 2018 for payment of the second and third interim dividends, as well as the final dividend, for fiscal year 2017; and
- 16,144,859 TOTAL S.A.'s shares bought back pursuant to the shareholder return policy, up to an amount of \$5 billion over the 2018-2020 period.

This transaction had no impact on the consolidated financial statements of TOTAL S.A., the number of fully-diluted weighted-average shares or on the earnings per share.

In 2017, the Company did not buy back any TOTAL S.A.'s shares.

5.4.5 Net-debt-to-capital

As of December 31, 2019, TOTAL's net-debt-to-capital ratio⁽²⁴⁾ was 20.7% compared to 15.5% and 11.9% at year-ends 2018 and 2017, respectively. The increase from 2018 to 2019 was mostly due to the first application of IFRS 16 "Leases" and the recognition of lease debt as financial debt. For additional information, please refer to the Notes to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 291), which is incorporated herein by reference.

(22) Or €1.56 billion at the average exchange rate for 2019.

(23) Or €1.2 billion at the average exchange rate for 2018.

(24) For additional information, refer to Note 15.1(E) to the Consolidated Financial Statements in the Universal Registration Document 2019 (on page 357), which is incorporated herein by reference.

As of December 31, 2019, the Company had \$11,585 million of long-term confirmed lines of credit, of which \$11,585 million were unused.

5.5 Guarantees and other off-balance sheet arrangements

As of December 31, 2019, the guarantees provided by TOTAL S.A. in connection with the financing of the Ichthys LNG project amount to \$4,937 million. As of December 31, 2018, the guarantees amounted to \$9,425 million. As of December 31, 2017, the guarantees amounted to \$8,500 million.

As of December 31, 2019, the guarantees provided by TOTAL S.A. in connection with the financing of the Yamal LNG project for an amount of \$3,688 million by TOTAL S.A. As of December 31, 2018, the guarantees amounted to \$3,875 million, compared to \$4,038 million as of December 31, 2017.

As of December 31, 2019, TOTAL S.A. has confirmed guarantees for TOTAL Refining SAUDI ARABIA SAS shareholders' advances for an amount of \$1,184 million. As of December 31, 2018, the guarantees amounted to \$1,462 million as in 2017.

As of December 31, 2019, the guarantee given in 2008 by TOTAL S.A. in connection with the financing of the Yemen LNG project amounted to \$509 million. As of December 31, 2018, the guarantee given in 2008 by TOTAL S.A. in connection with the financing of the Yemen LNG project amounted to \$551 million as in 2017.

As of December 31, 2019, guarantees provided by TOTAL S.A. in connection with the financing of the Bayport Polymers LLC project amounted to \$1,820 million as in 2018.

These guarantees and other information on the Company's commitments and contingencies are presented in Note 13 ("Off balance sheet commitments and lease contracts") to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 344), which is incorporated herein by reference.

The Group does not currently consider that these guarantees, or any other off-balance sheet arrangements of the Company or any other members of the Group, have or are reasonably likely to have, currently or in the future, a material effect on the Group's financial condition, changes in financial condition, revenues or expenses, results of operation, liquidity, capital expenditures or capital resources.

5.6 Contractual obligations

Payment due by period (M\$)	Less than 1 year	1-3 years	3-5 years	More than 5 years	Total
Non-current debt obligations ^(a)	-	10,063	9,825	21,043	40,931
Current portion of non-current debt obligations ^(b)	5,331	-	-	-	5,331
Lease obligations recorded in the balance sheet ^(c)	1,202	1,734	1,149	3,380	7,465
Asset retirement obligations ^(d)	617	1,153	2,000	10,722	14,492
Lease obligations not recorded in the balance sheet ^(c)	536	572	307	662	2,077
Purchase obligations ^(e)	10,763	21,348	16,841	98,564	147,516
TOTAL	18,449	34,870	30,122	134,371	217,812

(a) Non-current debt obligations are included in the items "Non-current financial debt" and "Hedging instruments of non-current financial debt" of the Consolidated Balance Sheet (refer to point 8.4 of chapter 8 of the Universal Registration Document 2019 (on page 288), which is incorporated herein by reference). The figures in this table are net of the non-current portion of issue swaps and swaps hedging bonds, and exclude non-current lease obligations of \$6,263 million.

(b) The current portion of non-current debt is included in the items "Current borrowings", "Current financial assets" and "Other current financial liabilities" of the Consolidated Balance Sheet. The figures in this table are net of the current portion of issue swaps and swaps hedging bonds and exclude the current portion of lease obligations of \$1,202 million.

(c) Lease obligations: the Group leases real estate, retail stations, ships and other equipment through non-cancelable capital and operating leases. Leases that are of short duration or that relate to low value assets are not recorded in the balance sheet, in accordance with the exemptions in IFRS 16 "Leases". Amounts recorded in the balance sheet represent the future minimum lease payments on non-cancelable leases to which the Group is committed as of December 31, 2019, less the financial expense due on lease obligations for \$2,726 million.

(d) The discounted present value of exploration & production asset retirement obligations, primarily asset removal costs at the completion date.

(e) Purchase obligations are obligations under contractual agreements to purchase goods or services, including capital projects. These obligations are enforceable and legally binding on TOTAL and specify all significant terms, including the amount and the timing of the payments. These obligations mainly include: hydrocarbon unconditional purchase contracts (except where an active, highly liquid market exists and when the hydrocarbons are expected to be re-sold shortly after purchase); reservation of transport capacities in pipelines; unconditional exploration works and development works in the Exploration & Production and Integrated Gas and Renewables segment; and contracts for capital investment projects in the Refining & Chemicals segment. This disclosure does not include contractual exploration obligations with host states where a monetary value is not attributed and purchases of booking capacities in pipelines where the Group has a participation superior to the capacity used.

For additional information on the Group's contractual obligations, refer to Note 13 to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 344), which is incorporated herein by reference. The Group has other obligations in connection with pension plans that are described in Note 10 ("Payroll, staff and employee benefits obligations") to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 336), which is incorporated herein by reference. As these obligations are not contractually fixed as to timing and amount, they have not been included in this disclosure. Other non-current liabilities, detailed in Note 12 ("Provisions and other non-current liabilities") to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 342), which is incorporated herein by reference, are liabilities related to risks that are probable and amounts that can be reasonably estimated. However, no contractual agreements exist related to the settlement of such liabilities, and the timing of the settlement is not known.

5.7 Research and development

For a discussion of the Group's R&D policies and activities, refer to points 1.4.2 of chapter 1 (on page 14) and 2.7 of chapter 2 (starting on page 76) of the Universal Registration Document 2019, which are incorporated herein by reference.

ITEM 6. DIRECTORS, SENIOR MANAGEMENT AND EMPLOYEES

The following information concerning directors and senior management from the Universal Registration Document 2019 is incorporated herein by reference:

- composition of the Board of Directors (introduction and point 4.1.1 of chapter 4, starting on page 130); and
- information concerning the General Management (point 4.1.5 of chapter 4, starting on page 159).

The following information concerning compensation from the Universal Registration Document 2019 is incorporated herein by reference:

- approach to overall compensation (point 5.3.1.2 of chapter 5, starting on page 207); and
- compensation for the administration and management bodies (point 4.3 of chapter 4, starting on page 169).

The following information concerning Board practices and corporate governance from the Universal Registration Document 2019 is incorporated herein by reference:

- practices of the Board of Directors (point 4.1.2 of chapter 4, starting on page 146);
- report of the Lead Independent Director on her mandate (point 4.1.3 of chapter 4, starting on page 157);
- evaluation of the functioning of the Board of Directors (point 4.1.4 of chapter 4, on page 158); and
- statement regarding corporate governance (point 4.2 of chapter 4, on page 168).

The following information concerning employees and share ownership from the Universal Registration Document 2019 is incorporated herein by reference:

- number and categories of employees (point 5.3.1.1 of chapter 5, starting on page 206);
- shares held by the administration and management bodies (point 4.1.6 of chapter 4, starting on page 166); and
- employee shareholding (point 6.4.2 of chapter 6, on page 269).

ITEM 7. MAJOR SHAREHOLDERS AND RELATED PARTY TRANSACTIONS

The following information concerning shareholders from the Universal Registration Document 2019 is incorporated herein by reference:

- major shareholders (point 6.4.1 of chapter 6, starting on page 267); and
- shareholding structure (point 6.4.3 of chapter 6, on page 269).

The Group's main transactions with related parties (principally all the investments carried under the equity method) and the balances receivable from and payable to them are shown in point 8.3 of Note 8 ("Equity affiliates, other investments and related parties") to the Consolidated Financial Statements in the Universal Registration Document 2019 (starting on page 325), which is incorporated herein by reference). In the ordinary course of its business, TOTAL enters into transactions with various organizations with which certain of its directors or executive officers may be associated, but no such transactions of a material or unusual nature have been entered into during the period commencing on January 1, 2019 and ending on the date of this document.

ITEM 8. FINANCIAL INFORMATION

The following information from the Universal Registration Document 2019 is incorporated herein by reference:

- Consolidated Financial Statements and Notes thereto (chapter 8, starting on page 281);
- supplemental oil and gas information (points 9.1 and 9.2 of chapter 9, starting on page 402);
- report on payments made to governments (point 9.3 of chapter 9, starting on page 421);
- legal and arbitration proceedings (point 3.5 of chapter 3, starting on page 101); and
- dividend policy and other related information (point 6.2 of chapter 6, starting on page 261).

Except for certain events mentioned in “Item 5. Operating and financial review and prospects”, point 3.5 (“Legal and arbitration proceedings”) of chapter 3 (starting on page 101) and Note 17 (“Post closing events”) to the Consolidated Financial Statements (on page 375) of the Universal Registration Document 2019, which are incorporated herein by reference, no significant changes to the Group’s financial or commercial situation have occurred since the date of the Company’s Consolidated Financial Statements.

Refer to “Item 18. Financial statements” for the reports of the statutory auditors.

ITEM 9. THE OFFER AND LISTING

9.1 Markets

The principal trading markets for the Company’s shares are the following: Euronext Paris (France) and the New York Stock Exchange (“NYSE”, United States). The shares are also listed on Euronext Brussels (Belgium) and the London Stock Exchange (United Kingdom).

9.2 Offer and listing details

Provided below is certain information on trading on Euronext Paris and the New York Stock Exchange. For additional information on listing details and share performance, refer to point 6.1 (“Listing details”) in chapter 6 of the Universal Registration Document 2019 (starting on page 258), which is incorporated herein by reference.

9.2.1 Trading on Euronext Paris

Official trading of listed securities on Euronext Paris, including the shares, is transacted through French investment service providers that are members of Euronext Paris and takes place continuously on each business day in Paris from 9:00 a.m. to 5:30 p.m. (Paris time), with a fixing of the closing price at 5:35 p.m. Euronext Paris may suspend or resume trading in a security listed on Euronext Paris if the quoted price of the security exceeds certain price limits defined by the regulations of Euronext Paris.

The markets of Euronext Paris settle and transfer ownership two trading days after a transaction (T+2). Highly liquid shares, including those of the Company, are eligible for deferred settlement (*Service de Règlement Différé* - SRD). Payment and delivery for shares under the SRD occurs on the last trading day of each month. Use of the SRD service requires payment of a commission.

In France, the shares are included in the principal index published by Euronext Paris (the “CAC 40 Index”). The CAC 40 Index is derived daily by comparing the total market capitalization of forty stocks traded on Euronext Paris to the total market capitalization of the stocks that made up the CAC 40 Index on December 31, 1987. Adjustments are made to allow for expansion of the sample due to new issues. The CAC 40 Index indicates trends in the French stock market as a whole and is one of the most widely followed stock price indices in France. In the UK, the shares are included in both FTSE Eurotop 100 and FTSEurofirst 100 indices. As a result of the creation of Euronext, the shares are included in Euronext 100, the index representing Euronext’s blue chip companies based on market capitalization. The shares are also included in the Stoxx Europe 50 and Euro Stoxx 50, blue chip indices comprised of the fifty most highly capitalized and most actively traded equities throughout Europe and within the European Monetary Union, respectively. Since June 2000, the shares have been included in the Dow Jones Global Titans 50 Index which consists of fifty global companies selected based on market capitalization, book value, assets, revenue and earnings.

TOTAL’s ticker symbol for Euronext Paris is FP.

9.2.2 Trading on the New York Stock Exchange

ADs evidenced by ADRs have been listed on the NYSE since October 25, 1991. JPMORGAN CHASE BANK, N.A. serves as depositary with respect to the ADs evidenced by ADRs traded on the NYSE. One ADS corresponds to one TOTAL share.

TOTAL’s ticker symbol for the NYSE is TOT.

ITEM 10. ADDITIONAL INFORMATION

10.1 Share capital

The following information from the Universal Registration Document 2019 is incorporated herein by reference:

- information concerning the share capital (point 7.1 of chapter 7, starting on page 274);
- the use of delegations of authority and power granted to the Board of Directors with respect to share capital increases (point 4.4.2 of chapter 4, starting on page 196);
- information on share buybacks (point 6.3 of chapter 6, starting on page 263); and
- factors likely to have an impact in the event of a public offering (point 4.4.4 of chapter 4, starting on page 198).

10.2 Memorandum and articles of association

The following information from the Universal Registration Document 2019 is incorporated herein by reference:

- information concerning the articles of incorporation and bylaws, and other information (point 7.2 of chapter 7, starting on page 276); and
- participation of shareholders at shareholders' meetings (point 4.4.3 of chapter 4, on page 197).

10.3 Material contracts

There have been no material contracts (not entered into in the ordinary course of business) entered into by members of the Group since March 20, 2018.

10.4 Exchange controls

Under current French exchange control regulations, no limits exist on the amount of payments that TOTAL may remit to residents of the United States. Laws and regulations concerning foreign exchange controls do require, however, that an accredited intermediary must handle all payments or transfer of funds made by a French resident to a non-resident.

10.5 Taxation

10.5.1 General

This section generally summarizes the material U.S. federal income tax and French tax consequences of owning and disposing of shares or ADSs of TOTAL to U.S. Holders that hold their shares or ADSs as capital assets for tax purposes. A U.S. Holder is a beneficial owner of shares or ADSs that is (i) a citizen or resident of the United States for U.S. federal income tax purposes, (ii) a domestic corporation or other domestic entity treated as a corporation for U.S. federal income tax purposes, (iii) an estate whose income is subject to U.S. federal income tax regardless of its source, or (iv) a trust if (1) a U.S. court can exercise primary supervision over the trust's administration and one or more U.S. persons are authorized to control all substantial decisions of the trust or (2) it has a valid election in effect under applicable U.S. Treasury regulations to be treated as a United States person.

This section does not address the Medicare tax on net investment income and does not apply to members of special classes of holders subject to special rules, including without limitation:

- broker-dealers;
- traders in securities that elect to use a mark-to-market method of accounting for their securities holdings;
- tax-exempt organizations;
- certain financial institutions;
- insurance companies;
- U.S. pension funds;
- U.S. Regulated Investment Companies (RICs), Real Estate Investment Trusts (REITs), and Real Estate Mortgage Investment Conduits (REMICs);
- persons who are liable for the alternative minimum tax;
- persons that actually or constructively own 10% or more of the shares of TOTAL (by vote or value);
- persons who acquired the shares or ADS pursuant to the exercise of any employee share option or otherwise as consideration;
- persons that purchase or sell shares or ADSs as part of a wash sale for U.S. federal income tax purposes;
- persons holding offsetting positions in respect of the shares or ADSs (including as part of a straddle, hedging, conversion or integrated transaction);
- persons subject to special tax accounting rules as a result of any item of gross income with respect to the shares or ADSs being taken into account in an applicable financial statement;
- U.S. expatriates; and
- persons whose functional currency is not the U.S. dollar.

If a partnership or other entity or arrangement treated as a partnership for U.S. federal income tax purposes holds shares or ADSs, the tax treatment of a partner will generally depend upon the status of the partner and upon the activities of the partnership. Partners of a partnership holding these shares or ADSs should consult their tax advisors as to the tax consequences of owning or disposing of shares or ADSs, as applicable.

Under French law, specific rules apply to trusts, in particular specific tax and filing requirements; additionally, specific rules apply to wealth, estate and gift taxes as they apply to trusts. Given the complex nature of these rules and the fact that their application varies depending on the status of the trust, the grantor, the beneficiary and the assets held in the trust, the following summary does not address the tax treatment of shares or ADSs held in a trust. If shares or ADSs are held in trust, the grantor, trustee and beneficiary are urged to consult their own tax advisor regarding the specific tax consequences of acquiring, owning and disposing of shares or ADSs.

In addition, the discussion below is limited to U.S. Holders that (i) are residents of the United States for purposes of the Treaty (as defined below), (ii) do not maintain a permanent establishment or fixed base in France to which the shares or ADSs are attributable and through which the respective U.S. Holders carry on, or have carried on, a business (or, if the holder is an individual, performs or has performed independent personal services), and (iii) are otherwise eligible for the benefits of the Treaty in respect of income and gain from the shares or ADSs (in particular, under the "Limitation on Benefits" provision of the Treaty). In addition, this section is based in part upon the representations of the Depositary and the assumption that each obligation in the Deposit Agreement and any related agreement will be performed in accordance with its terms.

The discussions below of the material U.S. federal income tax consequences to U.S. Holders of owning and disposing of shares or ADSs of TOTAL are based on the Internal Revenue Code of 1986, as amended (IRC), Treasury regulations promulgated thereunder and judicial and administrative interpretations thereof, all as in effect on the date hereof and all of which are subject to change, which change could apply retroactively and could affect the tax consequences described below. The description of the material French tax consequences is based on the laws of the Republic of France and French tax regulations, all as currently in effect, as well as on the Convention Between the United States and the Republic of France for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with respect to Taxes on Income and Capital dated August 31, 1994, as amended (the "Treaty"). These laws, regulations and the Treaty are subject to change, possibly on a retroactive basis.

In general, and taking into account the earlier assumptions, for U.S. federal income tax purposes, a U.S. Holder of ADRs evidencing ADSs will be treated as the owner of the shares represented by those ADRs. Exchanges of shares for ADRs, and ADRs for shares, generally will not be subject to U.S. federal income tax. The U.S. Treasury has expressed concerns that intermediaries in the chain of ownership between the holder of an ADS and the issuer of the security underlying the ADS may be taking actions that are inconsistent with the beneficial ownership of the underlying security. Accordingly, the creditability of any French taxes and the availability of the reduced tax rate for any dividends received by certain non-corporate U.S. Holders (as discussed below), could be affected by actions taken by intermediaries in the chain of ownership between the holders of the ADSs and TOTAL if as a result of such actions the U.S. Holders of the ADSs are not properly treated as beneficial owners of underlying shares.

This discussion is intended only as a descriptive summary and does not purport to be a complete analysis or listing of all potential tax effects of the ownership or disposition of the shares and ADSs and is not intended to substitute competent professional advice. Individual situations of holders of shares and ADSs may vary from the description made below. The following summary does not address the French tax treatment applicable to dividends paid in so-called "Non Cooperative Countries and Territories" ("NCCT") within the meaning of Article 238-0 A of the French *Code général des impôts* ("French Tax Code") as such provision or list may be amended from time to time or replaced by any other provision or list having a similar purpose. It does not apply to dividends paid to persons established or domiciled in such a NCCT, or paid to a bank account opened in a financial institution located in such a NCCT, nor does it apply to capital gains realized by persons established or domiciled in such a NCCT. Furthermore, the following summary does not address the tax treatment applicable to temporary transfers and other similar transactions which could, under certain conditions, fall within the scope of the new anti-abuse measure set forth in Article 119 *bis* A of the French Tax Code.

Holders are urged to consult their own tax advisors regarding the U.S. federal, state and local, and the French and other tax consequences of owning and disposing shares or ADSs of TOTAL in their respective circumstances. In particular, a holder is encouraged to confirm with its advisor whether the holder is a U.S. Holder eligible for the benefits of the Treaty.

10.5.2 Taxation of dividends

French taxation

The term "dividends" used in the following discussion means dividends within the meaning of the Treaty.

Dividends paid to non-residents of France who are U.S. Holders are in principle subject to a French withholding tax regardless of whether they are paid in cash, in shares or a mix of both. The French withholding tax is levied (i) at a rate of 12.8% for dividends paid to U.S. Holders who are individuals and (ii) at a rate of 30% in 2019 (to be reduced and aligned on the standard corporate income tax rate set forth in the second paragraph of Article 219-I of the French Tax Code which is anticipated to decrease to 25% over the next fiscal years) for dividends paid to U.S. Holders that are legal entities (the "Legal Entities U.S. Holders") subject to more favorable provisions of the Treaty as described below and certain more favorable French domestic law provisions.

However, under the Treaty, a U.S. Holder is generally entitled to a reduced rate of French withholding tax of 15% with respect to dividends, provided that certain requirements are satisfied. This reduced rate is, in practice, only of interest to Legal Entities U.S. Holders subject to the withholding tax at a rate of 30% in 2019.

Administrative guidelines (*Bulletin Officiel des Finances Publiques*, BOI-INT-DG-20-20-20-20120912) (the "Administrative Guidelines") set forth the conditions under which the reduced French withholding tax at the rate of 15% may be available. The immediate application of the reduced 15% rate is available to those U.S. Holders that may benefit from the so-called "simplified procedure" (within the meaning of the Administrative Guidelines).

Under the “simplified procedure”, U.S. Holders may claim the immediate application of withholding tax at the rate of 15% on the dividends to be received by them, provided that:

- (i) they furnish to the U.S. financial institution managing their securities account a certificate of residence conforming with form No. 5000-FR. The immediate application of the 15% withholding tax will be available only if the certificate of residence is sent to the U.S. financial institution managing their securities account no later than the dividend payment date. Furthermore, each financial institution managing the U.S. Holders’ securities account must also send to the French paying agent the figure of the total amount of dividends to be received which are eligible to the reduced withholding tax rate before the dividend payment date; and
- (ii) the U.S. financial institution managing the U.S. Holder’s securities account provides the French paying agent with a list of the eligible U.S. Holders and other pieces of information set forth in the Administrative Guidelines. Furthermore, the financial institution managing the U.S. Holders’ securities account should certify that the U.S. Holder is, to the best of its knowledge, a United States resident within the meaning of the Treaty. These documents must be sent to the French paying agent within a time frame that will allow the French paying agent to file them no later than the end of the third month computed as from the end of the month of the dividend payment date.

Where the U.S. Holder’s identity and tax residence are known by the French paying agent, the latter may release such U.S. Holder from furnishing to (i) the financial institution managing its securities account, or (ii) as the case may be, the U.S. Internal Revenue Service (“IRS”), the abovementioned certificate of residence, and apply the 15% withholding tax rate to dividends it pays to such U.S. Holder.

For a U.S. Holder that is not entitled to the “simplified procedure” and whose identity and tax residence are not known by the paying agent at the time of the payment, the French withholding tax at the domestic rate will be levied at the time the dividends are paid. Such U.S. Holder, however, may be entitled to a refund of the withholding tax in excess of the 15% rate under the “standard procedure”, as opposed to the “simplified procedure”, provided that the U.S. Holder furnishes to the French paying agent an application for refund on forms No. 5000-FR and 5001-FR (or any other relevant form to be issued by the French tax authorities) certified by the U.S. financial institution managing the U.S. Holder’s securities account (or, if not, by the competent U.S. tax authorities) before December 31 of the second year following the date of payment of the withholding tax at the domestic rate to the French tax authorities, according to the requirements provided by the Administrative Guidelines.

Copies of forms No. 5000-FR and 5001-FR (or any other relevant form to be issued by the French tax authorities) as well as the form of the certificate of residence and the U.S. financial institution certification, together with instructions, are available from the IRS and the French tax authorities.

These forms, together with instructions, are to be provided by the Depositary to all U.S. Holders of ADRs registered with the Depositary. The Depositary is to use reasonable efforts to follow the procedures established by the French tax authorities for U.S. Holders to benefit from the immediate application of the 15% French withholding tax rate or, as the case may be, to recover the excess 15% French withholding tax initially withheld and deducted in respect of dividends distributed to them by TOTAL. To effect such benefit or recovery, the Depositary shall advise such U.S. Holder to return the relevant forms to it, properly completed and executed. Upon receipt of the relevant forms properly completed and executed by such U.S. Holder, the Depositary shall cause them to be filed with the appropriate French tax authorities, and upon receipt of any resulting remittance, the Depositary shall distribute to the U.S. Holder entitled thereto, as soon as practicable, the proceeds thereof in U.S. dollars.

The identity and address of the French paying agent are available from TOTAL.

In addition, subject to certain specific filing obligations, there is no withholding tax on dividend payments made by French companies to:

- (i) non-French collective investment funds formed under foreign law and established in a Member State of the European Union or in another State or territory, such as the United States, that has entered with France into an administrative assistance agreement for the purpose of combating fraud and tax evasion, and which fulfill the two following conditions: (a) the fund raises capital among a number of investors for the purpose of investing in accordance with a defined investment policy, in the interest of its investors, and (b) the fund has characteristics similar to those of collective investment funds organized under French law fulfilling the conditions set forth in Article 119-*bis* 2, 2 of the French Tax Code and the Administrative Guidelines *Bulletin Officiel des Finances Publiques*, BOI-RPPM-RCM-30-30-20-70-20170607 (*i.e.*, among others, open-end mutual fund (OPCVM), open-end real estate fund (OPCI) and closed-end investment companies (SICAF)); and
- (ii) companies whose effective place of management is, or which have a permanent establishment receiving the dividends, in a Member State of the European Union or in another State or territory that has entered with France into an administrative assistance agreement for the purpose of combating fraud and tax evasion, such as the United States, that are in a loss-making position and subject, at the time of the distribution, to insolvency proceedings similar to the one set out in Article L. 640-1 of the French Commercial Code (or where there is no such procedure available, in a situation of cessation of payments with recovery being manifestly impossible) and that meet the other conditions set out in Article 119 *quinquies* of the French Tax Code as specified by the Administrative Guidelines *Bulletin Officiel des Finances Publiques*, BOI-RPPM-RCM-30-30-20-80-20160406.

Collective investment funds and companies mentioned in (ii) above are urged to consult their own tax advisors to confirm whether they are eligible to such provisions and under which conditions.

U.S. taxation

For U.S. federal income tax purposes and subject to the passive foreign investment company rules discussed below, the gross amount of any dividend that a U.S. Holder must include in gross income equals the amount paid by TOTAL (*i.e.*, the net distribution received plus any tax withheld therefrom) from its current or accumulated earnings and profits (as determined for U.S. federal income tax purposes). Dividends will not be eligible for the dividends-received deduction allowed to a U.S. corporation

under IRC section 243. Distributions, if any, in excess of such current and accumulated earnings and profits (as determined for U.S. federal income tax purposes) will constitute a non-taxable return of capital to a U.S. Holder and will be applied against and reduce such U.S. Holder's tax basis in such shares or ADSs, but not below zero. To the extent that such distributions are in excess of such basis, the distributions will constitute capital gain. Because TOTAL does not currently maintain calculations of earnings and profits for U.S. federal income tax purposes, a U.S. Holder of shares or ADSs of TOTAL should expect to treat the entire amount of distributions paid with respect to the shares or ADSs as dividends.

Dividends paid to a non-corporate U.S. Holder that constitute "qualified dividend income" will be taxable to the holder at the preferential rates applicable to long-term capital gains provided (1) the Company is neither a passive foreign investment company nor treated as such with respect to the U.S. Holder for the taxable year in which the dividend was paid and the preceding taxable year and (2) certain holding period requirements are met. TOTAL believes that dividends paid by TOTAL with respect to its shares or ADSs will be qualified dividend income. The dividend is taxable to the U.S. Holder when the holder, in the case of shares, or the Depositary, in the case of ADSs, receives the dividend, actually or constructively.

The amount of any dividend distribution includible in the income of a U.S. Holder equals the U.S. dollar value of the euro payment made, determined at the spot euro/dollar exchange rate on the date the dividend distribution is includible in the U.S. Holder's income, regardless of whether the payment is in fact converted into U.S. dollars. Any gain or loss resulting from currency exchange fluctuations during the period from the date the dividend payment is includible in the U.S. Holder's income to the date the payment is converted into U.S. dollars will generally be treated as ordinary income or loss and, for foreign tax credit limitation purposes, from sources within the United States and will not be eligible for the special tax rate applicable to qualified dividend income. **The U.S. federal income tax rules governing the availability and computation of foreign tax credits are complex. U.S. Holders should consult their own tax advisors concerning the implications of these rules in light of their particular circumstances.**

Subject to certain conditions and limitations, U.S. Holders may elect to claim a credit against their U.S. federal income tax liability for the net amount of French taxes withheld in accordance with the Treaty and paid over to the French tax authorities. The limitation on foreign taxes eligible for credit is calculated separately with respect to specific classes of income. In addition, special rules apply in determining the foreign tax credit limitation with respect to dividends that are subject to the preferential tax rates. To the extent a refund of the tax withheld is available to a U.S. Holder under French law or under the Treaty, the amount of tax withheld that is refundable will not be eligible for credit against such holder's U.S. federal income tax liability. For this purpose, dividends distributed by TOTAL will generally constitute "passive income" for purposes of computing the foreign tax credit allowable to the U.S. Holder.

If a U.S. Holder has the option to receive a distribution in shares (or ADSs) instead of cash, the distribution of shares (or ADSs) will be taxable as if the holder had received an amount equal to the fair market value of the distributed shares (or ADSs), and such holder's tax basis in the distributed shares (or ADSs) will be equal to such amount.

10.5.3 Taxation of disposition of shares

A U.S. Holder will not be subject to French tax on any capital gain from the sale or exchange of the shares or ADSs or redemption of the underlying shares that the ADSs represent.

Pursuant to Article 235 *ter* ZD of the French tax code, a financial transaction tax applies, under certain conditions, to the acquisition of shares of publicly traded companies registered in France having a market capitalization over €1 billion on December 1 of the year preceding the acquisition. A list of the companies within the scope of the financial transaction tax for 2019 is published in the Administrative guidelines *Bulletin Officiel des Finances Publiques*, BOI-ANNX-000467-20191218. TOTAL is included in this list, although it cannot be excluded that this list might be amended in the future. The tax also applies to the acquisition of ADRs evidencing ADSs. The financial transaction tax is due at a rate of 0.3% on the price paid to acquire the shares. The person or entity liable for the tax is generally the provider of investment services defined in Article L. 321-1 of the French Monetary and Financial Code (*prestataire de services d'investissement*). Investment service providers providing equivalent services outside France are subject to the tax under the same terms and conditions. Taxable transactions are broadly construed but several exceptions may apply. In general, non-income taxes, such as this financial transaction tax, paid by a U.S. Holder are not eligible for a foreign tax credit for U.S. federal income tax purposes. U.S. Holders should consult their own tax advisors as to the tax consequences and creditability of such financial transaction tax.

For U.S. federal income tax purposes and subject to the passive foreign investment company rules discussed below, a U.S. Holder will generally recognize capital gain or loss upon the sale or other disposition of shares or ADSs equal to the difference between the U.S. dollar value of the amount realized on the sale or other disposition and the holder's tax basis, determined in U.S. dollars, in the shares or ADSs. The gain or loss will generally be U.S. source gain or loss and will be long-term capital gain or loss if the U.S. Holder's holding period of the shares or ADSs is more than one year at the time of the disposition. Long-term capital gain of a non-corporate U.S. Holder is generally taxed at preferential rates if specified minimum holding periods are met. The deductibility of capital losses is subject to limitation.

10.5.4 Passive foreign investment status

TOTAL believes that the shares and ADSs are not treated as stock of a passive foreign investment company (PFIC) for U.S. federal income tax purposes, and TOTAL does not expect that it will be treated as a PFIC in the current or future taxable years. This conclusion is a factual determination that is made annually and thus is subject to uncertainty and change. In general, a non-U.S. corporation will be a PFIC for any taxable year if either (i) at least 75% of its gross income for such year is passive income or (ii) at least 50% of the value of its assets (based on an average of the quarterly values of the assets) during such year is attributable to assets that produce passive income or are held for the production of passive income. If TOTAL were treated as a PFIC with respect to a U.S. Holder for any taxable year, the U.S. Holder generally would suffer adverse tax consequences, that may include having gains realized on the disposition of the shares or ADSs treated as ordinary income rather than capital gain and being subject to punitive interest charges on the receipt of certain distributions and on the proceeds of the sale or other disposition of the shares or ADSs. U.S. Holders would also be subject to information reporting requirements on an annual basis. U.S. Holders should consult their tax advisors about the potential application of the PFIC rules to shares or ADSs.

10.5.5 French estate and gift taxes

In general, a transfer of shares or ADSs by gift or by reason of the death of a U.S. Holder that would otherwise be subject to French gift or inheritance tax, respectively, will not be subject to such French tax by reason of the Convention between the United States of America and the French Republic for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with Respect to Taxes on Estates, Inheritances and Gifts, dated November 24, 1978, as amended, unless the donor or the transferor is domiciled in France at the time of the gift, or at the time of the transferor's death, or if the shares or ADSs were used in, or held for use in, the conduct of a business through a permanent establishment or a fixed base in France.

10.5.6 U.S. state and local taxes

In addition to U.S. federal income tax, U.S. Holders of shares or ADSs may be subject to U.S. state and local taxes with respect to their shares or ADSs. U.S. Holders should consult their own tax advisors.

10.6 Dividends and paying agents

The information set forth in point 6.2.2 ("Dividend payment") of chapter 6 of the Universal Registration Document 2019 (on page 261) is incorporated herein by reference.

10.7 Statements by experts

The independent third-party report of DeGolyer and MacNaughton, a petroleum engineering consulting firm with address at 5001 Spring Valley Road, Suite 800 East, Dallas, Texas 75244, is attached as Exhibit 15.3 to this Form 20-F. This report provides TOTAL estimates of proved crude oil, condensate and gas reserves, as of December 31, 2019, of certain properties attributable to or controlled by PAO NOVATEK. As evidenced by Exhibit 15.4 to this Form 20-F, DeGolyer and MacNaughton has consented to the inclusion of their report in this Form 20-F.

10.8 Documents on display

TOTAL files annual, periodic, and other reports and information with the Securities and Exchange Commission. All of TOTAL's SEC filings made after December 31, 2001 are available to the public at the SEC website at www.sec.gov and from certain commercial document retrieval services. You may also inspect any document the Company files with the SEC at the offices of The New York Stock Exchange, 20 Broad Street, New York, New York 10005.

ITEM 11. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Please refer to Notes 15.3 ("Financial risks management") (starting on page 364) and 16.2 ("Oil and Gas market related risks management") (on page 374) to the Consolidated Financial Statements in the Universal Registration Document 2019, which are incorporated herein by reference, for a qualitative and quantitative discussion of the Group's exposure to market risks. Please also refer to Notes 15.2 ("Fair value of financial instruments (excluding commodity contracts)") (starting on page 358) and 16 ("Financial instruments related to commodity contracts") (starting on page 370) to the Consolidated Financial Statements in the Universal Registration Document 2019, which are incorporated herein by reference, for details of the different derivatives owned by the Group in these markets.

As part of its financing and cash management activities, the Group uses derivative instruments to manage its exposure to changes in interest rates and foreign exchange rates. These instruments are mainly interest rate and currency swaps. The Group may also occasionally use futures contracts and options. These operations and their accounting treatment are detailed in Notes 15.2 (starting on page 358) and 16 (starting on page 370) to the Consolidated Financial Statements in the Universal Registration Document 2019, which are incorporated herein by reference.

The financial performance of TOTAL is sensitive to a number of factors; the most significant being oil and gas prices, generally expressed in dollars, and exchange rates, in particular that of the dollar versus the euro. Generally, a rise in the price of crude oil has a positive effect on earnings as a result of an increase in revenues from oil and gas production. Conversely, a decline in crude oil prices reduces revenues. The impact of changes in crude oil prices on the activities of the Refining & Chemicals and Marketing & Services segments depends upon the speed at which the prices of finished products adjust to reflect these changes. All of the Group's activities are, to various degrees, sensitive to fluctuations in the dollar/euro exchange rate.

ITEM 12. DESCRIPTION OF SECURITIES OTHER THAN EQUITY SECURITIES

12.1 American depositary receipts fees and charges

JPMORGAN CHASE BANK, N.A., as depositary for the TOTAL S.A. ADR program, collects its fees for delivery and surrender of ADRs directly from investors depositing shares or surrendering ADRs for the purpose of withdrawal or from intermediaries acting for them. The depositary collects fees for making distributions to investors by deducting those fees from the amounts distributed or by selling a portion of distributable property to pay the fees. The depositary may generally refuse to provide fee-attracting services until its fees for those services are paid. A copy of the depositary agreement is attached as Exhibit (a) to the registration statement on Form F-6 (Reg. No. 333-199737) filed by the Company with the SEC on October 31, 2014.

Investors must pay:	For:
\$5.00 (or less) per 100 ADSs (or portion of 100 ADSs)	<ul style="list-style-type: none">- Issuance of ADRs, including issuances resulting from a distribution of shares or rights or other property, stocks splits or mergers- Cancellation of ADRs for the purpose of withdrawal, including if the deposit agreement terminates
A fee equivalent to the fee that would be payable if securities distributed to the investor had been shares and the shares had been deposited for issuance of ADSs	<ul style="list-style-type: none">- Distribution, by the depositary, of deposited securities to ADS registered holders
Registration or transfer fees	<ul style="list-style-type: none">- Transfer and registration of shares on the Company's share register to or from the name of the depositary or its agent when the investor deposits or withdraws shares
Expenses of the depositary	<ul style="list-style-type: none">- Cable, telex and facsimile transmissions (when expressly provided in the deposit agreement)- Converting foreign currency to U.S. dollars
Taxes and other governmental charges the depositary or the custodian have to pay on any ADS or share underlying an ADS, for example, stock transfer taxes, stamp duty or withholding taxes	<ul style="list-style-type: none">- As necessary
Any charges incurred by the depositary or its agents for servicing the deposited securities	<ul style="list-style-type: none">- As necessary

The depositary has agreed to provide the Company with payments concerning, among other things, expenses incurred by the Company for the establishment and maintenance of the ADR program that include, but are not limited to, exchange listing fees, annual meeting expenses, standard out-of-pocket maintenance costs for the ADRs (e.g., the expenses of postage and envelopes for mailing annual and interim financial reports, printing and distributing dividend checks, electronic filing of U.S. Federal tax information, mailing required tax forms, stationery, postage, facsimile, and telephone calls), shareholder identification, investor relations activities or programs in North America, accounting fees (such as external audit fees incurred in connection with the Sarbanes-Oxley Act, the preparation of the Company's Form 20-F and paid to the FASB and the PCAOB), legal fees and other expenses incurred in connection with the preparation of regulatory filings and other documentation related to ongoing SEC, NYSE and U.S. securities law compliance. In certain instances, the depositary has agreed to make additional payments to the Company based on certain applicable performance indicators related to the ADR facility.

During the fiscal year ended December 31, 2019, the Company received net payments of \$10.8 million from the depositary.

For additional information on TOTAL S.A.'s shares and the American depositary shares, please refer to Exhibit 2.2 "Description of securities registered under Section 12 of the Exchange Act".

ITEM 13. DEFAULTS, DIVIDEND ARREARAGES AND DELINQUENCIES

None.

ITEM 14. MATERIAL MODIFICATIONS TO THE RIGHTS OF SECURITY HOLDERS AND USE OF PROCEEDS

None.

ITEM 15. CONTROLS AND PROCEDURES

15.1 Disclosure controls and procedures

An evaluation was carried out under the supervision and with the participation of the Group's management, including the Chief Executive Officer and the Chief Financial Officer, of the effectiveness, as of the end of the period covered by this report, of the design and operation of the Group's disclosure controls and procedures, which are defined as those controls and procedures designed to ensure that information required to be disclosed in reports filed under the Securities Exchange Act of 1934, as amended, is recorded, summarized and reported within specified time periods. There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, even effective disclosure controls and procedures can provide only reasonable assurance of achieving their control objectives. Based on this evaluation, the Chief Executive Officer and the Chief Financial Officer concluded that the design and operation of these disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed in the reports that the Company files under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the applicable rules and forms, and that it is accumulated and communicated to management, including themselves, as appropriate to allow timely decisions regarding required disclosure.

15.2 Management's annual report on internal control over financial reporting

The Group's management is responsible for establishing and maintaining adequate internal control over financial reporting. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements and even when determined to be effective, can only provide reasonable assurance with respect to financial statement preparation and presentation. Also, the effectiveness of an internal control system may change over time.

The Group's management, including the Chief Executive Officer and the Chief Financial Officer, conducted an evaluation of the effectiveness of internal control over financial reporting using the criteria set forth in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on the results of this evaluation, the Group's management concluded that its internal control over financial reporting was effective as of December 31, 2019.

The effectiveness of internal control over financial reporting as of December 31, 2019, was audited by ERNST & YOUNG Audit and KPMG Audit, a division of KPMG S.A., independent registered public accounting firms, as stated in their report included in Item 18 of this annual report.

15.3 Changes in internal control over financial reporting

There were no changes in the Group's internal control over financial reporting that occurred during the period covered by this report that have materially affected, or that were reasonably likely to materially affect, the Group's internal control over financial reporting.

15.4 Internal control and risk management procedures

For additional information, refer to points 3.3 ("Internal control and risk management procedures") and 3.6 ("Vigilance plan") of chapter 3 of the Universal Registration Document 2019 (starting on pages 93 and 102, respectively), which are incorporated herein by reference.

ITEM 16A. AUDIT COMMITTEE FINANCIAL EXPERT

Ms. Marie-Christine Coisne-Roquette is the Audit Committee financial expert. She is an independent member of the Board of Directors in accordance with the NYSE listing standards applicable to TOTAL.

ITEM 16B. CODE OF ETHICS

At its meeting on October 27, 2016, the Board of Directors adopted a revised code of ethics that applies to its Chief Executive Officer, Chief Financial Officer, Chief Accounting Officer and the financial and accounting officers for its principal activities. A copy of this code of ethics is included as an exhibit to this annual report.

ITEM 16C. PRINCIPAL ACCOUNTANT FEES AND SERVICES

16C.1 Fees for accountants' services

The information set forth in point 4.4.5.2 of chapter 4 of the Universal Registration Document 2019 (on page 199) is incorporated herein by reference.

16C.2 Audit Committee pre-approval policy

The Audit Committee has adopted an Audit and Non-Audit Services Pre-Approval Policy that sets forth the procedures and the conditions pursuant to which services proposed to be performed by the statutory auditors may be pre-approved and that are not prohibited by regulatory or other professional requirements. This policy provides for both pre-approval of certain types of services through the use of an annual budget approved by the Audit Committee for these types of services and special pre-approval of services by the Audit Committee on a case-by-case basis. The Audit Committee reviews on an annual basis the services provided by the statutory auditors. During 2019, no audit-related fees, tax fees or other non-audit fees were approved by the Audit Committee pursuant to the *de minimis* exception to the pre-approval requirement provided by paragraph (c)(7)(i)(C) of Rule 2-01 of Regulation S-X.

16C.3 Auditor's term of office

French law provides that the statutory and alternate auditors are appointed for renewable 6 fiscal-year terms. The terms of office of the current statutory auditors and the alternate auditors will expire at the end of the Annual Shareholders' Meeting called in 2022 to approve the financial statements for fiscal year 2021.

ITEM 16D. EXEMPTIONS FROM THE LISTING STANDARDS FOR AUDIT COMMITTEES

None.

ITEM 16E. PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

Period (in 2019)	Total Number of Shares (or Units) Purchased	Average Price Paid Per Share (or Units) (\$) ^(a)	Total Number of Shares (or Units) Purchased, as part of Publicly Announced Plans or Programs ^(b)	Maximum Number of Shares (or Units) that may yet be purchased under the Plans or Programs ^(c)
January	0	n.a.	0	231,709,416
February	2,365,794	55.30	2,365,794	229,348,192
March	6,309,394	56.08	6,309,394	223,041,168
April	0	n.a.	0	224,530,545
May	7,221,379	53.86	7,221,379	217,309,816
June	16,434,879	53.29	16,434,879	201,887,819
July	145,010	54.04	145,010	206,019,117
August	6,970,373	49.58	6,970,373	199,052,111
September	1,424,378	50.81	1,424,378	197,632,721
October	0	n.a.	0	197,633,261
November	9,447,343	54.63	9,447,343	188,186,168
December	2,070,786	53.52	2,070,786	244,713,873

(a) Based on the average exchange rate for 2019 at 1 euro for 1.1195 dollars.

(b) The Annual Shareholders' Meeting of May 29, 2019, canceled and superseded the previous resolution (for any unused portion) from the Annual Shareholders' Meeting of June 1, 2018, authorizing the Board of Directors to trade in the Company's own shares on the market for a period of 18 months within the framework of the stock purchase program. The maximum number of shares that may be purchased by virtue of this authorization or under the previous authorization may not exceed 10% of the total number of shares constituting the share capital, this amount being periodically adjusted to take into account operations modifying the share capital after each shareholders' meeting. Under no circumstances may the total number of shares held by the Company, either directly or indirectly through its subsidiaries, exceed 10% of the share capital. This authorization will be renewed subject to the approval of the Annual Shareholders' Meeting of May 29, 2020.

(c) Based on 10% of the Company's share capital, and after deducting the shares held by the Company for cancellation and the shares held by the Company to cover the share subscription or purchase option plans and the performance share plans for Group employees.

ITEM 16F. CHANGE IN REGISTRANT'S CERTIFYING ACCOUNTANT

Not applicable.

ITEM 16G. CORPORATE GOVERNANCE

This section presents a summary of significant differences between French corporate governance practices and the NYSE's corporate governance standards, as required by section 303A.11 of the NYSE Listed Company Manual.

16G.1 Overview

The following paragraphs provide a brief, general summary of significant ways in which our corporate governance practices differ from those required by the listing standards of the New York Stock Exchange ("NYSE") for U.S. companies that have common stock listed on the NYSE. While our management believes that our corporate governance practices are similar in many respects to those of U.S. domestic NYSE listed companies and provide investors with protections that are comparable in many respects to those established by the NYSE Listed Company Manual, certain significant differences are described below.

The principal sources of corporate governance standards in France are the French Commercial Code (*Code de commerce*), the French Financial and Monetary Code (*Code monétaire et financier*) and the regulations and recommendations provided by the French Financial Markets Authority (*Autorité des marchés financiers*, AMF), as well as a number of general recommendations and guidelines on corporate governance, most notably the Corporate Governance Code of Listed Corporations (the "AFEP-MEDEF Code") published by the two main French business confederations, the *Association Française des Entreprises Privées* (AFEP) and the *Mouvement des Entreprises de France* (MEDEF), the latest version of which was published in June 2018.

The AFEP-MEDEF Code includes, among other things, recommendations relating to the role and operation of the board of directors (creation, composition and evaluation of the board of directors and the audit, compensation and nominations committees) and the independence criteria for board members. Articles L. 820-1 *et seq.* of the French Commercial Code authorizes statutory auditors to provide certain non-audit services if in compliance with provisions of the French Commercial Code, the European legislation and the Code of ethics of the auditors. It also defines certain criteria for the independence of statutory auditors. In France, the independence of statutory auditors is also monitored by an independent body, the High Council for statutory auditors (*Haut Conseil du Commissariat aux Comptes*).

For an overview of certain of our corporate governance policies, refer to points 4.1 ("Administration and management bodies") and 4.2 ("Statement regarding corporate governance") of chapter 4 of the Universal Registration Document 2019 (starting on page 130), which are incorporated herein by reference.

16G.2 Composition of Board of Directors; Independence

The NYSE listing standards provide that the board of directors of a U.S.-listed company must include a majority of independent directors and that the audit committee, the nominating/corporate governance committee and the compensation committee must be composed entirely of independent directors. A director qualifies as independent only if the board affirmatively determines that the director has no material relationship with the company, either directly or as a partner, shareholder or officer of an organization that has a relationship with the company. Furthermore, as discussed below, the listing standards require additional procedures in regards to the independence of directors who sit on the audit committee and the compensation committee. In addition, the listing standards enumerate a number of relationships that preclude independence.

French law does not contain any independence requirement for the members of the board of directors of a French company, except for the audit committee, as described below. The AFEP-MEDEF Code recommends, however, that (i) the independent directors should account for half of the members of the board of directors of widely-held corporations without controlling shareholders, and (ii) independent directors should account for at least one-third of board members in controlled companies. Members of the board representing employees and employee shareholders are not taken into account in calculating these percentages. The AFEP-MEDEF Code states that a director is independent when "he or she has no relationship of any kind whatsoever with the corporation, its group or the management that may interfere with his or her freedom of judgment. Accordingly, an independent director is understood to be any non-executive director of the corporation or the group who has no particular bonds of interest (significant shareholder, employee, other) with them." The AFEP-MEDEF Code also enumerates specific criteria for determining independence, which are on the whole consistent with the goals of the NYSE listing standards, although the specific tests under the two standards may vary on some points.

As noted in the AFEP-MEDEF Code, "qualification as an independent director should be discussed by the appointments committee [...] and decided on by the board on the occasion of the appointment of a director, and annually for all directors."

For an overview of the Company's Board of Directors' assessment of the independence of the Company's Directors, including a description of the Board's independence criteria, refer to point 4.1.1.4 ("Directors' independence") of chapter 4 of the Universal Registration Document 2019 (starting on page 142), which is incorporated herein by reference.

16G.3 Representation of women on corporate boards

The French Commercial Code provides for legally binding quotas to balance gender representation on boards of directors of French listed companies, requiring that each gender represent at least 40%. Directors representing the employees are not taken into account in calculating this percentage. When the board of directors consists of a maximum of eight members, the difference between the number of directors of each gender should not be higher than two. Any appointment of a director made in violation of these rules will be declared null and void and payment of the directors' compensation will be suspended until the board composition is compliant with the required quota (the suspension of the directors' compensation will also be disclosed in the management report). However, if a director whose appointment is null and void takes part in decisions of the board of directors, such decisions are not declared automatically null and void by virtue thereof. As of March 18, 2020, the Company's Board of Directors consisted of five male members and seven female members. Excluding the director representing employees and the director representing employee shareholders in accordance with French law, the proportion of women on the Board was 50%, the director representing employees and the director representing employee shareholders being female.

16G.4 Board committees

16G.4.1 Overview

The NYSE listing standards require that a U.S.-listed company have an audit committee, a nominating/corporate governance committee and a compensation committee. Each of these committees must consist solely of independent directors and must have a written charter that addresses certain matters specified in the listing standards. Furthermore, the listing standards require that, in addition to the independence criteria referenced above under "Composition of Board of Directors; Independence", certain enumerated factors be taken into consideration when making a determination on the independence of directors on the compensation committee or when engaging advisors to the compensation committee.

With the exception of an audit committee, as described below, French law currently requires neither the establishment of board committees nor the adoption of written charters.

The AFEP-MEDEF Code recommends, however, that the board of directors sets up, in addition to the audit committee required by French law, a nominations committee and a compensation committee. The AFEP-MEDEF Code also recommends that at least two-thirds of the audit committee members and a majority of the members of each of the compensation committee and the nominations committee be independent directors. It is recommended that the chairman of the compensation committee be independent and that one of its members be an employee director.⁽²⁵⁾ None of those three committees should include any Executive Officer⁽²⁵⁾.

TOTAL has established an Audit Committee, a Governance and Ethics Committee, a Compensation Committee and a Strategy & CSR Committee. As of March 18, 2020, the composition of these Committees was as follows:

- the Audit Committee had four members, 100% of whom have been deemed independent by the Board of Directors;
- the Governance and Ethics Committee had four members, 100% of whom have been deemed independent by the Board of Directors;
- the Compensation Committee had four members, 100% of whom have been deemed independent by the Board of Directors (according to point 9.3 of the AFEP-MEDEF Code, directors representing the employee shareholders and directors representing employees are not taken into account when determining this percentage); and
- the Strategy & CSR Committee had six members. With the exception of Mr. Pouyanné, who chairs the committee, all members of this Committee have been deemed independent by the Board of Directors (according to point 9.3 of the AFEP-MEDEF Code, directors representing the employee shareholders and directors representing employees are not taken into account when determining this percentage).

For a description of the independence assessment of each member of the Board of Directors, see point 4.1.1.4 ("Directors' independence") of chapter 4 of the Universal Registration Document 2019 (starting on page 142), which is incorporated herein by reference. For a description of the scope of each Committee's activity, see point 4.1.2.3 ("Committees of the Board of Directors") of chapter 4 of the Universal Registration Document 2019 (starting on page 153), which is incorporated herein by reference.

The NYSE listing standards also require that the audit, nominating/corporate governance and compensation committees of a U.S.-listed company be vested with decision-making powers on certain matters. Under French law, however, those committees are advisory in nature and have no decision-making authority. Board committees are responsible for examining matters within the scope of their charter and making recommendations thereon to the board of directors. Under French law, the board of directors has the final decision-making authority.

16G.4.2 Audit Committee

The NYSE listing standards contain detailed requirements for the audit committees of U.S.-listed companies. Some, but not all, of these requirements also apply to non U.S.-listed companies, such as TOTAL. French law and the AFEP-MEDEF Code share the NYSE listing standards' goal of establishing a system for overseeing the company's accounting process that is independent from management and that ensures auditor independence. As a result, they address similar topics, with some overlap.

(25) As defined by the AFEP-MEDEF Code, Executive Officers "include the Chairman and Chief Executive Officer, the Deputy chief executive officer(s) of public limited companies with a Board of Directors, the Chairman and members of the Management Board in public limited companies having a Management Board and Supervisory Board and the statutory managers of partnerships limited by shares".

Article L. 823-19 of the French Commercial Code requires the board of directors of companies listed in France to establish an audit committee, at least one member of which must be an independent director and must be competent in finance, accounting or statutory audit procedures. The AFEP-MEDEF Code provides that at least two-thirds of the directors on the audit committee be independent and that the audit committee should not include any Executive Officer. Under NYSE rules, in the absence of an applicable exemption, audit committees are required to satisfy the independence requirements under Rule 10A-3 of the Exchange Act. TOTAL's Audit Committee consists of four directors, all of whom meet the independence requirements under Rule 10A-3.

The duties of the Company's Audit Committee, in line with French law and the AFEP-MEDEF Code, are described in point 4.1.2.3 of chapter 4 of the Universal Registration Document 2019 (starting on page 153), which is incorporated herein by reference. The Audit Committee regularly reports to the Board of Directors on the fulfillment of its tasks, the results of the financial statements certification process and the contribution of such process to guaranteeing the financial information's integrity.

One structural difference between the legal status of the audit committee of a U.S.-listed company and that of a French-listed company concerns the degree of the committee's involvement in managing the relationship between the company and the auditors. French law requires French companies that publish consolidated financial statements, such as TOTAL S.A., to have two co-statutory auditors, while the NYSE listing standards require that the audit committee of a U.S.-listed have direct responsibility for the appointment, compensation, retention and oversight of the work of the auditor. French law provides that the election of the co-statutory auditors is the sole responsibility of the shareholders duly convened at a shareholders' meeting. In making their decision, the shareholders may rely on proposals submitted to them by the board of directors based on recommendations from the audit committee. The shareholders elect the statutory auditors for an audit period of six financial years. The statutory auditors may only be revoked by a court order and only on grounds of professional negligence or incapacity to perform their mission.

16G.5 Meetings of non-management directors

The NYSE listing standards require that the non-management directors of a U.S.-listed company meet at regularly scheduled executive sessions without management. French law does not contain such a requirement. The AFEP-MEDEF Code recommends, however, that a meeting not attended by the Executive Officers be organized at least once a year.

Since December 16, 2015, the rules of procedure of the board of directors provide that, with the agreement of the Governance and Ethics Committee, the Lead Independent Director may hold meetings of the directors who do not hold executive or salaried positions on the Board of Directors. He or she reports to the Board of Directors on the conclusions of such meetings.

In December 2019, the Lead Independent Director held a meeting of the independent directors. She subsequently presented a summary of this meeting to the Board of Directors.

Thus, the Board of Directors' practice is in line with the recommendation made in the AFEP-MEDEF Code.

16G.6 Shareholder approval of compensation

Pursuant to the provisions of the French Commercial Code, as amended, the compensation of the chairman of the board of directors, the members of the board of directors, the chief executive officer and, as the case may be, the deputy chief executive officer(s) in French listed companies shall each year be submitted to the approval of their shareholders. Articles L. 225-37-2 and L. 225-100 of the French Commercial Code provide, respectively, for an *ex ante* vote and an *ex post* vote:

- *ex ante* vote: the shareholders shall each year approve the compensation policy of the above-mentioned directors and officers for the current fiscal year. Such policy shall describe all components of fixed and variable compensation and shall explain the decision process followed for its determination, review and implementation. In the event a resolution is rejected by the shareholders, the preceding already-approved compensation policy for the concerned director(s) and officer(s) will be applicable; in the absence of a preceding already-approved compensation policy, the compensation is determined in line with compensation granted the preceding year if any, or in line with existing practices in the company; and
- *ex post* vote: the shareholders shall each year approve the fixed, variable and exceptional components of the aggregate compensation and benefit of any kinds due or attributable to each of the above-mentioned directors and officers for the preceding fiscal year. In the event a resolution is rejected by the shareholders, the compensation will not be paid to the directors and officers.

16G.7 Disclosure

The NYSE listing standards require U.S.-listed companies to adopt, and post on their websites, a set of corporate governance guidelines. The guidelines must address, among other things: director qualification standards, director responsibilities, director access to management and independent advisers, director compensation, director orientation and continuing education, management succession and an annual performance evaluation of the board. In addition, the chief executive officer of a U.S.-listed company must certify to the NYSE annually that he or she is not aware of any violations by the company of the NYSE's corporate governance listing standards.

French law requires neither the adoption of such guidelines nor the provision of such certification. The AFEP-MEDEF Code recommends, however, that the board of directors of a French-listed company review its operation annually and perform a formal evaluation at least once every three years, under the leadership of the appointments or nominations committee or an independent director, assisted by an external consultant. TOTAL's Board of Directors' most recent formal evaluation took place in early 2020. The AFEP-MEDEF Code also recommends that shareholders be informed of these evaluations each year in the annual report. In addition, Article L. 225-37 of the French Commercial Code requires the board of directors to present to the

shareholders a corporate governance report appended to the management report, notably describing the composition of the board and the balanced representation of men and women on the board, the preparation and organization of the Board's work, the offices and positions of each TOTAL Executive Officer and the compensation attributable and received by each such officer as well as the compensation attributable and received by the members of the board of directors. The AFEP-MEDEF Code also includes ethical rules concerning which directors are expected to comply.

16G.8 Code of business conduct and ethics

The NYSE listing standards require each U.S.-listed company to adopt, and post on its website, a code of business conduct and ethics for its directors, officers and employees. Under Article 17 of Law n° 2016/1691 of December 9, 2016, top management (such as the chairman of the board or chief executive officer) of large French companies is required to adopt a code of conduct proscribing the different types of behavior being likely to characterize acts of corruption, bribery or influence peddling. This code must be included in the rules of procedure of the company and be submitted to employee representatives. Under the SEC's rules and regulations, all companies required to submit periodic reports to the SEC, including TOTAL, must disclose in their annual reports whether they have adopted a code of ethics for their principal executive officers and senior financial officers. In addition, they must file a copy of the code with the SEC, post the text of the code on their website or undertake to provide a copy upon request to any person without charge. There is significant, though not complete, overlap between the code of ethics required by the NYSE listing standards and the code of ethics for senior financial officers required by the SEC's rules. For a description of the code of ethics adopted by TOTAL, refer to point 3.3.2 of chapter 3 of the Universal Registration Document 2019 (starting on page 94), which is incorporated herein by reference, and "Item 16B. Code of ethics".

ITEM 16H. MINE SAFETY DISCLOSURE

Not applicable.

ITEM 17. FINANCIAL STATEMENTS

Not applicable.

ITEM 18. FINANCIAL STATEMENTS

The Consolidated Financial Statements and Notes thereto included in the Universal Registration Document 2019 (starting on page 281) are incorporated herein by reference.

The reports of the statutory auditors, ERNST & YOUNG Audit and KPMG Audit, a division of KPMG S.A., are included in the following pages:

KPMG Audit

A division of KPMG S.A.
Tour EQHO
2 avenue Gambetta
CS 60055
92066 Paris-La Défense Cedex

Commissaire aux Comptes
Membre de la compagnie
régionale de Versailles

ERNST & YOUNG Audit

1/2, place des Saisons
92400 Courbevoie - Paris-La Défense 1
France
S.A.S. à capital variable

Commissaire aux Comptes
Membre de la compagnie
régionale de Versailles

TOTAL S.A.

Registered office: 2, place Jean Millier - La Défense 6 - 92400 Courbevoie - France

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRMS ON THE CONSOLIDATED FINANCIAL STATEMENTS

To the Board of Directors and Shareholders,

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of TOTAL S.A. and subsidiaries (“the Group”) as of December 31, 2019, 2018 and 2017, the related consolidated statements of income, comprehensive income, changes in shareholders’ equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes (collectively, “the consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Group as of December 31, 2019, 2018 and 2017, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2019, in conformity with International Financial Reporting Standards as adopted by the European Union and in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the Group’s internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated March 18, 2020 expressed an unqualified opinion on the effectiveness of the Group’s internal control over financial reporting.

Change in Accounting Principles

As discussed in the Note to the financial statements “Basis of preparation of the consolidated financial statements”, the Group has changed its method of accounting for leases on January 1, 2019, due to the adoption of IFRS 16 “Leases”.

Basis for Opinion

These consolidated financial statements are the responsibility of the Group’s management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are public accounting firms registered with the PCAOB and are required to be independent with respect to the Group in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The Critical Audit Matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the Audit Committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of Critical Audit Matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the Critical Audit Matters below, providing separate opinions on the Critical Audit Matters or on the accounts or disclosures to which they relate.

Evaluation of the impairment of non-current assets of exploration and production activities (property, plant and equipment and proved and unproved mineral interests) of the Exploration & Production and Integrated Gas, Renewables and Power segments (“E&P and iGRP segments”)

Description of the Matter

As discussed in Notes 7.1, 7.2, and 3 to the consolidated financial statements as of December 31, 2019, the non-current assets of exploration and production activities of the E&P and iGRP segments are mainly comprised of proved properties and work in progress of exploration and production activities (91,424 million US dollars), proved mineral interests (7,225 million US dollars), unproved mineral interests (15,580 million US dollars), and a portion of the 22,902 million US dollars balance of investments and loans in equity affiliates.

The Group performs impairment tests on these assets as soon as any indication of impairment exists. The testing method is described in Note 3.D to the consolidated financial statements. The Group assesses the recoverable amount of the E&P and iGRP segments’ non-current assets of exploration and production activities based on the cash-generating units that includes all the hydrocarbon sites and industrial assets involved in the production, processing and extraction of hydrocarbons. The recoverable amount is measured for each cash-generating unit, taking into account the economic business environment and the Group’s operating plans. The primary assumptions used by the Group to measure the recoverable amount include the future price of hydrocarbons, the operational costs, the estimates of oil and gas reserves, and the after-tax discount rate.

We identified the evaluation of the impairment of the E&P and iGRP segments’ non-current assets of exploration and production activities as a critical audit matter because evaluating the Group’s assumptions discussed above involved a high degree of subjective auditor judgment. Specifically, such evaluation required the consideration of evidence that corroborates the Group’s assumptions and evidence that might contradict the assumptions, such as publicly available industry information.

How We Addressed the Matter in Our Audit

The primary procedures we performed to address this critical audit matter included the following. We obtained an understanding, evaluated the design, and tested the operating effectiveness of certain controls over the Group’s processes to address the risks of material misstatement relating to the evaluation of the impairment of the E&P and iGRP segments’ non-current assets of exploration and production activities. This included testing certain controls over the Group’s determination of the primary assumptions underlying the recoverable amount, such as the future price of hydrocarbons, the estimates of hydrocarbon reserves, the operational costs, and the after-tax discount rate.

We considered whether there was an indication of impairment for these assets, such as an expected severe decline of production, a new tax law enacted, or an expected impact of new price assumptions. We compared the primary assumptions to those included in analyses, budgets and forecasts of the Group and approved by the Executive Committee and the Board of Directors. We also compared the hydrocarbon pricing scenarios used by the Group to publicly available industry information (International Energy Agency). We agreed oil production profiles to the proved and probable reserves established as part of the Group’s internal procedures. We evaluated the reasonableness of the future operational costs by calculating ratios over production and comparing them over time or to those of other similar assets. With the assistance of valuation specialists, we performed an independent re-calculation of the after-tax discount rate used, which we compared with the rates calculated by major financial analysts. In addition, we assessed the consistency of the tax rates used with the applicable tax schemes and the oil agreements in force.

Effect of estimated proved and proved developed hydrocarbon reserves on the depreciation of oil and gas assets of production activities of the of the Exploration & Production and Integrated Gas, Renewables and Power segments (“E&P and iGRP segments”)

Description of the Matter

As discussed in the Note “Major judgments and accounting estimates” to the consolidated financial statements, the proved reserves and proved developed reserves are used by the Group in the successful efforts method to account for its oil and gas activities. Notes 7.1 and 7.2 to the consolidated financial statements outline that under such method, oil and gas assets are depreciated using the unit-of-production method. The unit-of-production method is based on proved and proved developed reserves. Those reserves are estimated by the Group’s petroleum engineers in accordance with industry practice and Securities and Exchange Commission (SEC) regulations.

The primary assumptions used by the Group to estimate the proved and proved developed reserves include the following: geoscience and engineering data used to determine deposit quantities; contractual arrangements that determine the Group’s share of the reserves; and the 12-month average price based on the SEC regulations.

We identified the effect of estimated proved and proved developed hydrocarbon reserves on the depreciation of oil and gas assets of production activities of the E&P and iGRP segments as a critical audit matter because evaluating the Group’s aforementioned assumptions involved a high degree of complex auditor judgment due to the inherent uncertainty and nature of such assumptions.

How We Addressed the Matter in Our Audit

The primary procedures we performed to address this critical audit matter included the following. We obtained an understanding, evaluated the design, and tested the operating effectiveness of certain controls over the Group’s processes to address the risks of material misstatement in the depreciation of oil and gas assets of production activities of the E&P and iGRP segments relating to the effect of estimated proved and proved developed hydrocarbon reserves. This included testing certain controls over management’s determination and review of deposit quantities and the modeling of contractual arrangements that determine the Group’s share of proved and proved developed hydrocarbon reserves.

We assessed the qualifications and objectivity of the Group's petroleum engineers responsible for estimating reserves and analyzed the main changes in proved and proved developed reserves compared to the last fiscal year. We compared the 2019 forecasted production to 2019 actual production. We inspected evidence from contractual arrangements that determine the Group's share of the proved and proved developed hydrocarbon reserves through the expiration of the contracts. We evaluated the Group's assessment, where appropriate, of the reasons leading the Group to believe that the renewal of contractual arrangements is reasonably certain. In addition, we assessed the compliance of the Group's methodology to estimate proved and proved developed hydrocarbon reserves of the E&P and iGRP segments with the SEC regulations, particularly with regard to the average annual reference prices used to measure the value of proved and proved developed reserves.

Paris-La Défense, March 18, 2020

KPMG Audit,
a division of KPMG S.A.

ERNST & YOUNG Audit

/s/ JACQUES-FRANÇOIS
LETHU

Jacques-François Lethu
Partner

/s/ ERIC JACQUET

Eric Jacquet
Partner

/s/ ERNST & YOUNG Audit

ERNST & YOUNG Audit

We or our predecessor firms have served as
the Company's auditor since 1996.

We have served as the
Company's auditor since 2004.

KPMG Audit

A division of KPMG S.A.
Tour EQHO
2 avenue Gambetta
CS 60055
92066 Paris-La Défense Cedex

Commissaire aux Comptes
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France
S.A.S. à capital variable

Commissaire aux Comptes
Membre de la compagnie
régionale de Versailles

TOTAL S.A.

Registered office: 2, place Jean Millier - La Défense 6 - 92400 Courbevoie - France

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRMS ON THE INTERNAL CONTROL OVER FINANCIAL REPORTING

To the Shareholders and Board of Directors,

Opinion on Internal Control Over Financial Reporting

We have audited TOTAL S.A. and subsidiaries' ("the Group") internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Group maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Group as of December 31, 2019, 2018 and 2017, the related consolidated statements of income, comprehensive income, changes in shareholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2019 and the related notes (collectively, "the consolidated financial statements"), and our report dated March 18, 2020 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Group's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Group's internal control over financial reporting based on our audit. We are public accounting firms registered with the PCAOB and are required to be independent with respect to the Group in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Paris La Défense, March 18, 2020

KPMG Audit,
a division of KPMG S.A.

ERNST & YOUNG Audit

/s/ JACQUES-FRANÇOIS

/s/ ERIC JACQUET

/s/ ERNST & YOUNG Audit

LETHU

Jacques-François Lethu

Partner

Eric Jacquet

Partner

ERNST & YOUNG Audit

ITEM 19. EXHIBITS

The following documents are filed as part of this annual report:

- 1 Bylaws (*Statuts*) of TOTAL S.A. (as amended through December 11, 2019) (incorporated by reference to the Company's annual report on Form 20-F for the year ended December 31, 2019, filed on March 20, 2020).
- 2.1 The total amount of long-term debt securities authorized under any instrument does not exceed 10% of the total assets of the Company and its subsidiaries on a consolidated basis. We hereby agree to furnish to the SEC, upon its request, a copy of any instrument defining the rights of holders of long-term debt of the Company or of its subsidiaries for which consolidated or unconsolidated financial statements are required to be filed.
- 2.2 Description of securities registered under section 12 of the Exchange Act (incorporated by reference to the Company's annual report on Form 20-F for the year ended December 31, 2019, filed on March 20, 2020).
- 8 List of Subsidiaries (see Note 18 to the Consolidated Financial Statements included in the Universal Registration Document 2019 (starting on page 375 which is incorporated herein by reference).
- 11 Code of Ethics (incorporated by reference to the Company's annual report on Form 20-F for the year ended December 31, 2016, filed on March 17, 2017).
- 12.1 Certification of Chief Executive Officer.
- 12.2 Certification of Chief Financial Officer.
- 13.1 Certification of Chief Executive Officer.
- 13.2 Certification of Chief Financial Officer.
- 15.1 Excerpt of the pages and sections of the Universal Registration Document 2019 incorporated herein by reference.
- 15.2 Consent of ERNST & YOUNG Audit and of KPMG Audit, a division of KPMG S.A (incorporated by reference to the Company's annual report on Form 20-F for the year ended December 31, 2019, filed on March 20, 2020).
- 15.3 Third party report of DeGolyer and MacNaughton (incorporated by reference to the Company's annual report on Form 20-F for the year ended December 31, 2019, filed on March 20, 2020).
- 15.4 Consent of DeGolyer and MacNaughton (incorporated by reference to the Company's annual report on Form 20-F for the year ended December 31, 2019, filed on March 20, 2020).
- 101 XBRL Document (incorporated by reference to the Company's annual report on Form 20-F for the year ended December 31, 2019, filed on March 20, 2020).

SIGNATURE

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F/A and that it has duly caused and authorized the undersigned to sign this Amendment No.1 to the annual report on its behalf.

TOTAL S.A.

By: /s/ PATRICK POUYANNÉ

Name: Patrick Pouyanné

Title: Chairman and Chief Executive Officer

Date: April 14, 2020

EXHIBIT 15.1

Exhibit 15.1 contains the excerpts of TOTAL S.A.'s Universal Registration Document 2019 that are incorporated by reference into this Annual Report on Form 20-F ⁽¹⁾.

⁽¹⁾ Where information has been deleted from TOTAL S.A.'s Universal Registration Document 2019, such deletion is indicated in this exhibit with a notation that such information has been redacted.

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[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

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[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

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[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

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[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

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[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

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[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

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[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

1

Presentation of the Group – Integrated report

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1.3	Advantages that allow the Group to stand out in a changing energy world	8	1.5.1	A Board of Directors fully committed to the Company's strategic orientations	19
1.3.1	A long-standing energy player	8	1.5.2	TOTAL S.A., parent company of the Group and its subsidiaries	20
1.3.2	A differentiating geographic presence	10	1.5.3	An operational structure	20
1.3.3	Employees committed to better energy	11		[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]	
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1.1 TOTAL in brief

1.1.1 A major energy player

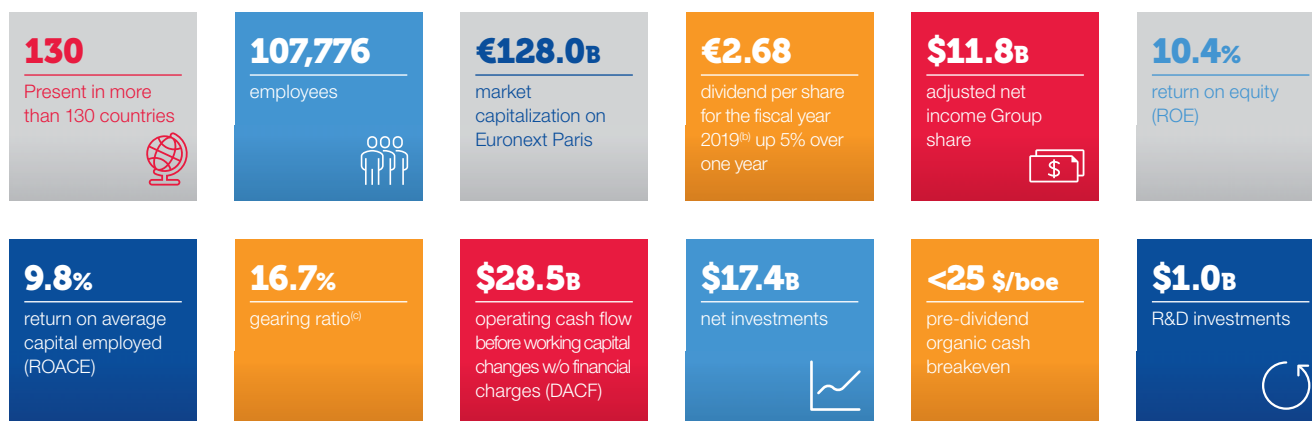
TOTAL, a producer of oil and gas for nearly a century with a presence in more than 130 countries on 5 continents, is a major energy player⁽¹⁾ that produces and markets fuels, natural gas and low-carbon electricity.

The Group's activities extend from exploration and production of oil, gas and electricity to the energy distribution to the end consumer through refining, liquefaction, petrochemicals, trading, energies transport and storage. More than 100,000 employees are committed to contributing to supply to as many people as possible, a more affordable, more available and cleaner energy.

Energy, an essential resource, accompanies the development of society. In view of the major challenges of today's world, energy producers have a key role to play.

1.1.2 2019 key Group figures

As of December 31, 2019^(a)



(a) For a definition of the alternative performance indicators, refer to the Glossary and to Note 3 to the Consolidated Financial Statements (point 8.7 of chapter 8).

(b) Subject to approval by the Shareholders' Meeting on May 29, 2020.

(c) Excluding leases; 20.7% including the leases impact.

Hydrocarbon production and proved reserves

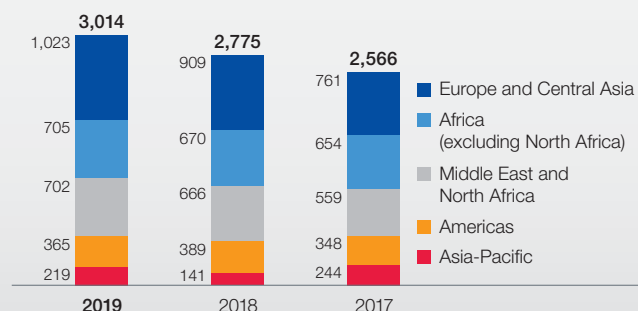


Hydrocarbon production

	2019	2018	2017
Combined production (kboe/d)	3,014	2,775	2,566
Oil (including bitumen) (kb/d)	1,431	1,378	1,167
Gas (including Condensates and associated NGL) (kboe/d)	1,583	1,397	1,399
	2019	2018	2017
Combined production (kboe/d)	3,014	2,775	2,566
Liquids (kb/d)	1,672	1,566	1,346
Gas (Mcf/d)	7,364	6,599	6,662

Hydrocarbon production by geographic area

(kboe/d)



(1) TOTAL is the world's fourth-largest publicly traded integrated oil and gas group based on market capitalization (in dollars) as of December 31, 2019.

(2) Based on a Brent crude price of 62.74\$/b (reference price in 2019), according to the rules established by the Securities and Exchange Commission (report to point 2.1.1 of chapter 2).

Hydrocarbon proved reserves^(a)

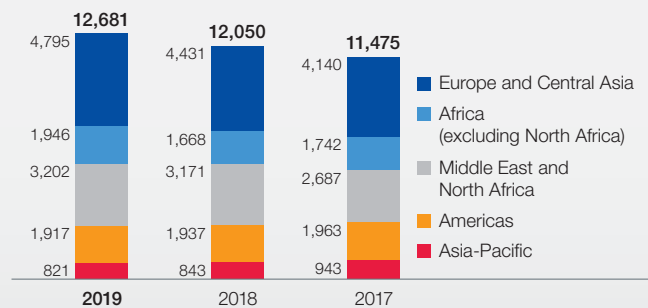
As of December 31	2019	2018	2017
Hydrocarbon reserves (Mboe)	12,681	12,050	11,475
Oil (including bitumen) (Mb)	5,167	5,203	4,615
Gas (including Condensates and associated NGL) (Mboe)	7,514	6,847	6,860

As of December 31	2019	2018	2017
Hydrocarbon reserves (Mboe)	12,681	12,050	11,475
Liquids (Mb)	6,006	6,049	5,450
Gas (Bcf)	36,015	32,325	32,506

(a) Proved reserves of hydrocarbons based on SEC rules (Brent at \$62.74/b in 2019, \$71.43/b in 2018 and \$54.36/b in 2017).

Hydrocarbon proved reserves^(a) by geographic areas

(Mboe)



(a) Proved reserves of hydrocarbons based on SEC rules (Brent at \$62.74/b in 2019, \$71.43/b in 2018 and \$54.36/b in 2017).

Integrated Gas, Renewables & Power

34.3 Mt

LNG volumes sold in 2019

~2 GW

gas-fired power generation capacity in Europe (CCGT)⁽¹⁾

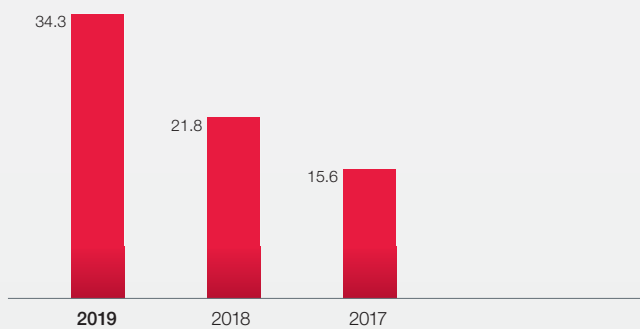
3 GW

installed gross capacity of renewable power generation

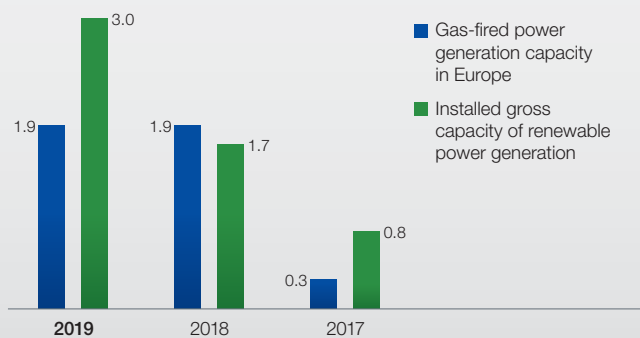
5.8 M

number of sites for gas and electricity sales of which 80% B2C

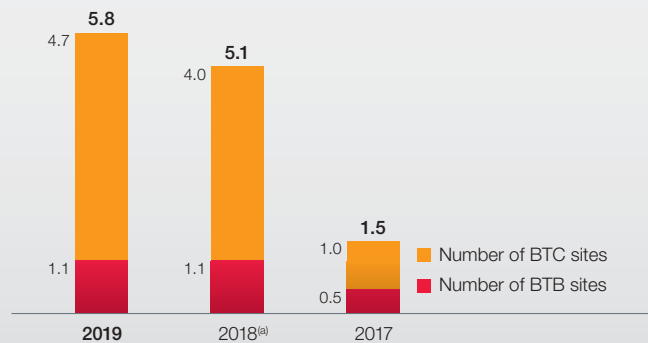
LNG sales (Mt)



Installed gross capacity of low-carbon power generation⁽²⁾ (GW)



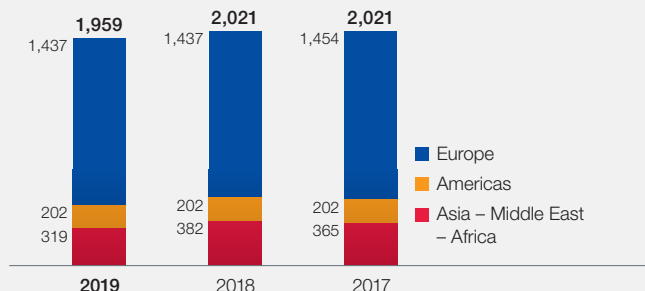
Sales of gas and electricity in Europe – Number of BTB and BTC sites (in millions)



(a) Acquisition of Direct Énergie in 2018.

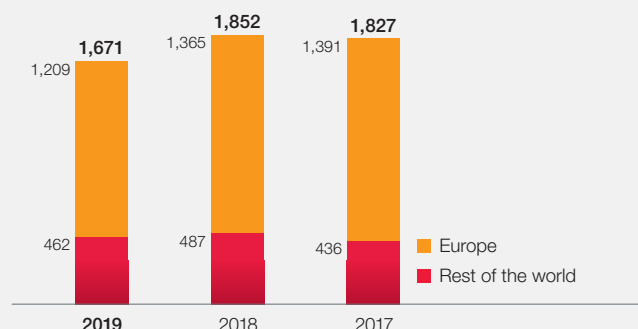
(1) Including Normandy Refinery cogeneration unit, part of Refining & Chemical segment.
 (2) Excluding Cycle combined gas plants in Taweelah, United Arab Emirates.

Refining & Chemicals and Marketing & Services Crude oil refining capacity^(a) (kb/d)



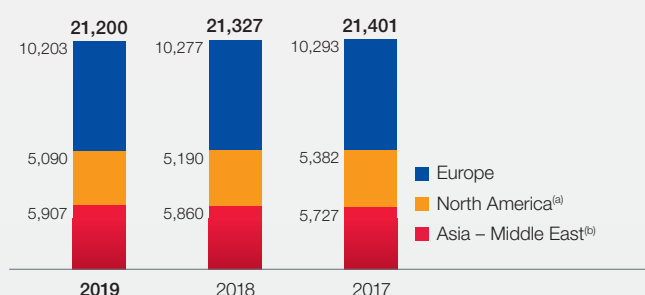
(a) Capacity data based on crude distillation unit stream-day capacities under normal operating conditions, less the average impact of shutdowns for regular repair and maintenance activities.

Refinery throughput^(a) (kb/d)



(a) Includes refineries in Africa that are reported in the Marketing & Services segment.

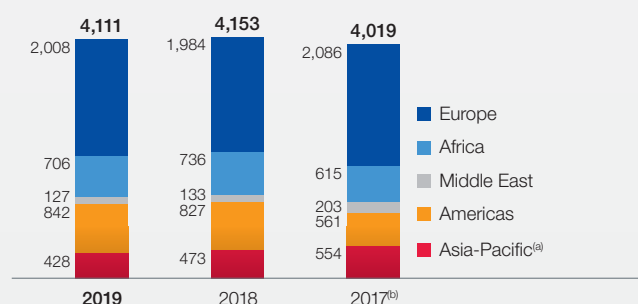
Petrochemicals production capacity by geographic area (kt)



(a) Including 50% of the joint-venture between TOTAL and Novealis.

(b) Including interests in Qatar, 50% of Hanwha Total Petrochemicals Co. Limited and 37.5% of SATORP in Saudi Arabia.

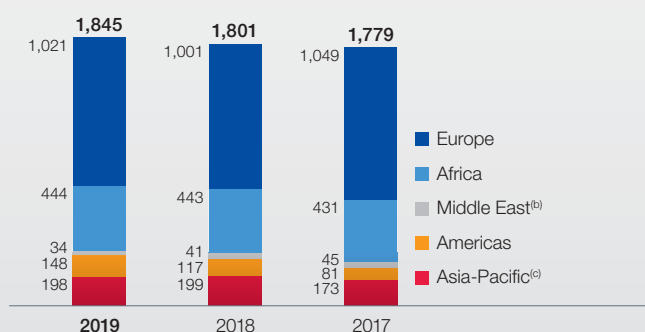
Petroleum product sales (kb/d)



(a) Including Indian Ocean islands.

(b) 2017 data restated. Sales in Turkey, Lebanon, Jordan and Israel were reclassified from Europe to Middle East. Sales in Morocco, Algeria and Tunisia were reclassified from Europe to Africa.

Marketing & Services petroleum product sales^(a) by geographic area (kb/d)

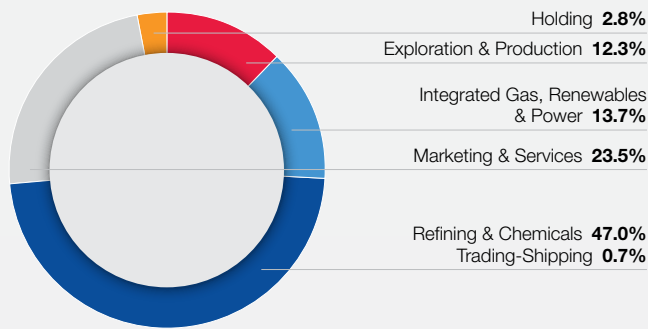


(a) Excluding trading and bulk refining sales.

(b) Including Turkey.

(c) Including Indian Ocean islands.

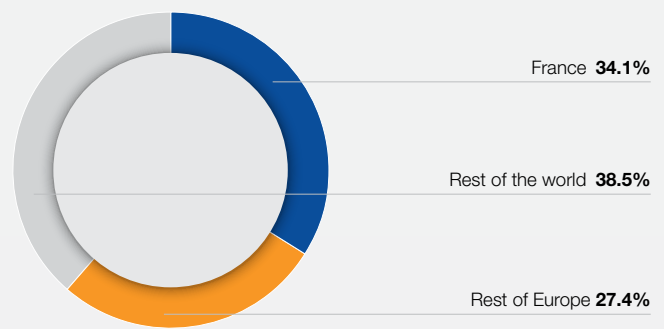
Employees by segment^(a)



Workforce as of December 31, 2019: 107,776.

(a) Refer to point 5.3 of chapter 5.

Employees by geographical area^(a)

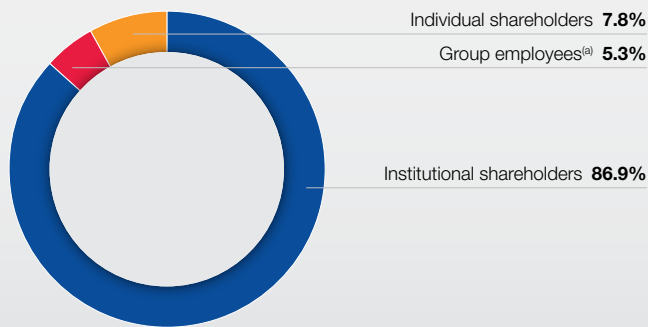


Workforce as of December 31, 2019: 107,776.

(a) Refer to point 5.3 of chapter 5.

Shareholding structure by shareholder type

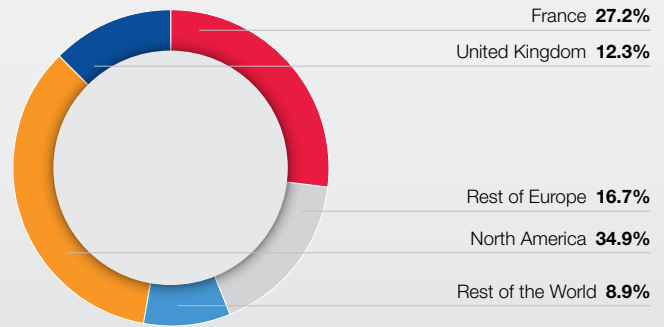
Estimates below are as of December 31, 2019, excluding treasury shares, based on the survey of identifiable holders of bearer shares conducted on that date.



(a) On the basis of employee shareholding as defined in Article L. 225-102 of the French Commercial Code, treasury shares excluded (5.3% of the total share capital, refer to point 6.3.2.6 of chapter 6).

Shareholding structure by area

Estimates below are as of December 31, 2019, excluding treasury shares, based on the survey of identifiable holders of bearer shares conducted on that date.



The number of individual and institutional shareholders of TOTAL S.A. is estimated at approximately 450,000.

1.2 An ambition: become the responsible energy major

1.2.1 A collective ambition to meet the challenges facing the energy sector

TOTAL is an integrated energy group and one of the world's largest. Through its international presence and its activities, TOTAL has the intention to make its development a vehicle of progress that benefits as many people as possible and to be a factor of positive change for the societies and regions where it is present.

The United Nations, whose member States adopted in 2015 the 17 Sustainable Development Goals (SDGs), have called upon corporations' contribution to collectively find solutions to sustainable development challenges. TOTAL has committed since 2016 to contributing to the SDGs and has structured its approach to responsible development in order to make a more significant contribution to the SDGs, and in particular regarding access to energy, decent work, human rights and climate change.

Access to energy is a source of progress. It is the condition for economic and social development as well as for the improvement of the standard

of living of people around the world. In most countries, and in the developing countries in particular, access to low-cost energy is a priority.

The Group's vocation is to produce the energy that the world needs, and will need in the future, and to make it accessible to as many people as possible. This is a real challenge: despite progress made since 2010, 840 million individuals⁽¹⁾ still have no access to electricity.

This vocation is to be accomplished in a responsible manner and by working to provide an effective response to the climate change challenge, in particular.

Meeting the energy needs of a growing global population, providing tangible solutions to contribute limiting global warming, adapting to new patterns of energy production and consumption and changes to the expectations of customers and stakeholders constitute the challenges that a major energy player like TOTAL can help tackle.

(1) Source: 2019 Tracking SDG7: the Energy Progress Report.

1 Presentation of the Group – Integrated Report

An ambition: become the responsible energy major

In 20 years, TOTAL's ambition is to be a leading player in energy, a player that contributes to the development of growing populations by supplying them with affordable energy, a player that helps provide answers to the climate challenge, a player that knows how to evolve with its customers.

TOTAL is committed to supplying people with the energy they need:

- by producing, transforming and distributing energy at an affordable cost and to the highest safety and environmental standards;
- by supplying a responsible energy mix that takes the SDS scenario of the IEA into consideration and with a carbon intensity that regularly decreases;

1.2.2 An established strategy

The Group's strategy takes into account the evolution of energy markets to respond to the challenges of climate change, notably relying on scenarios of the International Energy Agency.

The IEA 2019 World Energy Outlook anticipates three scenarios (Stated Policies Scenario (SPS), Current Policies Scenario (CPS) and Sustainable Development Scenario (SDS)). Among these scenarios, the SPS (central scenario of the IEA) for the short/mid term and the SDS for the mid/long term are important references for the Group. The Group therefore establishes its strategy and long-term price trajectory in line with the IEA's SDS scenario, which is compatible with the Paris Agreement, and foresees oil prices converging towards 50\$_{2018/b} by 2050.

The SPS takes into account the measures already implemented by countries in the energy area as well as the effects of the policies announced by the Governments (including the Nationally Determined Contributions – NDC – of the Paris Agreement). The SDS takes into account necessary measures to achieve a temperature rise of less than 2°C compared to pre-industrial levels, and the energy-related goals set in the "2030 Agenda for Sustainable Development" adopted in 2015 by the UN members.

- by providing its customers with solutions that enable them to use energy responsibly;
- with a quality of local service that is recognized.

TOTAL's ambition is to become the responsible energy major. Its *raison d'être* is to supply to as many people as possible a more affordable, more available and cleaner energy.

Consequently the Group's strategy relies on four pillars:

- expanding along the natural gas value chain;
- developing profitable low-carbon electricity businesses;
- focusing on oil assets at a low breakeven point;
- investing in technologies and businesses that contribute to carbon neutrality.

The ambition of this strategy is to reduce the carbon intensity of the energy mix that the Group offers to its customers (-15% by 2030 and -40% by 2040), and thus to contribute to the evolution of market demand and society's energy transition.

TOTAL acts on several complementary levels:

- on products, by developing energies with a lower carbon content, such as gas (including biogas and hydrogen), renewables and biofuels;
- on demand, by developing, for example, electric mobility or LNG as transport fuel;
- on emissions, by first reducing emissions from its facilities (CO₂ and methane), but also by advising its customers in reducing their emissions (electric mobility solutions, storage, energy efficiency consulting) and by developing carbon sinks (nature-based solutions or CCUS).

1.3 Advantages that allow the Group to stand out in a changing energy world

To become the responsible energy major and to help provide specific solutions to major challenges over the next decades, TOTAL can rely on several advantages: its long-standing and broad geographical presence,

the know-how and commitment of its employees and the power of its integrated business model.

1.3.1 A long-standing energy player

Energy is rooted in TOTAL's history.

A producer of oil and gas for almost a century, the Group's history started in 1924 with the creation of the Compagnie française des Pétroles (CFP), which began its oil production activities in the Middle East at this time.

Over the years, the Group has diversified its activities and opened sites around the world by positioning itself in the gas, refining and petrochemical segments and the distribution of petroleum products, solar power, sustainable biofuels and electricity.

Key dates in the Group's history

Creation in Brussels by an Antwerp-based group of bankers and investors of the Compagnie Financière belge des Pétroles, known as PetroFina	1920	
	1924	Creation of Compagnie française des Pétroles (CFP)
Initial discovery of the Kirkuk field in Iraq; the field's reserves are considerable	1927	
	1933	Commissioning of the Gonfreville refinery in Normandy (France) with an annual capacity of 900,000 t of crude oil
Discovery in France of the Saint Marcelet gas field by the Centre de recherches de pétrole du Midi. Creation of Régie Autonome des Pétroles (RAP), which later became the Elf Group	1939	
	1941	Creation of Société nationale des pétroles d'Aquitaine (SNPA)
Creation of Bureau de recherches de pétroles (BRP)	1945	
	1947	Creation of Compagnie française de Distribution des Pétroles en Afrique
Discovery of the Lacq gas field (France) by SNPA	1951	
	1954	Launch of the TOTAL brand by CFP
Discovery of the Edjeleh, Hassi R'Mel (gas) and Hassi Messaoud (oil) fields in the Algerian Sahara	1956	
	1960	Construction of the Gonfreville steam cracker (France) to respond to the growing demand for plastic
Discovery of the first offshore fields in Gabon; the Anguille field was the first one found	1961	
	1965	TOTAL acquires Desmarais Frères, an important player in the distribution market
Creation of Entreprise de recherches et d'activités pétrolières (ERAP) following the merger of BRP and RAP	1966	
	1967	Launch of the Elf brand
Elf takes control of Antar	1970	
	1971	The Ekofisk field in the North Sea starts production. Creation of GIE ATO, a joint-venture between SNPA and TOTAL in the chemicals industry
Acquisition of Hutchinson-Mapa by the Group	1974	
	1976	Creation of Société nationale Elf Aquitaine (SNEA) following the merger of ERAP and SNPA
Creation of Chloé Chimie, a joint-venture between Elf Aquitaine, CFP and Rhône-Poulenc	1980	
	1982	Drilling by CFP of the first deep-offshore well in the Mediterranean Sea
Birth of the company Atochem, an SNEA subsidiary, following the merger of ATO Chimie, Chloé Chimie and a part of Péchiney Ugine Kuhlmann	1983	
	1985	CFP becomes Total-CFP and then TOTAL in 1991
Disposal by the French state of its majority stake in the capital of Elf Aquitaine	1994	
	1996	Disposal by the French state of its remaining stake in the capital of Elf Aquitaine
Following the incorporation of Fina in 1999, TOTAL acquires Elf Aquitaine. The new Group is called TotalFinaElf and is the world's fourth largest oil major	2000	
	2001	The Girassol field on Block 17 in Angola starts production
TotalFinaElf changes its name to TOTAL	2003	
	2006	Split of Arkema
Investment in the solar energy sector with the acquisition of 60% of the US company, SunPower	2011	
	2016	Acquisition of Saft Groupe, a battery manufacturer, and of Belgian company Lampiris, a supplier of green electricity and natural gas
Acquisition of Mærsk Oil & Gas A/S in a share and debt transaction. Acquisition of Engie's LNG business. Acquisition of Direct Énergie, electricity producer and distributor	2018	
	2019	Acquisition of 26.5% in the Mozambique LNG project. Signing of the agreement with Occidental Petroleum Corporation to acquire the assets of the Anadarko Petroleum Corporation in Africa

1.3.2 A differentiating geographic presence

It is thanks to its pioneer spirit and sense of solidarity that TOTAL has become a worldwide oil and gas major and that it has forged partnerships of trust with its host countries. Remaining loyal to these principles means being continuously open to forming new alliances, key to the Group's development, and creating new opportunities in the energy sector despite geopolitical uncertainty.

It is thanks to a strong and lasting geographic presence that the Group will be able to meet its goal of becoming a recognized partner in the sustainable economic and social development of the communities and regions in which it operates for the creation of shared value.

1.3.2.1 From one history to one ambition

The Group is present in more than 130 countries and on 5 continents. There are three geographical areas in particular that represent the historical foundations of TOTAL's strategy and today stand out thanks to the quality of the on-site teams and solid partnerships forged over time:

- Europe: at the heart of the Group's knowledge, Europe is home to the Group's decision-making center; it is the hub of its research and innovation work and constitutes a strong industrial base;

- Middle East: the Group began its production activities in this geographical area and is recognized in the Middle East as a partner of choice among producing nations and their national oil companies. The aim of the Group is to develop its activities in all business lines in this geographical area, even when geopolitical tension rises;
- Africa: TOTAL is one of the largest integrated majors on the African continent, notably thanks to the volume of hydrocarbon production and the number of Group-branded service stations on the African continent⁽¹⁾. TOTAL generates electricity from renewable sources there. The Group intends to remain the continent's partner of choice and to contribute to its economic and social development through the creation of shared value.

Today, new areas which are vital for the Group have appeared, particularly the Americas, which represent a strong growth opportunity for all of the Group's businesses, Asia, in order to benefit from this market's high rate of growth, and Russia, where TOTAL is working on major industrial projects and maintains a special and long-term relationship with local industrial players.

"It is by giving priority to our strengths and nurturing our differences that we will achieve our ambition of becoming a leading player in the energy of the future."

Patrick Pouyanné, Chairman and Chief Executive Officer

1.3.2.2 Managing geopolitical uncertainty

The world is confronted by political and geopolitical uncertainty characterized by tension connected to conflict and war in countries such as Syria, Iraq, Yemen and Libya. It is exacerbated by international terrorism.

In this context, TOTAL intends to develop its activities by putting its competencies to the benefit of each of the countries where it operates, by complying with applicable laws and international economic sanctions where imposed. The Group also ensures that the capital invested in the most sensitive countries remains at a level limiting its exposure in each of them.

This is the approach TOTAL intends to pursue and which was materialized following its decision to carry on investing in Russia while complying with the economic sanctions imposed by the United States and Europe. The Group, if necessary, stops its activities in countries that become too risky (such as Yemen and Syria).

Loyalty to its partners, particularly during such kind of situations, is also a strong characteristic of the Group.

TOTAL's activities, wherever they are, are carried out in strict adherence to applicable laws and the Group's Code of Conduct and within the framework of compliance and risk management procedures.

By continuing to invest and to supply energy, the Group helps maintain conditions that favor the economic development of these geographical areas.

For more information on risk factors, internal control and risk management procedures and reasonable vigilance measures implemented by the Group, refer to points 3.1, 3.3 and 3.6 of chapter 3.

1.3.2.3 A local socioeconomic development partner

Safety, integrity, business ethics, respect for human rights, and societal and environmental responsibility are principles and values that form part of the Group's operating processes. If TOTAL is able to build and develop partnerships throughout the world, it is also because it has incorporated a local value creation process into its development model. This process is systematic, professional and a major competitive advantage.

The Group is building a global, integrated local development approach ("in-country value") that is part of a dialogue with the local populations and public and private players. This approach creates synergies among all the value-creating elements for host countries (employment, subcontracting, infrastructure, support for local industries, socioeconomic development projects, education, access to energy, etc.) by promoting the Group's industrial know-how. The Group intends to apply this approach over the long term to ensure that its presence in these regions and its major projects create shared prosperity.

In the face of growing inequalities and today's environmental challenges, TOTAL wanted to strengthen its public interest initiatives and efforts in the development of the regions where it has a long-standing presence. In 2017, it structured its actions within the framework of the Total Foundation program, which covers the citizenship initiatives undertaken by the Group's subsidiaries and its corporate foundation (Fondation d'entreprise).

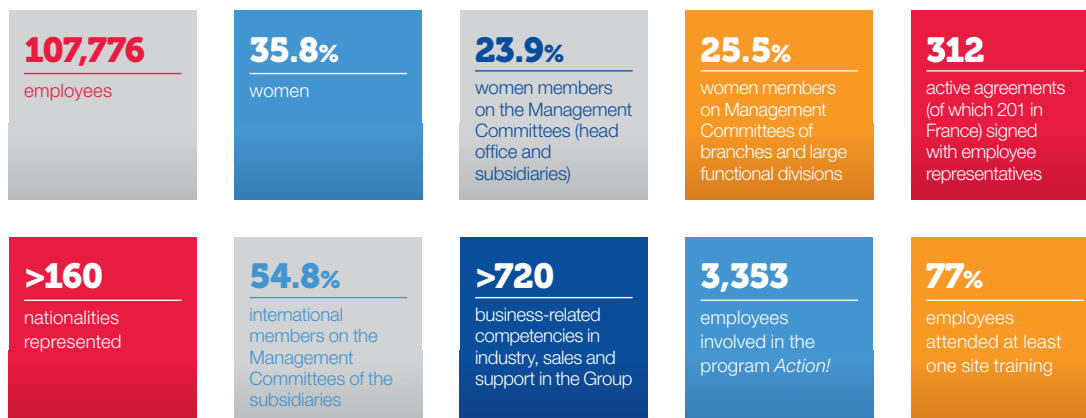
Through this program, TOTAL and its corporate foundation intend to contribute to the development of the host regions of the Group by promoting actions in favor of young people. It focuses on four fields of action: the education and integration of young people, road safety, forests and climate and dialogue between cultures and heritage.

At the end of 2018, the Group launched the *Action!* program engagement that allows its employees to spend up to three days a year of their working time on solidarity projects in favor of the development of its host regions.

(1) Company data.

1.3.3 Employees committed to better energy

As of December 31, 2019



1.3.3.1 Employee diversity, a competitive edge

The Group is an image of its employees: diverse. The diversity of talents within TOTAL is crucial to its competitiveness, innovative capacity and attractiveness. Diversity in all its forms is promoted at the highest level, and in particular by the Group Diversity Council, which is chaired by a member of the Executive Committee.

With over 160 nationalities represented, a presence in more than 130 countries, and more than 720 business-related competencies, the Group is a global player. Women make up 35.8% of the workforce and 28.5% of managers. A wide range of opinions and backgrounds enable innovative solutions and new opportunities to arise.

Such diversity is an essential asset for the Group. The capacity of the Group's employees to mobilize themselves and act in an entrepreneurial spirit is vital. It enables ambitious projects to be completed and offers everyone the opportunity to give meaning to their work and grow professionally. In 2019, more than 3,300 employees engaged in solidarity projects as part of the *Action!* program.

Diversity is embodied, in particular, by the presence of 23.9% women members on the Management Committees (head office and subsidiaries), 25.5% women members of Management Committees of branches and large functional divisions, 54.8% international members on the Management Committees of the subsidiaries.

The Group has a long-standing commitment to promoting equal opportunity and diversity, which constitute, for everyone, a source of development where only expertise and talent count. In 2018, the Group decided to adhere to the Global Business and Disability Network Charter of the International Labor Organization (ILO) and is gradually implementing these principles in its subsidiaries.

1.3.3.2 Employee commitment is essential to the success of the Company project

The Group addresses its challenges thanks to the commitment of its employees. It is for this reason that the Group strives to ensure that the most demanding safety, ethics and integrity, management and social performance practices are implemented wherever it operates. The aim of this process is to create the conditions that enable everyone to fulfill his or her potential and TOTAL to pursue its development.

In order to associate the employees to the major challenges of the Group, the expectations of employees are regularly listened to and discussed. Examples include the Total Survey, which compiles the views and suggestions for improvement of tens of thousands of employees every two years. Initiatives that have allowed employees to participate in building the “*One Total*” Company project have been initiated since 2016.

In 2019, a new step was taken when the Group launched “*One Total, Better Together*”, the human part of its Company project that meets the employees' expectations and in order to raise the Group's human ambitions to the same height as its business ambition. This project has three ambitions: to develop the talent of every employee, to promote the coaching dimension of managers and to build a company, where it is a good place to work. All the Group subsidiaries⁽¹⁾ were involved in several deployment projects.

In order to accompany each employee in his or her professional development and provide him or her with dedicated support, more than 400 talent developers were implemented and trained within the Group in 2019. Jobs offers are published within the Group in a transparent manner allowing each employee to be an actor in his or her mobility. TOTAL promotes functional, geographic mobility and lifelong training in order to develop everyone's skills and employability and meet business challenges.

“Women and men are at the heart of our collective project. Our employees – in all corners of the planet and thanks to their individual commitment – are the energy that drives our Group forward. This diversity is an invaluable asset that makes it possible to accomplish ambitious projects.”

Namita Shah, President, People & Social Responsibility

(1) Excluding Hutchinson and SunPower.

Thus, in order to improve their expertise, each employee is encouraged to broaden his or her technical competencies by accessing a wide range of training courses (in 2019, 77% of employees within the scope of the WHRS⁽¹⁾ followed at least one course of classroom training). The technical and commercial know-how of employees and their ability to manage large projects underpin the Group's operational excellence and are essential for the Group's development. It is thanks to the recognized expertise of its employees that TOTAL is able to form partnerships of trust with the world's main producing and consuming nations in the most demanding areas, such as deep offshore, liquefied natural gas (LNG), low-carbon energy, refining and petrochemicals, which are also areas in which the Group has developed some of the most high-performance platforms.

In order to support the development of the managerial culture, the training courses for managers have been adapted to encourage engagement, empowerment and constructive feedback.

The Group is also committed to social dialogue, which is one of the vectors used to modernize companies. Among the numerous stakeholders with which TOTAL maintains regular dialogue, the Group's employees and their representatives have a privileged position and role. The Group's entities set up systems to meet the specific needs of work organization and ensure, as far as possible, to promote a work-life balance. The Group promotes flexible working hours and voluntary remote working throughout the world.

1.3.4 The strength of the Group's integrated business model

Energy markets on which the Group is active, oil, gas and electricity, are traded on markets that are known for their volatility. To manage this constraint as well as possible, TOTAL opted for an integrated business model throughout the value chain. The Group's activities extend from exploration and production of oil, gas and electricity to the energy distribution to the end customer through refining, liquefaction, petrochemicals, trading, energies transport and storage.

This business model enables the Company to benefit from synergies between different activities and from price volatility. It also enables the Company to manage the bottom of the cycle better and capture margin when the market improves. Thanks to an integrated business model, the Group's Upstream activities, which are more dependent on the price of oil, can complement its Downstream activities, which – at the bottom of the cycle – enable the Group to benefit from added value untapped by the Upstream part of the business.

This approach is illustrated by several commitments made by the Group, such as its adhesion on December 21, 2017, to the Global Deal initiative, alongside some 60 partners, States, trade unions, companies and international organizations. This international multi-party initiative aims at fighting against inequalities, encouraging social dialogue and promoting fairer globalization. It states that social dialogue, collective bargaining and trade-union freedom play an essential role in the fulfillment of the Sustainable Development Goals (SDGs 8, 10 and 17) of the United Nations. Social dialogue also results in the signing of international agreements that are emblematic of the Group's conviction at the very highest level of decision-making. In 2015, the Group signed a global agreement with the international IndustriALL Global Union trades union federation on the promotion of human rights at work, diversity, the participation of employees and their representatives in social dialogue and the recognition of health and safety at work. Discussions to renew this agreement in 2020 are underway. The Group had 312 active agreements (including 201 in France) with employee representatives in place at the end of 2019.

TOTAL has adopted a proactive approach by subscribing to the principles of numerous national and international agreements that fight against all forms of discrimination and by striving to ensure the safety and security of its employees and the respect of their fundamental rights. This approach testifies to TOTAL's desire to entrench a continuous improvement process that benefits everyone. For more information, refer to point 5.3 of chapter 5.

Furthermore, the growth in demand for electricity is expected to outstrip global demand for energy in the coming years. In light of the digitization of the economy, the mobility revolution, and decentralized generation, many products and services are going to be "electrified" while, at the same time, a growing share of the world's population will benefit from access to electricity.

Preference is given to three main priorities:

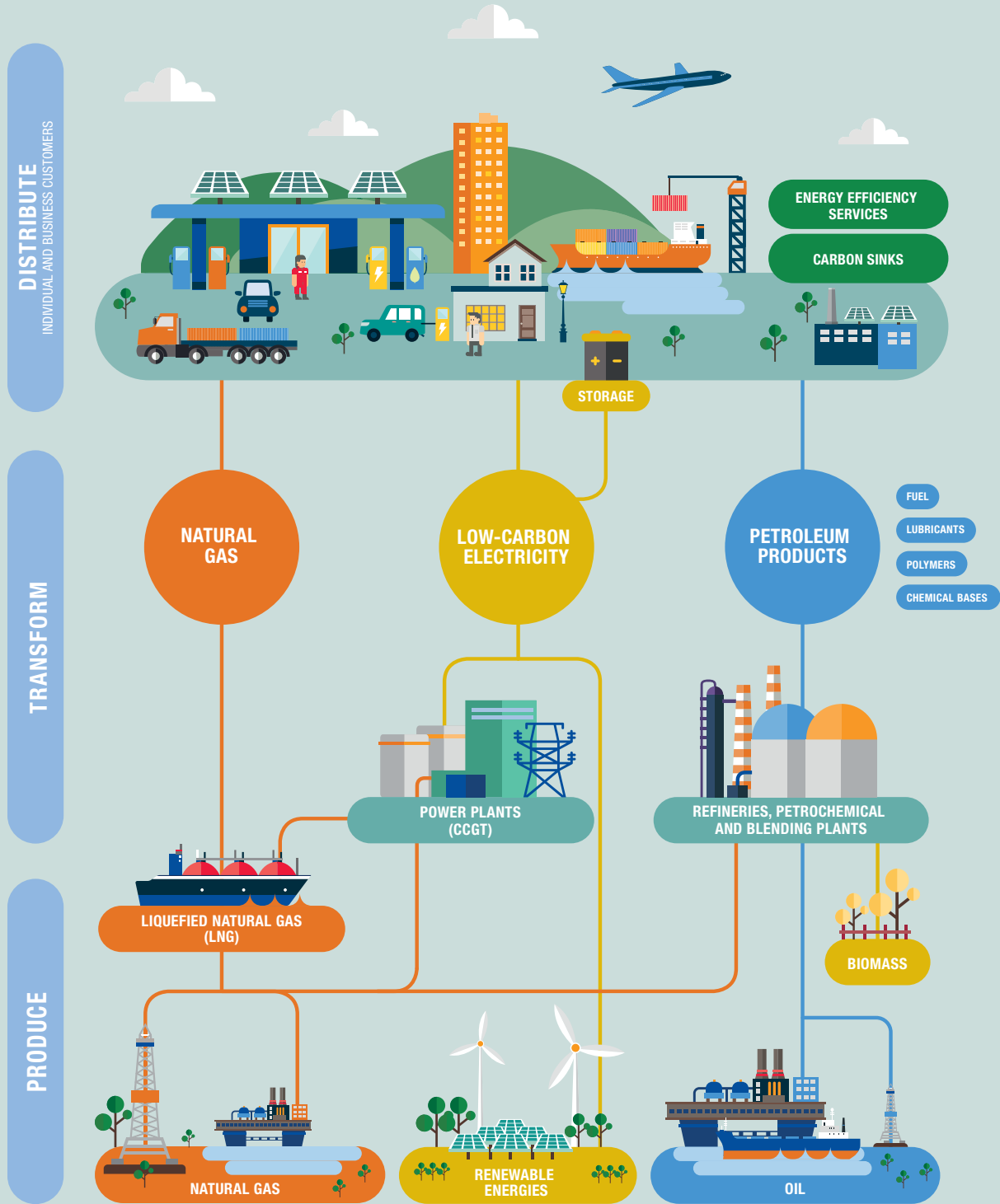
- the integration on the gas chain from production to liquefaction and distribution;
- the generation of electricity using gas or renewable energies and its storage; and
- the trading and the sale of gas or electricity as the producer, or not.

(1) The Worldwide Human Resources Survey (WHRS) is an annual survey which comprises 211 indicators. Refer to point 5.11.2 of chapter 5.



OUR ACTIVITIES

Our ambition: become the responsible energy major – with the mission to provide more affordable, more accessible and cleaner energy to as many people as possible.



1.4 Strong commitments favouring sustainable growth

1.4.1 Five strong values at the heart of the Group



Safety



Respect for Each Other



Pioneer Spirit



Stand Together



Performance-Minded

Safety, Respect for Each Other, Pioneer Spirit, Stand Together and Performance-Minded represent, just as its history, the part of TOTAL's identity shared by all employees. These values guide the daily actions and relations of the Group with its stakeholders.

These five strong values also require all of TOTAL's employees to act in an exemplary manner in priority in the following areas: safety, security,

health, environment, integrity in all of its forms (particularly, the prevention of corruption, fraud and anti-competitive practices) and human rights.

It is through strict adherence to these values and to this course of action that the Group intends to build strong and sustainable growth for itself and for all of its stakeholders, and thereby deliver on its commitment to better energy.

1.4.2 A Group engaged in R&D, innovation and the digital transformation

The Group relies on a dynamic R&D policy to conduct and develop its activities. As part of the Group's ambition to become the responsible energy major, TOTAL finalized, in 2019, its R&D strategic plan to determine its positioning for the five coming years, together with its portfolio of research programs. The portfolio of programs is divided into five focus areas: safety and environment, low-carbon mix, operational efficiency, new products and, finally, digital.

As appropriate, the R&D programs may be conducted by a business segment in the interests of its own or other segments' activities, or coordinated at the Group level for transverse issues in order to establish synergies, make the best possible use of the expertise available, and pool knowledge and infrastructures. For example, the purpose of the CCUS (carbon capture, utilization and storage) transverse program is to enable the Group to become a major player in this area and throughout the value chain so that it can contribute to the reduction in global CO₂ emissions and prepare new business opportunities. For more information, refer to point 2.7 of chapter 2.

The Group is committed to optimizing R&D resources in terms of human talent, infrastructure and regional centers of excellence, as well as to working with selected partners that bring specific, high-level skills to every project.

Furthermore, after several years of deploying digital projects across all of the Group's activities and after having built the necessary technological foundations, TOTAL is accelerating its digital transformation by launching the creation of a Digital Factory, which is expected to start in the heart of Paris in the second semester 2020.

The goal is to bring together multidisciplinary teams made up of TOTAL's business experts and around 300 new talents from all digital domains.

Using all the available data of the Group and relying on technologies such as Artificial Intelligence, the Internet of Things or 5G, these teams will mobilize to build digital solutions, in short cycles and with agility in a flexible manner, to support the Group in various areas: improving industrial operations in terms of availability and cost, new services for TOTAL's customers aiming to, for example, optimize their energy consumption, development in new decentralized energies and reducing environmental impact.

In addition to the support and strengthening of the innovation efforts in the Group, the ambition is to create up to \$1.5 billion in value per year through digital means by 2025.

1.4.3 A targeted investment policy

The oil markets being fundamentally volatile, the Group continues to select its investments very carefully, in line with its strategy. These investments are dedicated to:

- the development of new upstream and downstream facilities in order to benefit from the integrated business model in a favorable cost environment;
- the adding of attractive resources to the portfolio through the exploration or acquisition of resources that have already been discovered, focusing on low breakeven projects;
- strong growth in its low-carbon activities in the gas and electricity sectors; and
- the growth of its Marketing & Services business in buoyant markets.

The Group also strives to continuously improve its portfolio by selling its least strategic assets within the framework of its 5 billion dollars asset sale program over the years 2019-2020.

In 2019, net investments reached \$17.4 billion of which \$13.4 billion in organic investments⁽¹⁾ and \$4.1 billion in net acquisitions. For more information, refer to point 2.6 of chapter 2.

(1) Organic investments = net investments excluding acquisitions, divestments and other operations with non-controlling interests.

1.4.4 A continuous improvement dynamic

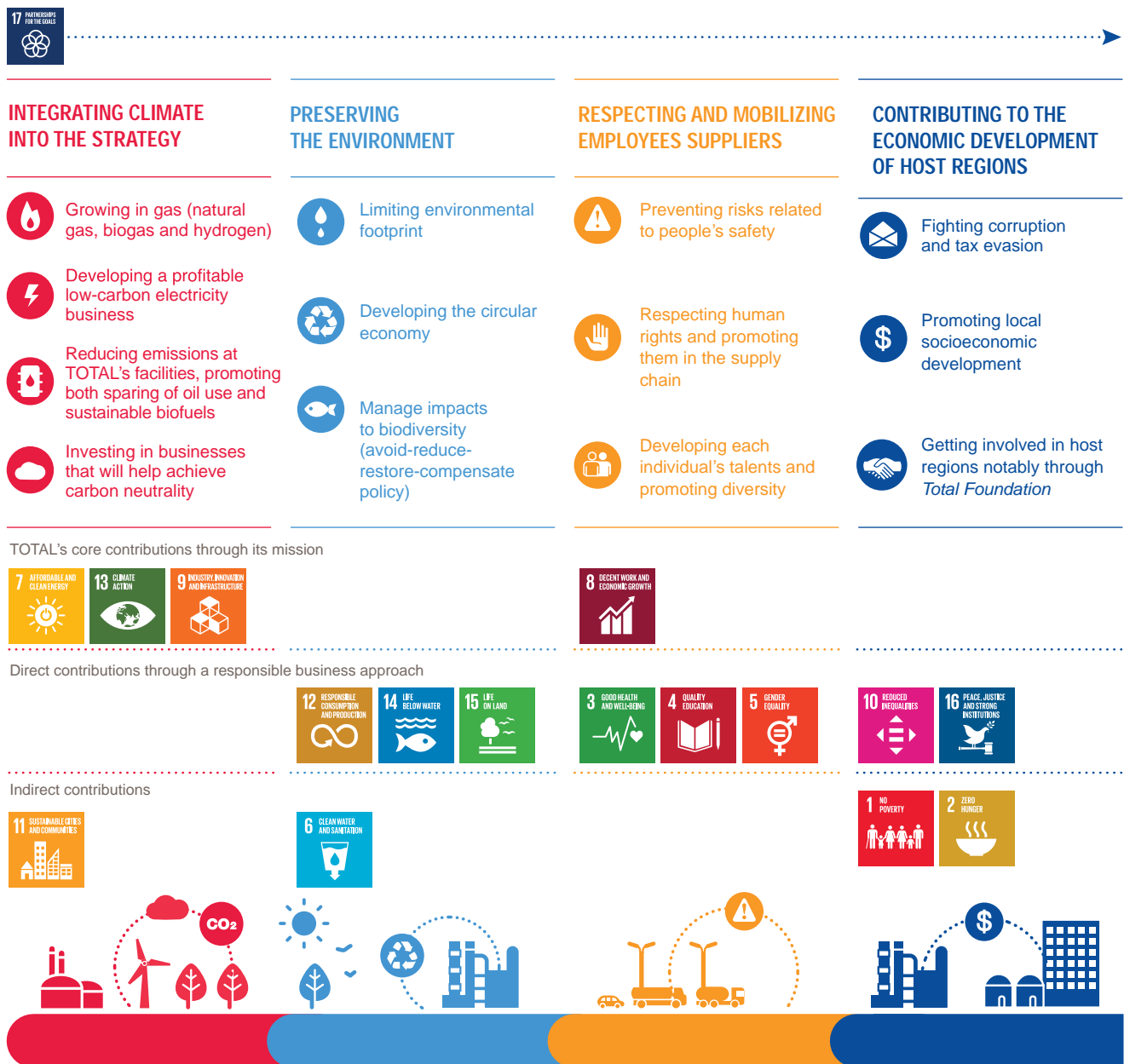
The United Nations, whose member States adopted the 17 SDGs in 2015, have called upon corporations' contribution to collectively find solutions to sustainable development challenges. TOTAL has committed since 2016 to contributing to the SDGs and has structured its approach to responsible development in order to make a more significant contribution to the SDGs.

The Group has identified the most significant SDGs for its activities in order to focus its efforts on the segments in which it is able to make a direct contribution.

TOTAL therefore considers the SDGs as an opportunity to better measure and assess its contribution to society as a whole.

The Group builds its CSR approach on the basis of its four pillars of action for sustainable development, namely the integration of the climate in its strategy, the preservation of the environment, respect for and the mobilization of employees and suppliers and its contribution to the economic development of its host regions (also refer to chapter 5).

TOTAL's CSR approach in relation to the sustainable development goals



1.4.4.1 Commitments and indicators of progress

Safety, health, climate, the environment and also shared development, in every country where the Group is present, TOTAL steers its operations with the aim of working in a sustainable, active and positive manner. The Group was one of the first in the industry to publish measurable improvement targets in these areas.

Safety/Health

For TOTAL, being committed to better energy means, first and foremost, ensuring the safety of its employees, stakeholders and facilities. It also means protecting the health of all those related directly or indirectly to its activities.

Safety

Target

To be recognized as a benchmark for safety in its industry and achieve zero fatalities

Facts

A TRIR⁽¹⁾ of **0.81** in 2019, at majors' level
4 fatalities in 2019

Health

Target

Protect the health of employees, customers and communities in close proximity to the Group's activities

Facts

In 2019, **98%** of employees with specific occupational risks benefited from regular medical monitoring⁽²⁾

Environment

The Group places the environment at the heart of its ambition of being a responsible company with a goal to improve the environmental performance of the facilities and products.

Air

Target

Decrease SO₂⁽³⁾ emissions into the air by **50%** between 2010 and 2020

Facts

More than **50%** reduction in SO₂ emissions into the air reached since 2017

Water

Target

Maintain the hydrocarbon content of water discharges below **30 mg/l** for offshore sites and below **15 mg/l** for onshore and coastal sites

Facts

100% of the Group's oil sites have met the target for the quality of onshore discharges since 2016

100% of the Group's oil sites have met the target for the quality of offshore discharges in 2019

Waste

Target

Valorize more than **50%** of the waste produced by the sites operated by the Group

Facts

More than **50%** of the waste produced by the sites operated by the Group was valorized in 2019

Volunteering Program

In 2018, the Group launched the Group's Employee Volunteering Program *Action!* in order to give its employees the time and means to get involved and contribute more to the development of the areas where the Group is present. *Action!* allows employees, on a voluntary basis, to support, up to three days per year during their working time, local solidarity projects within the scope of the Total Foundation program.

(1) TRIR (Total Recordable Injury Rate): number of recorded injuries per million hours worked.

(2) Data provided by the WHRS.

(3) SO₂: sulfur dioxide.

Climate

Targets

Reduce the GHG emission (Scopes 1 & 2) on operated oil & gas facilities from 46 Mt CO₂e in 2015 to less than **40 Mt CO₂e** in 2025

Reduce the routine flaring⁽¹⁾ by **80%** on operated facilities between 2010 and 2020 in order to eliminate it by 2030

Improve by an average of **1%** per year the energy efficiency of operated facilities between 2010 and 2020

Reduce the intensity of the methane emissions of the facilities operated by the Group for its Upstream hydrocarbons activities to below **0.2%** of the commercial gas produced

Maintain the intensity of CO₂e emissions of the facilities operated by the Group for its Upstream hydrocarbons activities below **20 kg CO₂e/boe**

Ambition

Reduce the carbon intensity of the energy products used by customers by **15%** between 2015, the date of the Paris agreement, and 2030 and by 40% by 2040

Facts

A GHG emission reduction (Scopes 1 & 2) on operated oil & gas facilities from 46 Mt CO₂e to **41.5 Mt CO₂e** between 2015 and 2019

More than **80%** reduction in routine flaring between 2010 and 2019

More than **10%** improvement in energy efficiency between 2010 and 2019

An intensity of the methane emissions around **0.2%** of the commercial gas produced in 2019

An intensity of the CO₂e emissions below **20 kg CO₂e/boe** in 2019

Facts

A carbon intensity reduced from 75 g CO₂e/kBtu in 2015 to **70 g CO₂e/kBtu** in 2019, i.e., a reduction of 6%

Biodiversity

Commitments

Not conducting oil and gas exploration or production operations in the area of natural sites listed on the UNESCO World Heritage List⁽²⁾

Not conducting exploration in oil fields under sea ice in the Arctic

Systematically develop biodiversity action plans for production sites located in protected areas⁽³⁾

Facts

No oil and gas exploration or production activity in the area of natural sites listed on the UNESCO World Heritage List⁽²⁾

No exploration activity in oil fields under sea ice in the Arctic

6 biodiversity action plans deployed or in preparation in 2019

Diversity/Gender diversity

Targets

25% women senior executives by 2020

40% non-French senior executives by 2020

More than **20%** women members on the Management Committees (head office and subsidiaries)

More than **20%** women members on Management Committees of branches and in large functional divisions

Facts in 2019

23.0% women senior executives

34.1% non-French senior executives

23.9% women members on the Management Committees (head office and subsidiaries)

25.5% of women members on Management Committees of branches and in large functional divisions

(1) Routine flaring, as defined by the working group of the Global Gas Flaring Reduction program within the framework of the World Bank's Zero Routine Flaring initiative.

(2) Natural sites included on the UNESCO World Heritage List of December 31, 2018.

(3) Sites located in an IUCN I to IV or Ramsar convention protected area.

1.4.4.2 Support for global initiatives

Aside from complying with national regulations in force in every country where the Group operates, TOTAL reiterates each year, since 2002, its support for the United Nations Global Compact, of which it is one of the companies recognized as LEAD. The Group also follows the UN Guiding Principles for Business and Human Rights since their adoption in 2011.

The challenges posed by climate change require a collective effort. The Group has joined various international initiatives that involve the private and the public sectors, notably:

- carbon pricing (the World Bank's Carbon Pricing Leadership Coalition, Caring for Climate – United Nations Global Compact, Paying for Carbon call: TOTAL and five other industry leaders);
- the end of routine flaring of associated gas (the World Bank's Zero Routine Flaring by 2030 initiative);
- control over methane emissions (Oil & Gas Methane Partnership of the Climate and Clean Air Coalition, the Oil & Gas Climate Initiative in cooperation with UN Environment and EDF, etc.);
- greater transparency: support of the recommendations from the G20 Financial Stability Board Task Force on Climate-related Financial Disclosures (TCFD).

TOTAL also actively supports collaborative and multi-stakeholder initiatives in areas in which the coordinated involvement of governments, companies and civil society is key to global progress, particularly:

- financial transparency: the Group has adhered to the Extractive Industries Transparency Initiative (EITI) since its launch in 2002;
- responsible tax principles: the Group publicly supports the B-Team's responsible tax principles;

- the fight against corruption: TOTAL joined the Partnering Against Corruption Initiative (PACI) in 2016, and the Chairman and Chief Executive Officer has been co-chairman since the end of 2019;
- the challenge of security and respect for human rights by being a member of the Voluntary Principles on Security and Human Rights (VPSHR) since 2012;
- diversity: TOTAL signed in 2010 the "Women's Empowerment Principles – Equality Means Business" set out by the United Nations Global Compact, in 2016 *Close the gender gap – a call to action* in World Economic Forum, and, in 2018, the pledge for diversity as part of the European Roundtable of Industrialists;
- disability: in October 2018, TOTAL signed the International Labor Organization (ILO) Global Business and Disability Network Charter. In January 2020, TOTAL joined The Valuable 500, a global initiative aiming at explicitly putting the inclusion of people with disabilities and the unlocking of their potential in the agenda of multinational companies;
- biodiversity: in 2018, TOTAL joined the Act4Nature initiative and made commitments to protect biodiversity;
- the circular economy: TOTAL is a founding member of the Alliance to End Plastic Waste, launched in 2019, which brings together companies in the plastics and consumer goods value chain to provide solutions for the disposal of plastic waste in the environment, especially in oceans, and to promote their recycling in a circular economy;
- better access to energy for populations of emerging countries through a partnership with SE4All;
- the reduction of inequalities through the development of social dialogue to favor more inclusive economic growth: TOTAL was one of the first French companies to adhere to the Global Deal initiative at the end of 2017.

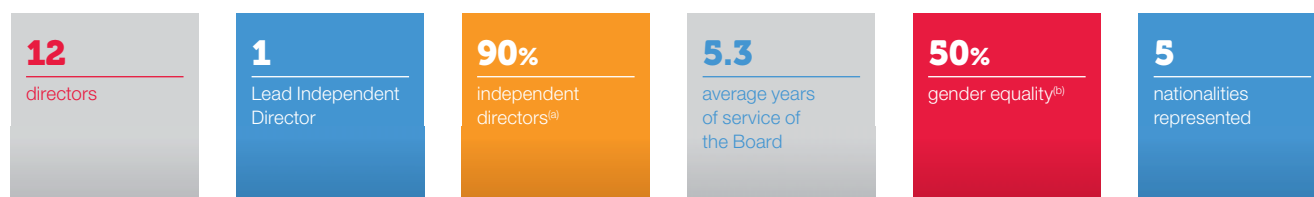
1.5 Governance and an organizational structure to support the Group's ambition

The Board of Directors has decided to submit to the Annual Shareholders' Meeting on May 29, 2020 a project to transform TOTAL S.A. into a European company (Societas Europaea or SE). The legal status of a European company is common to all the countries in the European Union and is used by an increasing number of companies in France and in Europe. This status will better reflect the economic and social reality of the Group and fully recognize its European dimension. The Group has a strong European presence, with activities in 25 European countries, representing more than 60% of its employees and more than 70% of the Group's sales.

The conversion of TOTAL S.A. into a European company will have no impact on its governance, activities, tax affairs, the organization of the Company, where it is listed or the location of the head office, which will remain in France. The Company bylaws that are amended as a result of this conversion project, which will be submitted to the Shareholders' Meeting on May 29, 2020, will also include various adaptations, related in particular to the French law n°2019-486 of May 22, 2019 on the growth and the transformation of businesses, known as the "Pacte" law, particularly with regard to the participation of employees in the Company's Board of Directors.

1.5.1 A Board of Directors fully committed to the Company's strategic orientations

Composition on March 18, 2020



(a) Excluding the director representing employee shareholders and the director representing employees, in accordance with the recommendations of the AFEP-MEDEF Code (point 9.3). For more information, refer to point 4.1.1.4 of chapter 4.

(b) Excluding the director representing employees, in accordance with Article L. 225-27-1 of the French Commercial Code and the director representing employee shareholders, in accordance with article L. 225-23 of the French Commercial Code.

Composed as of March 18, 2020, of 12 directors, including 9 independent members, the Board of Directors reflects diversity and complementarity of experience, expertise, nationalities and cultures necessary to take account of the interests of all the Group's shareholders and stakeholders.

The Board of Directors determines the strategic orientations of TOTAL and supervises their implementation. It approves investment and divestment operations when they concern amounts that exceed 3% of the Group's equity and examines all matters related to the proper running of the Company. It examines major operations that reflect the inclusion of climate challenges in TOTAL's strategy and verifies their strategic coherence. It monitors the management of both financial and non-financial matters and ensures the quality of information provided to shareholders and to financial markets.

The Board of Directors relies on the work of four Committees that it has constituted: the Audit Committee, the Governance and Ethics Committee, the Compensation Committee and the Strategy & CSR Committee.

Since December 2015, Mr. Patrick Pouyanné has held the position of Chairman and Chief Executive Officer of TOTAL S.A. His term of office having been renewed at the Annual Shareholders' Meeting on June 1, 2018 for a three-year period, the Board of Directors has reappointed Mr. Pouyanné as Chairman and Chief Executive Officer for an equal period to that of his mandate as a director. The decision to uphold the combined functions of Chairman of the Board of Directors and Chief Executive Officer was made following work undertaken by the Governance and Ethics Committee, in the interest of the Company and in compliance with the traditions of the Group. The Board of Directors deemed that

the unified Management Form was most appropriate to the Group's organization, modus operandi and business, and to the specificities of the oil and gas sector. In its decision, the Board in particular noted the advantage of having unified management in strategic negotiations with States and the Group's partners. The Board of Directors regularly examines whether maintaining the unified Management Form remains appropriate.

Attentive to the concerns of investors and stakeholders, the Board of Directors pays specific attention to the balance of power within the Group. It was for these reasons that the Board of Directors amended the provisions of its Rules of Procedure in 2015 to provide for the appointment of a Lead Independent Director in case of the combination of the positions of Chairman of the Board of Directors and Chief Executive Officer. The Lead Independent Director's duties, resources and rights are described in the Rules of Procedure of the Board of Directors. The Chairman and Chief Executive Officer and the Lead Independent Director are the shareholders' dedicated contacts on issues that fall within the remit of the Board of Directors. Since 2016, the Lead Independent Director has organized executive sessions with the independent directors so that they may discuss the Group's strategic challenges and working practices. The directors are also in regular contact with the members of the Group's management team, whether members of the Executive Committee during Board Meetings or operational managers during Group site visits. These interactions between directors and managers enable the directors to gain a practical understanding of the Group's activities.

The balance of power within the Company's bodies is thereby ensured by a stable and structured governance.

Activities of the Board of Directors and of the Committees in 2019

The duties and work of the Board of Directors and of its Committees are described in point 4.1.2 of chapter 4.



1.5.2 TOTAL S.A., parent company of the Group and its subsidiaries

TOTAL S.A. is the Group's parent company. It acts as a holding company and drives the Group's strategy.

The Group's operations are conducted through subsidiaries that are directly or indirectly owned by TOTAL S.A. and through stakes in joint-ventures which are not necessarily controlled by TOTAL. TOTAL S.A. has three secondary establishments in France, located in Lacq, Pau and Paris. It also has branch offices in the United Arab Emirates and Oman.

Corporate name: Total S.A.
Head office: 2, place Jean Millier, La Défense 6, 92400 Courbevoie, France
Listed in the Nanterre Trade and Companies Register under no. 542 051 180
LEI (Legal Entity Identifier): 529900S21EQ1BO4ESM68
EC Registration Number: FR 59 542 051 180
Date of incorporation: March 28, 1924
Term of the Company: extended for 99 years from March 22, 2000
Fiscal year: from January 1 to December 31 of each year
APE Code (NAF): 7010Z
total.com⁽¹⁾

The scope of consolidation of TOTAL S.A. as of December 31, 2019, consisted of 1,134 companies, of which 994 fully consolidated companies or companies whose assets are jointly controlled and 140 equity companies. The principles of consolidation are described in Note

1.1 to the Consolidated Financial Statements and the list of companies included in the scope of consolidation can be found in Note 18 to the Consolidated Financial Statements (refer to point 8.7 of chapter 8).

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

TOTAL holds stakes in a limited number of companies that issue financial instruments in France or abroad or whose financial instruments are listed in France or abroad. These companies are mainly the Group's financing vehicles (Total Capital, Total Capital International, Total Capital Canada Ltd) or the operational subsidiaries in its business segments, in particular in Africa, such as Total Gabon⁽²⁾.

TOTAL also holds a stake in SunPower (46.74% on December 31, 2019), an American company listed on NASDAQ, and minority interests in other companies, including PAO Novatek (19.4% on December 31, 2019), a Russian company listed on the Moscow Interbank Currency Exchange and the London Stock Exchange.

The changes in the composition of the Group during fiscal year 2019 are explained in Note 2 to the Consolidated Financial Statements (refer to point 8.7 of chapter 8). In 2019, TOTAL S.A., the Group's parent company, acquired 5.8% of Total Eren, shares increasing its shareholding up to 29.6%. TOTAL S.A. has not taken any other stake in companies with their registered office in France representing more than one twentieth, one tenth, one fifth, one third or one half of the capital of these companies or has not obtained control of such companies.

1.5.3 An operational structure

As of December 31, 2019, the Group's organization was centered around four business segments:

- an Exploration & Production segment encompassing the oil and natural gas exploration and production activities in more than 50 countries. The LNG upstream and midstream activities, which previously reported to the Exploration & Production segment, now report to the Integrated Gas, Renewables & Power segment;
- an Integrated Gas, Renewables & Power segment comprising the integrated gas (including the LNG) and the low-carbon electricity businesses. It includes all LNG upstream and midstream activities which previously reported to the Exploration & Production segment;
- a Refining & Chemicals segment constituting a large industrial hub comprising refining, petrochemical activities and specialty chemicals. This segment also includes oil Supply, Trading and Shipping activities;
- a Marketing & Services segment including the global activities of supply and marketing in the field of petroleum products.

In order to improve efficiency, reduce costs and create value within the Group, a specific branch, Total Global Services (TGS), pools the various segments' support services (Accounting, Purchasing,

Information Systems, Training, Human Resources Administration and Facilities Management). The entities that make up TGS operate as service companies for internal clients across the business segments and Holding.

Finally, the various Corporate entities are mainly grouped into two divisions:

- the People & Social Responsibility division consists of: the Human Resources division, the Health, Safety and Environment division, which combines HSE departments across the different segments to establish a strong, unified environmental and safety model, the Security division, and the Civil Society Engagement Division;
- the Strategy-Innovation division is made of: the Strategy & Climate division (responsible notably for ensuring that climate is incorporated in the strategy), the Public Affairs division, the Audit & Internal Control division, the Research & Development division (which coordinates all of the Group's R&D activities and notably transversal programs), the Technology Experts division and the Digital division.

(1) Information on TOTAL's website does not form part of the Universal Registration Document unless that information is incorporated by reference into the Universal Registration Document.

(2) Total Gabon is a company under Gabonese law, listed on Euronext Paris. TOTAL holds 58.28%, the Republic of Gabon holds 25% and the public holds 16.72%.

Organization chart as of December 31, 2019



2

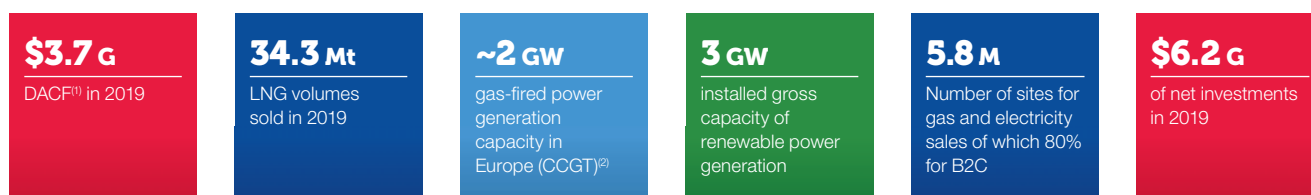
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2.1 Integrated Gas, Renewables & Power segment



TOTAL invests in the new energy growing markets for a sustainable future. Implemented on January 1, 2019, the Integrated Gas, Renewables & Power (iGRP) segment is driving the Group's ambition in the activities of the integrated LNG and low-carbon electricity chains, as well as the activities that contribute to carbon neutrality. The execution of a profitable growth strategy in the future low-carbon businesses is helping to achieve the Group's ambition of reducing the carbon intensity of the energy products used by its customers by 15% between 2015 and 2030.



Hydrocarbon production and LNG sales

Hydrocarbon production	2019	2018	2017
IGRP (kboe/d)	560	381	401
Liquids (kb/d)	71	39	48
Gas (Mcf/d)	2,711	1,875	1,934

LNG (Mt)	2019	2018	2017
Overall LNG sales	34.3	21.8	15.6
<i>Including sales from equity production^(a)</i>	16.3	11.1	11.2
<i>Including sales by TOTAL from equity production and third party purchases</i>	27.9	17.1	7.6

(a) The Group's equity production may be sold by TOTAL or by the joint-ventures.

Production growth over the year was essentially linked to the start-up of Ichthys in Australia in the third quarter 2018 and the successive start-ups of Yamal LNG trains in Russia.

LNG sales increased by 57% in 2019 thanks to the ramp-up of Yamal LNG and Ichthys plus the start-up of the first Cameron LNG train in the United States and also due to the acquisition of the Engie portfolio of LNG contracts in the third quarter 2018.

Installed gross capacity of electric generation

(GW)	2019	2018	2017
Solar	1.6	1.0	0.6
Wind	1.3	0.7	0.2
Biogas and et hydroelectricity	0.1	0.0	0.0
Total	3.0	1.7	0.8
Combined-cycle gas power plants – Europe ^(a)	1.9	1.9	0.3
Combined-cycle gas power plants – Rest of the world (Taweelah, UAE)	1.6	1.6	1.6

(a) Including Normandy refinery cogeneration unit, part of Refining & Chemicals.

(1) DACF = debt adjusted cash flow. The operating cash flow before working capital changes w/o financial charges of the segment is defined as cash flow from operating activities before changes in working capital at replacement cost, without financial charges except those related to leases.

(2) Including Normandy Refinery cogeneration unit, part of Refining & Chemical segment.

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

2.1.1 Presentation of the segment

TOTAL integrates the challenges of climate change in its strategy and anticipates the new trends in the energy market. By doing so, the Group strengthens its development on the integrated natural gas and low-carbon electricity value chains, from generation to distribution and deploys a profitable growth strategy in low-carbon activities of the future.

In LNG activities, the strategy aims to consolidate second worldwide position obtained following the acquisition of Engie's LNG assets in 2018. This acquisition strengthened TOTAL's positions in the production of LNG, increased the number of long-term purchase and sales agreements, its regasification capacities, in particular in Europe, and at the end, added a fleet of LNG ships, thereby offering more flexibility to its portfolio. TOTAL will also take benefit from an increase of its purchases from projects the Group is a shareholder, especially in the United States (Cameron), and on the longer term in Russia Arctic 2 LNG) and in Mozambique. In 2019, in order to support its ambition, TOTAL increased its LNG activity in the United States through the take-over of a 2Mt/y LNG portfolio from Toshiba and announced the acquisition of 37.4% of Adani Gas Limited, one of the leading local distributors of natural gas in India.

In low-carbon electricity activities, TOTAL is implementing a differentiated geographic strategy and is expanding along the whole value chain of electricity. In Europe, its strategy relies on the building of an integrated position in low-carbon electricity (based on generated from gas and renewables), being active from the production to marketing activities. In this frame, TOTAL acquired from KKR-Energas two combined-cycle natural gas power plants in France, located in Pont sur Sambre and

Toul. In December 2018, TOTAL and EPH also signed an agreement, subject to authorization by the competent authorities, allowing TOTAL to acquire in 2020 two combined cycle gas plants in France. In Europe, the Group relies on its subsidiaries Total Quadran, Total Solar International and Total Solar Distributed Generation and on its shareholding in Total Eren to increase renewable capacities of power generation (solar and onshore wind).

Outside Europe, TOTAL pursues the development of its renewable capacities of power generation via its subsidiaries (Total Solar International, Total Solar Distributed Generation) or its shareholdings in companies Total Eren and SunPower (United-States).

TOTAL is also committed, via its subsidiary Saft Groupe, to expand its capacities in stationary electricity storage in order to support the growth in renewable energies, intermittent per se (solar and wind).

TOTAL is also present in the marketing of electricity and natural gas in Europe, the trading of electricity and natural gas as well as trading of liquefied petroleum gas (LPG), petcoke and sulphur.

Finally, TOTAL develops technological solutions and commercial offers that contribute to carbon neutrality. On the one hand, the Group, through its Greenflex subsidiary, proposes to its customers services to reduce their environmental footprint by optimising and decreasing their energy consumption. On the other hand, it invests in projects to capture, store or use CO₂, and in natural solutions to capture carbon.

2.1.2 LNG

As a pioneer in the LNG industry, TOTAL, thanks to solid and diversified positions, is one of the world's leading players⁽²⁾ in the global LNG market. The development of an integrated value chain is a key component of the Group's strategy: TOTAL has strengthened its presence from upstream activities, thanks mainly to its shareholdings in liquefaction plants located in the major production areas, until the distribution to end customers, through midstream activities, such as transport, regasification and trading.

Additionally, the Group is entering new LNG markets by developing Floating Storage and Regasification Unit projects (FSRU) in emerging countries, like in Benin, where an agreement was signed in July 2019.

2.1.2.1 Production and liquefaction of LNG by the Group

GNL sold by the Group across worldwide markets partly comes from shares of LNG production held either in natural deposits of gas and condensates, either in liquefaction plants of which the Group is shareholder. The Group also sells LNG through contracts without equity (refer to 2.1.2.2 of this chapter).

In 2019, the ramp-up of the Ichthys plant in Australia and the Yamal LNG plant in Russia, plus the start-up of the Cameron LNG plant in the United States, enabled continual growth in the Group's production of LNG. The share of LNG production was 16.3 Mt in 2019, compared to 11.1 Mt in 2018 and 11.2 Mt in 2017. This growth of LNG production is expected to continue over the coming years, thanks to the Group's liquefaction projects under construction (United States, Russia, Nigeria and Mozambique), or by projects currently under study (Papua New Guinea, Russia, Oman, Mexico and the United States).

The information below describes the main exploration, production and liquefaction activities of the IGRP segment, presented by geographical area. The capacities referred to herein are expressed on a 100% basis, regardless of the Group's interest in the asset.

(1) The data for the 2017 and 2018 financial years have been restated to take into account the change in the organization of the Group that has been fully effective since January 1, 2019.

(2) Public data on the basis of LNG portfolio upstream and downstream in 2019.

Europe and Central Asia

In **Russia**, the Group's LNG production has come from the Yamal LNG project since the end of 2017.

In 2013, OAO Yamal LNG launched this project to develop the onshore field of South Tambey (gas and condensates) located on the Yamal peninsula and to build a three-train gas liquefaction plant with a total LNG capacity of 16.5 Mt/y. The Yamal LNG project's financing was finalized in 2016 in compliance with applicable regulations. At the end of 2017, the Yamal LNG plant started production with the first shipment aboard "Christophe de Margerie" LNG tanker. The second liquefaction train of the plant, with a capacity of 5.5 Mt/y, produced its first shipment of LNG in August 2018. The third liquefaction train started production in November 2018, more than one year ahead of the schedule planned when the project was launched. A fourth liquefaction train with a capacity of 0.9 Mt/y, using PAO Novatek technology, is under construction and is expected to start in the second quarter of 2020.

TOTAL holds an aggregate interest of 29.73% in Yamal LNG project (20.02% directly and 9.71% indirectly through PAO Novatek).

In March 2019, TOTAL acquired a 10% direct interest in the Arctic LNG 2 project. TOTAL and its partners approved the final investment decision for Arctic LNG 2 project in September 2019. With a production capacity of 19.8 Mt/y, the Arctic LNG 2 project will develop the resources of the Utrenneye onshore field (gas and condensates) located on the Gydan Peninsula which faces the Yamal Peninsula. It involves the installation of three gravity-based structures in the Ob Bay that will host the three liquefaction trains of 6.6 Mt/y capacity each. The first shipment of LNG is expected in 2023. The project is also expected to benefit from synergies with the Yamal LNG project. TOTAL has an aggregate interest in Arctic LNG 2, directly (10%) and indirectly (11.64%) through its shareholding in PAO Novatek. The agreement in May 2018 between TOTAL and PAO Novatek also enables TOTAL to acquire a direct shareholding of between 10% and 15% in all future PAO Novatek LNG projects on the Yamal and Gydan peninsulas.

In **Norway**, the Group holds an 18.40% interest in the gas liquefaction plant of Snøhvit (capacity of 4.2 Mt/y). The plant, located in the Barents Sea, is supplied with production from the Snøhvit and Albatross gas fields.

Africa (excluding North Africa)

In **Nigeria**, TOTAL holds a 15% shareholding in Nigeria LNG (NLNG), whose main asset is a liquefaction plant with a total capacity of 22 Mt/y. NLNG shareholders approved at the end of 2019 the launch of a plant extension project for an additional capacity of around 7 Mt/y, construction which should start in 2020, subject to discussions in progress with the Nigerian National Petroleum Corp (NNPC) on the stabilization of the fiscal framework and after the closing of the project financing. TOTAL is also present on the onshore field OML 58 (40%, operator), as part of the joint-venture with the Nigerian National Petroleum Corporation (NNPC). It has been supplying gas to NLNG and in the domestic Nigerian market since 2016.

In **Angola**, TOTAL holds a 13.6% shareholding in the Angola LNG project, which includes a gas liquefaction plant with a total capacity of 5.2 Mt/y near Soyo and supplied by gas associated with production from Blocks 0, 14, 15, 17, 18 and 32.

In **Mozambique**, in September 2019, TOTAL acquired from Occidental Petroleum Corporation, a company that hold 26.5% shareholding in the Mozambique LNG project previously held by Anadarko, for which the final investment decision was taken in June 2019. The project plans to liquefy the gas produced by the Gofinho and Atum fields in Offshore Area 1 by building two onshore liquefaction trains with a total capacity of 12.9 Mt/y.

The sale of nearly 90% of the output of Mozambique LNG has been secured by long-term contracts for delivery to customers in Asia and Europe. Part of the gas is expected to be kept for the domestic market in order to contribute to the country's economic development.

Middle East and North Africa

In **Qatar**, the Group participates in the production, processing and exporting of gas from the North Field through its interest in the Qatargas 1 and Qatargas 2 LNG plants:

- Qatargas 1: TOTAL holds a 20% interest in the North Field-Qatargas 1 Upstream field and a 10% interest in the LNG plant (three trains with a total capacity of 10 Mt/y); and
- Qatargas 2: the Group holds a 16.7% interest in train 5, which has an LNG production capacity of 8 Mt/y.

TOTAL offtakes part of the LNG produced in accordance with the 2006 contracts, which provides for the purchase of 5.2 Mt/y of LNG by the Group.

In **Oman**, in 2018, TOTAL signed an MOU with the Oman government for the development of, on the one hand, natural gas resources on the onshore Blocks 10 and 11, located in the Greater Barik area (25%), on the other hand, and the development of an LNG plant in the port of Sohar, with an initial production capacity of 1 Mt/y (80%, operator). This plant will supply LNG ship bunkers.

The Group also produces LNG through its investments in the Oman LNG (5.54%/Qalhat LNG (2.04%) through Oman LNG liquefaction complex, with an overall capacity of 10.5 Mt/y.

In the **United Arab Emirates**, TOTAL holds 5% (capacity of 5.8 Mt/y) ADNOC LNG, which processes the associated gas produced by ADNOC Offshore in order to produce LNG, NGL and condensates, and 5% of National Gas Shipping Company (NGSCO), which owns eight LNG tankers and exports the LNG produced by ADNOC LNG.

In **Egypt**, TOTAL holds a 5% shareholding in the first train (capacity of 3.6 Mt/y) in the Idku plant of Egyptian LNG's liquefaction project.

In **Yemen**, the deterioration of security conditions in the vicinity of the Balhaf site caused the company Yemen LNG, in which the Group holds a shareholding of 39.62%, to stop its commercial production and export of LNG and to declare force majeure to its various stakeholders in 2015. The plant has been put in preservation mode. For more information, refer to point 3.2 of chapter 3.

Americas

In the **United States**, the LNG production of train 1 (4.5 Mt/y) of the Cameron LNG plant in Louisiana, in which the Group holds a 16.60% shareholding, started in May 2019. The first phase of the Cameron LNG plant, which has a capacity of 13.5 Mt/y, comprises three liquefaction trains, each with a capacity of 4.5 Mt/y. Trains 2 and 3 are under construction and are expected to start up in 2020. TOTAL is continuing to evaluate the expansion of the plant beyond its initial capacity of 13.5 Mt/y.

In July 2019, TOTAL signed several agreements in order to develop the Driftwood LNG project in Louisiana, which are conditioned by the final investment decision of the project. In the event of a final investment decision, TOTAL is expected to invest \$500 million in the Driftwood LNG project (capacity of 16.6 Mt/y), purchase 1 Mt/y of LNG from Driftwood LNG and 1.5 Mt/y of LNG from Tellurian Inc., and subscribe \$200 million of additional shares of Tellurian Inc. TOTAL is therefore expected to increase its shareholding in the capital of this company, of which it held 18.22% on December 31, 2019.

In shale gas, thanks to its ability to control costs, TOTAL achieved satisfactory results from its assets operated on Barnett (90.92%), despite unfavorable gas prices.

In **Mexico**, TOTAL is continuing its discussions with Sempra Energy in order to participate in the Costa Azul project so as to takeoff 0.8 Mt/y of LNG.

Asia Pacific

In **Australia**, LNG production comes from the Gladstone LNG (GLNG) (27.5%) project and Ichthys LNG (26%) project.

The Ichthys LNG project involves the development of a gas and condensate field located in the Browse Basin. This development includes subsea wells connected to a platform for the production, processing and export of gas, a FPSO for processing and exporting the condensate, an 889 km gas pipeline and an onshore liquefaction plant in Darwin. At full capacity, the two trains of the gas liquefaction plant produce 8.9 Mt/y of LNG. Approximately 100,000 boe/d of offshore and onshore condensates and LPG are produced. Ichthys LNG started offshore production in July 2018 and exported its first LNG shipment in October 2018. Ichthys LNG has now reached its production plateau. The LNG is sold, mainly in the Asian market, under long-term contracts.

GLNG is an integrated project with production from the Fairview, Roma, Scotia and Arcadia fields, transportation to, and liquefaction capacity of 8.8 Mt/y located on Curtis Island, Queensland. The plant's two trains are in production respectively since 2015 and 2016.

In **Indonesia**, following the expiry of the Mahakam license and the transfer of the associated activities to Pertamina (operator) on January 1, 2018, production has come from the Ruby gas field on the Sebuku license (15%), and is transported by a gas pipeline to the Senipah terminal for treatment and separation.

In **Papua New Guinea**, the Group owns a shareholding in Block PRL-15 (40.1%, operator since 2015). The State of Papua New Guinea retains the right to take a shareholding in the license (when the final investment decision is made) at a level of 22.5%. In this case, TOTAL's shareholding would be reduced to 31.1%.

Block PRL-15 includes the two discoveries Elk and Antelope. The appraisal program of these discoveries was completed in 2017 and the results of the wells drilled confirmed the resource levels of the fields.

In 2019, development studies at conceptual stage and preparatory activities continued in the Elk and Antelope fields located on the block PRL-15. The gas produced by these fields will be transported by a 320 km onshore/offshore pipeline to the PNG LNG site, where it will be liquefied in two new trains to be constructed, with a total capacity of 5.4 Mt/y integrated to the existing producing facilities operated by a partner in the project.

TOTAL and its partners have signed an agreement with the independent State of Papua New Guinea defining the fiscal framework for the development of the Papua LNG project in April 2019.

2.1.2.2 Intermediate activities: purchasing, sale, trading and transport of LNG

Purchasing, sale and trading of LNG

The Group's LNG trading activities are growing with the management and the optimization of a portfolio of long-term contracts and spot activity.

TOTAL acquires long-term volumes of LNG, mainly from liquefaction projects in which the Group holds an interest (refer to point 2.1.2.1 of this chapter). New LNG sources notably arising from, the acquisition of Engie's LNG assets in the United States and new sanctioned project (Arctic LNG 2, Nigeria LNG Train 7, Mozambique LNG) are expected to ensure the growth of the Group's LNG portfolio in the coming years.

In addition, TOTAL also acquires long-term LNG volumes from American projects in which the Group has no equity (Sabine Pass, Corpus Christi, Cove Point and Freeport). These volumes supply and diversify its worldwide portfolio of LNG resources. TOTAL has strengthened its LNG activity in the United States through the take-over of Toshiba's LNG portfolio in 2019. Consequently, TOTAL is expected to become the leading exporter of American LNG by 2021.

In 2019, TOTAL purchased 297 shipments under long-term contracts from Algeria, Australia, Egypt, the United States, Nigeria, Norway, Qatar and Russia and 186 spot or medium-term shipments, compared with 173 and 97 in 2018, and 59 and 49 in 2017 respectively. Deliveries from Yemen LNG have been halted since 2015.

TOTAL holds several significant contracts for the long-term sale of LNG including to Chile, China, South Korea, Indonesia, Japan, Panama, the Dominican Republic, Singapore and Taiwan. Additionally, the Group is developing LNG retail sales (by barge, tanker trucks) for industrial use or mobility (marine, waterways or road) in Europe, in the Caribbean in partnership with AES, and in Oman through the Sohar project (refer to point 2.1.2.1 of this chapter).

The Group's LNG trading activities are especially growing activity in the spot market. In 2019, these LNG trading activities represented a volume of 28.7 Mt, compared with 17.1 Mt in 2018 and 7.6 Mt in 2017. This increase is due to the acquisition of Engie's portfolio of LNG activities, finalized in 2018.

The portfolio focuses, in particular, on Asian markets (including China, South Korea, India, Indonesia, Japan and Taiwan) and is made up of spot and long-term contracts that enable TOTAL to supply gas to its key customers worldwide, while keeping sufficient flexibility to seize market opportunities.

In September 2019, the trading teams were located in Geneva, Houston and Singapore.

LNG shipping

As part of its LNG shipping activities, TOTAL uses a fleet of 15 LNG vessels. To support the strong growth of the Group's LNG portfolio, seven additional new LNG vessels will be added to the chartered fleet by 2021. In addition to the long-term fleet, each year, TOTAL may also charter vessels on a spot and short-term basis to meet trading needs and to adapt its shipping capacity to seasonal demand.

TOTAL is also present in LNG shipping through its Total E&P Norge subsidiary, which charters two LNG vessels, and through the Group's shareholdings in LNG production and export projects that operate their own fleets of LNG vessels, such as Nigeria LNG, Angola LNG, Qatargas and Yamal LNG.

2.1.2.3 LNG regasification

TOTAL holds shareholdings in regasification assets, or has entered into agreements that provide long-term access to LNG regasification capacity worldwide, through existing assets or projects under development in Europe (France, the United Kingdom, Belgium and the Netherlands), the Americas (United States and Panama), Asia (India) and Africa (Benin, Côte d'Ivoire). TOTAL also charters two FSRUs. In 2019, TOTAL holds an LNG regasification capacity of 28 Bcm/y, of which 20 Bcm/y comes from the acquisition of Engie's LNG activities in 2018.

In **France**, TOTAL sold its 27.5% interest in Fosmax LNG company in February 2020. This disposal does not affect the capacity booking contract which provides TOTAL with a regasification capacity of 7.4 Bcm/y on this terminal. The terminal received 70 vessels in 2019, compared with 65 in 2018 and 55 in 2017. In 2018, TOTAL sold its 9.99% shareholding in the Dunkirk LNG terminal, with a capacity of 13 Bcm/y, but retained an access to a regasification capacity of 2 Bcm/y in 2019 on this terminal. TOTAL also holds a regasification capacity up to 3.8 Bcm/y on the Montoir de Bretagne terminal and 3 Bcm/y on the Fos Tonkin terminal.

In the **United Kingdom**, in the context of its equity interest in the Qatargas 2 project, TOTAL holds an 8.35% shareholding in the South Hook LNG regasification terminal, with a total capacity of 21 Bcm/y. The Group also holds a regasification capacity of 3.2 Bcm/y on the Isle of Grain terminal.

In **Belgium**, TOTAL holds a regasification capacity of 1.9 Bcm/y on the Zeebrugge terminal.

In the **Netherlands**, TOTAL holds a regasification capacity of 1.1 Bcm/y reserved up to 2024 on the Gate terminal.

In the **United States**, TOTAL has reserved a regasification capacity of approximately 10 Bcm/y on the Sabine Pass terminal (Louisiana) until 2029. In 2012, TOTAL and Sabine Pass Liquefaction (SPL) signed agreements allowing TOTAL's reserved regasification capacity to gradually be transferred by TOTAL to SPL in return for a payment.

In **India**, TOTAL disposed of its 26% shareholding in the Hazira terminal in January 2019. Additionally, in 2018, TOTAL and Adani Group signed an agreement on the development of two LNG import and regasification terminals, including Dhamra LNG in eastern India and, potentially, the Mundra terminal in the west of the country. With these agreements, TOTAL relies on a recognized local partner to break into the Indian natural gas market which has a significant potential for growth.

In **Benin**, TOTAL, the Republic of Benin and the Société Béninoise d'Énergie Électrique (SBEE) have signed agreements in order to develop a floating LNG import terminal and to supply more than 0.5 Mt/y of LNG to Benin for a 15-year period, starting in 2021. This FSRU will be located off the shore of Benin and connected to the existing electric power plants and the future Maria Gléta plant by an offshore gas pipeline.

In **Côte d'Ivoire**, a consortium led by TOTAL (34%, operator) has been assigned responsibility for developing and operating an FSRU-type LNG regasification terminal in Abidjan. Due to a decrease in expected consumption, start-up is now expected in 2023.

2.1.3 Production and storage of low-carbon electricity

TOTAL has accelerated its strategy to integrate the gas-electricity chain in Europe and to develop low-carbon electricity by acquiring Direct Énergie and two combined-cycle natural gas power plants in France from KKR-Energas in 2018. Consequently, in 2019, TOTAL had an installed capacity of 1.9 GW (including Normandy Refinery cogeneration unit, part of Refining & Chemicals) of low-carbon electricity generation from gas.

Alongside its investments in the generation of electricity produced from natural gas, the Group also relies on its subsidiaries to increase its commitment to renewables. Upstream and downstream, in solar, wind and hydraulic power, TOTAL continues to seize investment opportunities and had an installed gross capacity of 3 GW of electricity production at the end of 2019. During the first quarter 2020, the Group already announced agreements with a view to develop or acquire close to 5 GW in Qatar, Spain and in India.

2.1.3.1 Electricity production from natural gas

The construction of a portfolio of combined-cycle gas power plants in Europe is part of the strategy to integrate across the gas and electricity value chain, from production to marketing, and complements well the sources of production of intermittent renewable electricity. Furthermore, the flexible production of these power plants enables the Group to optimize its customers' electricity supply costs.

In **France** and **Belgium**, TOTAL has four 100%-owned combined-cycle natural gas (CCGT) power plants. The global installed capacity is 1.6 GW. A fifth CCGT (0.4 GW) is currently under construction in Landvisiau (France). Additionally, TOTAL signed an agreement in December 2018 with EPH that will add two CCGT (0.8 GW) to the TOTAL portfolio in 2020, subject to authorization by the competent authorities.

In **Abu Dhabi**, the Taweelah A1 gas power plant, which is owned by the Gulf Total Tractebel Power Company (TOTAL, 20%), combines electricity generation and water desalination. The plant has a gross power generation capacity of 1.6 GW and a water desalination capacity of 385,000 m³ per day. The plant's production is sold to Abu Dhabi Water and Electricity Company (ADWEC) as part of a long-term agreement.

2.1.3.2 Electricity production from renewables

In Europe, TOTAL is developing an integrated approach to the generation of low-carbon electricity by developing and operating onshore wind power, solar, hydroelectric and biogas projects.

Elsewhere in the world, TOTAL is developing the generation of electricity from renewable energies by proposing decentralized photovoltaic systems for residential, industrial and business customers, and by developing and

operating onshore solar power plants and onshore wind power plants. TOTAL has also announced that it intends to take part in future offshore wind power projects, in particular by relying on its renowned know-how in offshore oil and gas.

In February 2020, TOTAL expanded its partnership with Adani Indian Group by creating a 50/50 joint-venture with Adani Green Energy Limited (AGEL). AGEL will transfer its solar plant in operation which have a cumulated capacity of over 2 GW. This transaction remains subject to the approval of the relevant authorities.

Total Quadran

TOTAL implemented its policy of investing in low-carbon businesses with the acquisition in 2018 of Direct Énergie, which used to own Quadran, since then renamed Total Quadran. This company enables the Group to speed up its development in solar and wind power in France.

At the end of 2019, Total Quadran operated a portfolio of 213 onshore wind, solar, hydroelectric and biogas assets in France, and continues to develop a portfolio of renewable electricity projects that have reached different stages of maturity. The installed gross capacity was 0.7 GW at the end of 2018 and 0.8 GW at the end of 2019, following the acquisition in August 2019 of the French company Vents d'Oc, which develops more than 200 MW of renewable energy projects, mainly in wind power.

Banque des Territoires signed an agreement in January 2020 in order to take an equity interest of 50 % in a portfolio of solar and wind energy assets of a total capacity of 143 MW, held by Total Quadran in France. This partnership reflects the deployment of TOTAL's business model regarding the development of renewable energy projects. It will enable to pursue the development of new renewable energy projects in France.

Total Eren

In 2017, TOTAL acquired a 23% interest in Eren Renewable Energy, which has since been renamed Total Eren. This interest was increased to 29.6% at the end of 2019. TOTAL has an option to acquire 100% of Total Eren in 2023. Through its partnerships with local developers, Total Eren today manages numerous energy projects in countries and regions where renewable energies represent an economically viable response to growing energy demand, notably in Asia-Pacific, Africa and Latin America. In April 2019, Total Eren acquired the Novenergia group and extended its presence, in particular in southern Europe.

At the end of 2019, Total Eren had a diversified set of assets in renewable energies (wind, solar and hydraulic), representing an installed gross capacity of approximately 1.7 GW worldwide, compared with 1.3 GW in 2018.

Total Solar International

Total Solar International, which is 100%-owned by the Group, contributes to the development of solar activities by concentrating on solar power plants, which may be combined with batteries or other means of generation, and electricity storage sites in targeted geographical areas: Europe, the Middle East, Japan and South Africa.

Total Solar International has interests in the Shams 1 solar power station in Abu Dhabi, PV Salvador in Chile, Prieska in South Africa and Nanao in Japan. In June 2019 in Japan, Total Solar International commissioned the Miyako solar power station, with a capacity of 25 MW, and launched the construction of a solar power station with a capacity of approximately 52 MW in Osato in October 2019.

In January 2020, TOTAL and its partners began the development of the Al Kharsaah Solar Park, the first large-scale solar plant (800 MW), in Qatar. The project has been awarded to a consortium comprised of Total Solar International (49%) and Marubeni (51%) following the first international solar tender in the country.

In February 2020, TOTAL signed two agreements with Powertis and Solarbay Renewable Energy in order to develop nearly 2 GW of solar projects in the Spanish solar market.

Total Solar Distributed Generation

Total Solar Distributed Generation, which is 100%-owned by the Group, contributes to the development of solar activities. It concentrates on decentralized photovoltaic systems that can be combined with batteries or other means of generation, installed on the sites of its industrial or business customers (B2B). Total Distributed Generation enters private PPAs (power purchase agreements) and also takes part in the deployment of the program to solarize TOTAL's sites. In August 2019, TOTAL inaugurated its 1,000th service station equipped with solar panels worldwide.

In September 2019, Total Solar Distributed Generation and the Envision Group, the world leader in smart energy systems, formed an equally held joint-venture to commercially develop distributed solar energy projects for self-consumption for B2B customers in China.

Since October 2019, Total Solar Distributed Generation has added six solar projects with a cumulative capacity of approximately 10 MW to its portfolio of renewable energy assets in South-East Asia. These decentralized production projects are located in Thailand, the Philippines, Indonesia and Singapore.

SunPower

Since 2011, TOTAL has been the largest shareholder of SunPower, an American company listed on NASDAQ and based in California.

SunPower is the market leader in distributed energy in the United States, and its panels sales represent more than 2.4 GW worldwide in 2019, compared with 1.5 GW in 2018 and 1.4 GW in 2017. In November 2019, SunPower announced its decision to split its activities between two companies listed on the NASDAQ: Maxeon Solar Technologies and SunPower. Singapore-based Maxeon Solar Technologies will exercise activities from the design to the manufacturing and international sales of very high-yield solar cells and panels. Tianjin Zhonghuan Semiconductor Co., Ltd. (TZS), a worldwide player in wafers, is expected to acquire a 28.8% share of the capital at the time of the split. SunPower will continue to develop and market energy services (a combination of photovoltaic and storage systems, and other services) in the American market, in the residential, industrial and commercial segments.

The spin-off is expected to take effect in 2020, provided that the suspensive conditions are met.

2.1.3.3 Electricity storage

Electricity storage is a major challenge for the future of power grids and is vital in addition to renewable energies, which are intermittent by nature. Large-scale electricity storage is essential to promote the growth of renewables and enable them to become a significant share of the electricity mix.

The acquisition of Saft Groupe S.A. (Saft), achieved in 2016, is perfectly aligned with TOTAL's ambition to develop its low-carbon business. Saft is a century-old French company that specializes in the design, manufacture and sale of high technology batteries for industry.

Saft develops batteries based on nickel, lithium-ion and primary lithium technologies. The company is active in transport (aeronautics, rail and off-road electric mobility), industrial infrastructures, civil and military electronics, space, defense and energy storage. Building on the strength of its technological know-how, and through its energy storage activities, Saft is well placed to benefit from the growth in renewable energies beyond its current activities, by offering massive storage capacities, combined with the generation of electricity from renewables. This is one of Saft's main sources of growth.

In 2019, the company strengthened its energy storage and electric mobility activity, with the creation of a joint-venture with Tianneng Energy Technology (TET), a subsidiary of the private Chinese group Tianneng, with a view to developing their lithium-ion activity, and with the acquisition of Go Electric Inc., an American specialist in energy resilience solutions for microgrids. Additionally, Saft signed a contract with the Finnish operator TuuliWatti to build the largest energy storage system in the Nordic countries. Saft is also active in the European alliance working on a new generation of "solid electrolyte" batteries.

TOTAL and PSA Group announced in January 2020 their plan to combine their know-how to develop an electric vehicles battery manufacturing activity in Europe. To that end, they intend to establish a joint-venture named ACC (Automotive Cell Company). The project will leverage cutting-edge R&D, notably provided by Saft. The first phase of the project includes the building of a pilot plant on the land of Saft's Nersac (France) facility, with scheduled start up in mid-2021, and will trigger the investment decision for two large-scale production plants, in order to reach the production of one million batteries a year by 2030.

As of year-end 2019, Saft is present in 19 countries (historically in Europe and the United States) and has over 4,500 employees. Saft is achieving growth in particular in Asia, South America and Russia, and has 14 production sites and approximately 30 sales offices. In 2019, Saft's turnover amounted to \$891 million.

2.1.3.4 Access to energy

First launched in 2011 in 4 pilot countries, TOTAL's solar solutions for access to energy were distributed in 38 countries in 2019. In 2019, 3.3 million lamps and solar kits – including TOTAL's new SUNSHINE range launched in 2018 – were sold in cumulative, helping improve the everyday lives of 14.5 million people. The distribution channels used are both TOTAL's traditional networks (service stations) and "last mile" networks built with local partners to bring these solutions to isolated areas.

In addition, in 2019, around 15 incubation projects were developed with start-ups in the nano-grid, mini-grid, recycling and wind turbine sectors. More than 20 business partnerships were deployed in the field, with organizations ranging from NGOs and development agencies, to professional customers (including with distributors and major TOTAL customers) and international organizations.

The goal of the program is to impact 25 million people by 2025.

2.1.4 Natural gas and electricity marketing and trading

2.1.4.1 Natural gas and electricity marketing

Europe

With a portfolio of nearly 6 million sites (B2B and B2C customers) and 141 TWh of energy supplied in 2019, TOTAL has become a leading player in the sale of natural gas and electricity in the residential and professional markets (business and industrial segments).

TOTAL is now targeting nearly 10 million sites (B2B and B2C customers) in Europe in every segment, and in particular a 15% market share in France and Belgium in the residential segment by 2025.

The Group markets natural gas and electricity in the residential and professional segments in **France**, through its Total Direct Énergie subsidiary (a merger of the Total Énergie Gaz, Total Spring France and Direct Énergie entities), in **Belgium**, through its subsidiaries Lampiris (residential) and Total Gas & Power Belgium (professional) and in the **Netherlands**.

TOTAL also markets natural gas and electricity in the professional segment in the **United Kingdom** and is developing its activity in **Germany** and **Spain**.

Breakdown of gas and electricity sales in Europe

(in millions of B2B and B2C sites)

	2019	2018 ^(a)	2017
Europe	5.8	5.1	1.5
France	4.4	3.8	0.5
Belgium	1.0	1.0	0.8
United Kingdom	0.2	0.2	0.2
Germany	0.0	0.0	0.0
The Netherlands	0.1	0.1	0.0
Spain	0.0	0.0	0.0

(a) Acquisition of Direct Énergie in 2018.

(in TWh of delivered electricity)

	2019	2018 ^(a)	2017
Europe	46	31	15
France	26	17	1
Belgium	4	4	4
United Kingdom	11	10	9
Germany	2	1	0
The Netherlands	0	0	0
Spain	2	0	0

(a) Acquisition of Direct Énergie in 2018.

(in Gm³ of delivered gas)

	2019	2018 ^(a)	2017
Europe	9.1	8.5	8.4
France	2.4	1.8	1.9
Belgium	0.9	0.8	0.7
United Kingdom	4.1	4.2	4.3
Germany	1.3	1.3	1.2
The Netherlands	0.4	0.4	0.3
Spain	0.0	0.0	0.0

(a) Acquisition of Direct Énergie in 2018.

Rest of the world

In **Argentina**, TOTAL markets the natural gas that it produces. In 2019, the volume of gas sales were stable to 4.3 Bcm, compared to 4.3 Bcm in 2018 and 4.2 Bcm in 2017.

In **India**, the partnership with Adani was strengthened in October 2019 with the announcement of the acquisition by TOTAL of 37.4% of Adani Gas Limited, one of the leading local distributors of natural gas, holding 38 urban concessions.

In **Mexico**, the Group holds shareholdings in the marketing companies that are associated with the LNG regasification terminals located at Altamira.

2.1.4.2 Natural gas and electricity trading

TOTAL is active in the trading of natural gas and electricity in Europe and North America. The Group sells its output to third parties and supplies its subsidiaries.

In **Europe**, TOTAL sold 70.3 Bcm of natural gas in 2019, compared with 46.4 Bcm in 2018 and 33.3 Bcm in 2017⁽¹⁾. The Group also traded 66 TWh of electricity in 2019, compared to 65.4 TWh in 2018 and 70.2 TWh in 2017, mainly from external sources.

In **North America**, TOTAL sold 17.4 Bcm of natural gas in 2019 from its own production or from external resources, compared to 13.7 Bcm in 2018 and 12.1 Bcm in 2017.

(1) The data for 2017 has been restated to include the supply of marketing subsidiaries.

2.1.5 Trading (excluding LNG, gas and electricity) and transport

2.1.5.1 Trading (excluding LNG, gas and electricity)

The Group is also active in markets other than natural gas, LNG or electricity, such as LPG, petcoke and sulfur.

In 2019, TOTAL traded and sold nearly 6.4 Mt of LPG (propane and butane) worldwide, compared to 5.2 Mt in 2018 and 4.9 Mt in 2017. Slightly more than 25% of these quantities came from fields or refineries operated by the Group. This trading activity was conducted by means of nine long-term chartered vessels. In 2019, 290 journeys were necessary for transporting the negotiated quantities, including 176 journeys carried out by TOTAL's long-term chartered vessels and 114 journeys by spot-chartered vessels.

TOTAL sells petcoke produced by the Port Arthur refinery in the United States and the Jubail refinery in Saudi Arabia. Petcoke is sold to cement

producers and electricity producers mainly in India, as well as in Mexico, Brazil, other Latin American countries and Turkey. 2.5 Mt of petcoke were sold in the international market in 2019, compared to 2.2 Mt in 2018 and 2.1 Mt in 2017.

TOTAL also sells sulfur, mainly from the production of its refineries. In 2019, 1.6 Mt of sulfur were sold, compared to 1.4 Mt in 2018 and 0.9 Mt in 2017.

In 2015, the Group ceased its coal production activities and, in 2016, stopped selling and trading coal.

2.1.5.2 Transport of natural gas

The Group holds interests in gas pipelines (refer to point 2.3.10 of this chapter) located in Brazil and Argentina.

2.1.6 Carbon Neutrality Businesses

One of the missions of the Group is to propose and implement a strategy in the fields of energy efficiency, CO₂-related business chains (CCUS, Nature Based solutions, compensation, etc.) and, more globally, in the new low-carbon activities, the services related to energy and the building of decarbonisation's offers.

2.1.6.1 Energy efficiency services

The energy efficiency services market is experiencing strong growth, expected to accelerate in the coming years. In this context, the Group is investing in this market, with the aim of helping the Group's customers reduce their energy consumption and their emissions, in particular by choosing between the best energy sources.

GreenFlex is a 100%-owned subsidiary of TOTAL that offers services designed to improve the energy and environmental performance of its customers. GreenFlex has more than 700 customers, employs approximately 500 people and recorded sales of approximately €327 million in 2019.

2.1.6.2 Total Carbon Neutrality Ventures

Formerly known as Total Energy Ventures, TOTAL's venture capital fund has been renamed Total Carbon Neutrality Ventures (TCNV). Its investments are now entirely dedicated to carbon neutrality businesses and are expected to reach an aggregate amount of \$400 million by 2023. TCNV invests in the upstream stage of the development of companies offering interesting technologies or economic models that enable companies to cut their energy consumption or the carbon intensity of their activities. With teams based in Europe and the United States, the fund makes its investments on a worldwide scale in smart energy, energy storage, smart mobility, bioplastics and recycling. While TCNV mainly invested in Europe and the United States in the past, the fund started investing in China in 2018. In particular, TCNV has signed an agreement with NIO Capital to cooperate and to invest in the mobility segment.

TCNV continues to develop its investment platform dedicated to emerging markets, and in particular to companies developing business models for access to energy for people who are not connected to the grid. The platform initially focused on Africa.

2.1.6.3 Carbon capture, use and storage

The Group aims at developing new businesses to enable its industrial, domestic or electricity producing customers to capture, store or use their CO₂ emissions, thanks to the study of new industrial solutions.

TOTAL considers CCUS to be one of the key drivers to tackle the challenge of the climate change and is particularly interested in the development of new business and industrial models associated with this value chain. The Group allocates 10% of its R&D budget, i.e. \$100 million per year.

In this area, the Group intends to participate directly or indirectly (via the OGCI fund in particular) in large-scale pilot projects. In 2017, TOTAL launched studies with Equinor and Royal Dutch Shell for developing the transport and storage aspects of the first industrial commercial project in the world for the capture, transport and storage of CO₂, with a capacity of 1.5 Mt of CO₂/y. The project aims to store the emissions from two industrial sites near Oslo (Norway) and will also be able to collect emissions from other emitters. TOTAL is also involved in studies of other projects, in collaboration with other industrial companies and partners, in Antwerp (Belgium), Dunkirk (France), Teesside or St. Fergus (United Kingdom).

Svante Inc., LafargeHolcim, Oxy Low Carbon Ventures, LLC (OLCV), a wholly-owned subsidiary of Occidental, and TOTAL announced a joint study to assess the viability and design of a commercial-scale carbon-capture facility at the Holcim Portland cement plant in Florence, Colorado, U.S. This joint initiative follows the project CO₂MENT recently launched by Svante, LafargeHolcim and TOTAL at the Lafarge Richmond cement plant in Canada, which already enhanced progress regarding reinjection of captured CO₂ inside cement.

2.1.6.4 Natural carbon sinks

Carbon sinks that use natural solutions are an effective means of capturing CO₂. In June 2019, the Group created the new Total Nature Based Solutions (NBS) entity that is dedicated to investments in these solutions. This entity on the one hand, will fund, develop and manage activities that capture carbon naturally (reforestation, regenerative agriculture, etc.) and, on the other hand, will ensure the protection of ecosystems that already store high quantities of carbon emissions.

Operations that protect resource regeneration cycles simultaneously produce social, economic and environmental co-benefits for local communities. TOTAL intends to invest \$100 million per year in such operations, starting in 2020. This significant investment is expected to enable the sustainable use of the above-mentioned value chains. The Group's target is to reach a sustainable storage capacity of 5 Mt CO₂/y by 2030.

2.2 Exploration & Production segment



The Exploration & Production (EP) segment encompasses the oil and natural gas exploration and production activities in more than 50 countries. Since January 1, 2019, the LNG Upstream and midstream activities, which previously reported to the Exploration & Production segment, now report to the Integrated Gas, Renewables & Power segment. This section presents the activities of the Exploration & Production segment adjusted accordingly.

<p>2.5 Mboe/d of hydrocarbons produced in 2019</p>	<p>\$18.0 B DACF⁽¹⁾ as of December 31, 2019</p>	<p>\$8.6 B of organic investments⁽²⁾ in 2019</p>
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Production

Hydrocarbon production	2019	2018	2017
EP (kboe/d)	2,454	2,394	2,165
Liquids (kb/d)	1,601	1,527	1,298
Gas (Mcf/d)	4,653	4,724	4,728

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

(1) DACF = debt adjusted cash flow. The operating cash flow before working capital changes w/o financial charges of the segment is defined as cash flow from operating activities before changes in working capital at replacement cost, without financial charges except those related to leases.

(2) Organic investments = net investments, excluding acquisitions, divestments and other operations with non-controlling interests (refer to point 2.6.1 of this chapter).

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

2.2.1 Presentation of the segment

Exploration & Production's mission is to discover and develop oil and gas fields in order to meet a growing energy demand driven by non-OECD countries.

In an environment marked by the strong volatility of hydrocarbon prices, EP's strategy is to develop an oil and gas production model that is resilient (i.e., able to withstand a long period of low oil and gas prices), profitable and sustainable.

The deployment of the strategy is based on three main levers:

- **Responsibility:** safety, a core value for the Group, is at the heart of all the activities of the segment which also aims at minimizing its environmental impact, in particular by significantly contributing to the reduction in emissions from the oil & gas scope operated by the Group;
- **Profitability:** maximizing the value of its assets through operational excellence (continuing efforts to cut costs, improving the level of availability of facilities and launching major projects on time and on budget) and ensuring strict investment discipline by being selective

2.2.2 Activities by geographical area

The information below describes the main exploration and production activities of the Exploration & Production segment presented by geographical zone, without detailing all of the assets held by TOTAL. The capacities referred to herein are expressed on a 100% basis, regardless of the Group's interest in the asset. The Group's annual and average daily liquids and natural gas production by country for 2019, 2018 and 2017 are shown in the tables "Production by geographical zone" of point 2.3.3 of this chapter. For information concerning the Group's interest in each asset (Group share in %) and whether the Group operates the asset, by country, refer to the table "Producing assets by geographical zone" of point 2.3.3 of this chapter.

2.2.2.1 Europe and Central Asia

In **Russia**, oil and gas production comes mainly from the interests held in the Termokarstovoye (58.89%)⁽¹⁾ and Kharyaga fields (20%) and from the shareholding in PAO Novatek. The Group's LNG activities in Russia are presented in the iGRP segment in point 2.1.2 of this chapter.

Russia is targeted by international economic sanctions. For information on international economic sanctions concerning Russia, refer to point 3.2 of chapter 3.

In **Norway**, TOTAL's production is sourced from multiple fields, in particular Ekofisk (39.9%) and Troll (3.69%). The giant Johan Sverdrup (8.44%) field started production in October 2019. TOTAL has equity interests in 63 production licenses on the Norwegian maritime continental shelf, 12 of which it operates. The Group's LNG activities in Norway are presented in the iGRP segment in point 2.1.2 of this chapter.

As part of the continual improvement of its North Sea portfolio, the Group disposed of its interests in the Victoria discovery (57%) in January 2019, in the Mikkel field (7.65%) in the Haltenbanken zone in January 2019, and in the King Lear discovery (22.2%) in October 2019.

in the commissioning of new projects. In addition, EP continues to restructure or sell the least efficient assets in its portfolio;

- **Durability:** reserves are renewed, through exploration as well as access to already discovered resources, building on the Group's competitive advantages in terms of geographical spread and technical skills.

In order to ensure the viability of its projects and long term strategy in light of the challenges raised by climate change, EP is focusing its oil investments on low break-even projects and developing its production of gas. EP integrated in the economic assessments of investments submitted to the Executive Committee, a price of CO₂ of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO₂ in a given country if it is higher. Since January 1, 2020, EP has been taking into account in the economic evaluations of investments submitted to the Executive Committee a CO₂ price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios. EP is also developing its expertise in technologies for carbon capture, use and storage.

In the **United Kingdom**, production comes from fields in different areas:

- in the Alwyn area (100%), production from the Alwyn and Dunbar fields represents 55% of this area. The rest of the production comes from satellites linked to these fields.
- in the Central Graben area, TOTAL operates the Elgin/Franklin complex (46.17%) which hosts the West Franklin (46.17%) and Glenelg (58.73%) fields. The project to redevelop Elgin, which started in 2016 and included the drilling of five wells, was completed in 2019. A new infill well was drilled on Franklin. TOTAL also operates the Culzean gas and condensate field (49.99%) which started production in June 2019. This start-up is the main reason for the rise in production in the United Kingdom in 2019. In the Quad 30 area, the Group holds an interest in the Flyndre field (65.94%). TOTAL announced a discovery on the Glengorm prospect (25%), close to existing TOTAL operated infrastructure, in January 2019.
- in the West of Shetland area, TOTAL operates the producing Laggan, Tormore, Edradour and Glenlivet fields (all 60%). A delineation well was drilled in 2019 following the discovery of gas on the Glendronach prospect in 2018.
- in the Quad 9 area in the eastern North Sea, TOTAL operates the Gryphon (86.5%), Maclure (38.19%), South Gryphon (89.88%) and Tullich (100%) fields. In the Quad 15 area, TOTAL holds 100% interests in the Dumbarton, Balloch, and Lochranza fields, whose production is processed by the Global Producer III FPSO also operated by TOTAL.

In 2019, TOTAL maintained its interests in the PEDL 273, 305 and 316 (20%) shale gas exploration and production licenses, after sales of interests in various licenses and leases in 2017.

In July 2019, TOTAL signed an agreement to sell several non-strategic assets in the eastern North Sea. They include Dumbarton, Balloch, Lochranza and Drumtochty (100%), Flyndre (65.94%), Affleck (66.67%), Cawdor (60.6%), Golden Eagle (31.56%), Scott (5.16%), and Telford (2.36%) fields. The finalization of the transaction, which remains subject to approval by the authorities, is expected in early 2020.

(1) TOTAL's aggregate interest through a direct interest of 49% in ZAO Terneftegas with PAO Novatek and a 9.89% indirect interest through its 19.40% shareholding in PAO Novatek.

In **Kazakhstan**, oil and gas production comes mainly from the Kashagan field operated by the North Caspian Operating Company (NCOOC) in the North Caspian license (16.81%). The production of the first phase of the Kashagan field and of the corresponding treatment plant, which started in 2016, has reached the capacity of 400 kb/d. On the Dunga field (60%, operator), the extension of the contract until 2039 was signed in July 2019, enabling the development project of phase 3 to be launched. In **Denmark**, TOTAL is operator of the Danish Underground Consortium (DUC) (43.2%) resulting from the acquisition of Mærsk Oil in March 2018 and of Chevron Denmark Inc. in April 2019. The operated production (100%) comes from the two main DUC assets: Dan/Halfdan and Gorm/Tyra fields. The Tyra field facilities constitute the main gas offshore treatment hub in Denmark. Production on the Tyra field was stopped in September 2019 as part of the redevelopment of the field that aims to extend the reserve life of the Tyra Denmark offshore gas field, the restart of which is expected in 2022. During the shut-down of the facilities in the field, the gas is exported from the facilities of the Dan/Halfdan fields.

In the **Netherlands**, production is sourced from the assets held in the 22 offshore production licenses, of which 18 are operated. Cost-cutting efforts allowed operations to restart at the end of 2019 on the F15 platform the production of which was stopped for decommissioning in 2017.

In **Italy**, TOTAL holds interests in and is operator of the Tempa Rossa field (50%) located on the Gorgoglione concession (Basilicate region), as well as three exploration licenses. Production at Tempa Rossa started in December 2019 and is expected to reach the planned capacity of 50 kboe/d in 2020.

In **Azerbaijan**, the development of the Absheron gas and condensates field (50%) in the Caspian Sea, which is operated by JOCAP (Joint Operating Company of Absheron Petroleum, a company jointly held by TOTAL and SOCAR), is in progress, with a view to supplying the domestic market. The production capacity of this first development phase is expected to be 35 kboe/d. The drilling operations, which were completed in November 2019, confirmed the significant potential of the deposit, beyond the first development phase.

In **Bulgaria**, TOTAL holds interests (40%) and is operator of the deep offshore exploration Block Han Asparuh. A 3D seismic campaign is expected in 2020.

In **Greece**, TOTAL holds interests (50%) and is operator of the exploration license on Block 2 in the Ionian Sea since March 2018. In October 2019, TOTAL was allocated interests (40%) and the operatorship of two licenses to explore two offshore blocks to the west and south-west of Crete.

Rest of the Europe and central Asia

TOTAL also holds interests (33.35%) in an exploration license without activity in Tajikistan.

2.2.2.2 Africa (excluding North Africa)

In **Nigeria**, the Group's production is mainly offshore. TOTAL operates five production licenses (OML) on the 33 leases in which the Group has interests.

TOTAL has offshore operations, notably on the following operated leases:

- on OML 130 (24%, operator), the production on the Egina field started in December 2018. The Egina field reached its production plateau at more than 200 kboe/d in May 2019. The Preowei field development plan was approved by the authorities in 2019;
- on OML 99 (40%, operator), the final investment decision of the Ikike field was taken in January 2019. The project is currently under implementation;

- on OML 139 (18%), the plan to develop the Owowo discovery, made by TOTAL in 2012, is under study. This discovery is near the OML 138 license, where the Usan field is in production.
- On OML 118 (12.5%), the tender phase of the Bonga South West Aparo project (10%, unitized) was launched in February 2019.

TOTAL is also present onshore, notably through the SPDC joint-venture (10%) which has 20 production licenses (of which 17 are located onshore), the 2019 production was 60 kboe/d. TOTAL has obtained 20-year extensions for 3 offshore licenses in 2014, and for 16 onshore licenses in 2018. The sale process of the Group's shares in OML 17 is ongoing.

The Group's LNG activities in Nigeria are presented in the iGRP segment in point 2.1.2 of this chapter.

In **Angola**, where TOTAL is the country's leading operator⁽¹⁾, the Group production mainly comes from Blocks 17, 32, 0, 14 and 14K:

- the deep offshore Block 17 (40%, operator), TOTAL's main asset in Angola, is composed of four major producing hubs: Girassol, Dalia, Pazflor and CLOV. The three brownfield projects, Zinia Phase 2, Clov Phase 2 and Dalia Phase 3, launched in 2018, are satellite developments of the Pazflor, CLOV and Dalia FPSOs and are expected to come into production in 2020 and 2021. Following the agreement signed in December 2019 with state-owned Sonangol and the National Oil, Gas and Biofuels Agency (ANPG), all Block 17 production licenses were extended until 2045 on the effective date of the agreement. Sonangol will simultaneously obtain a 5% interest in Block 17 and an additional 5% interest in 2036. After the entry of Sonangol in Block 17, the Group's interest will be 38% with operatorship. Other brownfield projects for extending the production of Pazflor, Rosa, Girassol and Dalia are under study. Exploration may also help unlock further resources as two nearby exploration wells are expected to be drilled in 2020.
- on the deep offshore Block 32 (30%, operator), production of the Kaombo project started in July 2018 with the start-up of the Kaombo Norte FPSO. The start-up of the second Kaombo Sul FPSO took place in April 2019. The discoveries in the central and northern parts of the Block (outside Kaombo) offer additional potential and are currently being assessed;
- on Block 0 (10%), production comes from different fields, including in particular Mafumeira, where an additional drilling campaign is in progress;
- on Block 14 (20%)⁽²⁾, production comes from the Tombua-Landana and Kuito fields as well as the BBLT project, comprising the Benguela, Belize, Lobito and Tomboco fields;
- Block 14K (36.75%) is the offshore unitization area between Angola (Block 14) and the Republic of Congo (Haute Mer license). TOTAL holds interests (10%) in the Lianzi field located in Block 14K through Angola Block 14 BV.

TOTAL signed in December 2019 an agreement with Sonangol to acquire interests in Blocks 20/11 (50%) and 21/09 (80%) in the Kwanza, offshore Luanda, in view of developing a new production hub. As per the agreement, TOTAL will become operator of the development of the two licenses where several discoveries were made, before putting in place an operating company with Sonangol. The operation is subject to approvals of the competent authorities and partners.

In exploration, in 2018, TOTAL acquired a license for Block 48 (50%, operator) which plans the drilling of an exploration well during the first two-year period.

The Group's LNG activities in Angola are presented in the iGRP segment in point 2.1.2 of this chapter.

(1) Company data.

(2) Interest held through Angola Block 14 BV (TOTAL 50.01%).

In the **Republic of Congo**, the Group's production comes from the Total E&P Congo subsidiary, owned by TOTAL (85%) and Qatar Petroleum (15%).

Two significant assets operated by Total E&P Congo are in production in the Moho Bilondo license: the Moho Bilondo field (53.5%, operator) and the Moho Nord field. The Moho Nord field has been producing more than its capacity of 100 kboe/d since the start of 2018 due to strong productivities of the wells.

Block 14K (36.75%) is the offshore unitization area between Angola (Block 14) and the Republic of Congo (Haute Mer license). TOTAL holds interests (26.75%) in the Lianzi field located in Block 14K through Total E&P Congo.

Total E&P Congo is the operator of Djéno (63%), the sole oil terminal in the country.

Three new exploration licences were granted to TOTAL by the Republic of Congo in February 2020: Marine XX in deep offshore, as well as Naga and Mokelembembe located onshore.

In the **Democratic Republic of Congo**, after the completion of seismic acquisition work, TOTAL informed the authorities of its withdrawal from Block III in January 2019.

In **Gabon**, production comes from TOTAL's shareholding in Total Gabon⁽¹⁾. Total Gabon is the operator (100%) of the Anguille and Torpille sector offshore fields, the Mandji Island sector onshore fields and the Cap Lopez oil terminal. In 2019, Total Gabon finalized a drilling campaign on Torpille sector as part of the redevelopment of the field.

Total Gabon also holds interests in the licenses in the Grondin (65.28%) and Hylia (37.50%) sectors, where the first phase of a conversion campaign was launched in 2019 to change the activation of the gas-lift wells into submerged pumps.

In **Uganda**, TOTAL holds a 33.33% interest in Blocks EA1, EA2 and EA3 for the development of the Lake Albert project. TOTAL is the operator of Block EA1, where most of the reserves are located. The project has reached an advanced technical stage, in terms of the engineering of the surface facilities and the oil pipeline, as well as for the drilling. The State-owned company has an option to acquire a 15% interest in the project, which would reduce TOTAL's share to 28.33%, if exercised.

In January 2017, TOTAL and Tullow signed a purchase agreement that enabled TOTAL to acquire 21.57% of Tullow's 33.33% interest in the Lake Albert license. All the parties have been actively working on the implementation of the agreement since 2017. Despite in-depth discussions with the authorities, an agreement on the fiscal conditions of the transaction could not be reached, and the 2017 agreement expired on August 29, 2019. Nevertheless, TOTAL retains its pre-emption right in the event of divestment by one of the parties of all or part of its interest. Despite the expiry of the agreement, TOTAL and its partners are continuing their efforts to develop the oil resources of Lake Albert. The work in progress with the Ugandan government aims to draw up a stable and appropriate legal and fiscal framework before taking any investment decisions.

In **Mauritania**, TOTAL continued exploration activities on the five operated offshore Blocks: Block C9 (50%) since 2012, C7 (90%) and C18 (90%) since 2017, and Blocks C15 (90%) and C31 (90%) since 2019. On Block C18, TOTAL entered the second exploration period in June 2019. After the drilling of a well in 2019, TOTAL relinquished the Block C9 in January 2020.

In **Senegal**, TOTAL continued exploration activities on operated offshore blocks: Rufisque Offshore Profond (ROP) (60%) signed in 2017 and Ultra Deep Offshore (UDO) (90%) since 2018. In 2019, TOTAL drilled an exploration well on Block ROP while the entry in the first exploration period on Block UDO was approved by decree.

In **Kenya**, TOTAL holds interests in the onshore exploration licenses (10BA, 10BB and 13T) and the offshore exploration licenses (L11A, L11B and L12). In August 2019, TOTAL announced the signing of an agreement entitling Qatar Petroleum to acquire a part of its interests in these offshore licenses. The finalization of this transaction remains subject to the authorities' approval. Several oil discoveries were made on Blocks 10BB and 13T and a preliminary early production project is in progress to assess the production potential.

In **South Africa**, TOTAL operates three deep offshore exploration licenses on the South Outeniqua Block (100%), Block11B/12B (45%) and since November 2019 the DOWB license (80%). TOTAL also holds an interest in the East Algoa license (30%). Following the drilling of the first Brulpadda-1Ax exploration well on Block 11B/12B in January 2019, TOTAL announced a discovery of gas and condensates and proceeded with a 3D seismic acquisition. Preparations are well advanced for the continuation of the exploration program, with additional 2D and 3D seismic acquisitions which started in December 2019 and additional drillings are planned in 2020. Additionally, in May 2019, TOTAL announced the signing of a binding agreement with the Occidental Petroleum Corporation for the acquisition of the assets held by the Anadarko Petroleum Corporation in South Africa (exploration licenses 5/6/7 within the Orange Basin). The acquisition was closed in January 2020.

In **Namibia**, TOTAL operates two exploration permits in the deep offshore on Blocks 2912 (85%) and 2913B (70%). An exploration well is planned to be drilled in 2020 on the Venus prospect (Block 2913B). In August 2019, TOTAL announced the signing of agreements entitling Qatar Petroleum to acquire part of its interests in these Blocks. The completion of the transaction is expected in the first half of 2020.

Rest of the zone of Africa

TOTAL directly holds interests in three deep offshore exploration licenses in Ivory Coast, including Blocks CI-705 (90%, operator) and CI-706 (90%, operator) signed in June 2019, in addition to Block CI-605 (90%, operator). Additionally, two new licenses were granted to TOTAL in March 2019 one for Block ST-1 in São Tomé et Príncipe and the other for Blocks JDZ-7,8,11 in the joint development area between São Tomé et Príncipe and Nigeria. Additionally, in May 2019, TOTAL announced the signing of a binding agreement with the Occidental Petroleum Corporation for the acquisition of the assets held by the Anadarko Petroleum Corporation in Ghana (24% of the Jubilee field, and 17% of the Ten field). The finalization of this transaction remains subject to the authorities' approval.

2.2.2.3 Middle East and North Africa

In the **United Arab Emirates**, the Group's production, mainly oil, is sourced from different concessions.

Since March 2018, the Group holds a 20% interest in the Umm Shaif/ Nasr offshore concession and a 5% interest in the Lower Zakum offshore concession, for a period of 40 years operated by ADNOC Offshore, which follows the previous Abu Dhabi Marine Areas Ltd. (ADMA) offshore concession. TOTAL operates the Abu Al Bukoosh offshore field (100%) for which the contract was extended for 3 years in March 2018.

In 2015, the Group had also renewed its 10% interest in the ADNOC Onshore concession (formerly the Abu Dhabi Company for Onshore Petroleum Operations Ltd.) for 40 years. This concession covers the 15 main onshore fields of Abu Dhabi.

(1) Total Gabon is a company under Gabonese law, the shares of which are listed on Euronext Paris and owned by TOTAL (58.28%), the Republic of Gabon (25%) and the public (16.72%).

TOTAL also holds a 10% shareholding in ADNOC Gas Processing (formerly Abu Dhabi Gas Industries), which produces NGL and condensates from the associated gas produced by ADNOC Onshore.

TOTAL also holds a 24.5% shareholding in Dolphin Energy Ltd. that sells gas from the Dolphin Block in Qatar to the United Arab Emirates and Oman. The operations of Dolphin Energy were not impacted by the evolution of the diplomatic relations between the United Arab Emirates and Qatar.

In November 2018, TOTAL and the state-owned Abu Dhabi National Oil Company (ADNOC) signed a concession agreement to launch an exploration program for unconventional onshore gas on Block 1 in the Diyab prospect zone. In addition to finishing the fracking and testing of the existing three exploration wells, the program consists of three appraisal wells and two exploration wells.

The Group's LNG activities in the United Arab Emirates are presented in the iGRP segment in point 2.1.2 of this chapter.

In **Qatar**, production comes mainly from the Group's interests in the Al Khalij offshore field (40%, operator) and the Al Shaheen field (30%). The Al Shaheen field, located offshore, 80 km north of Ras Laffan, is operated by the North Oil Company, held by TOTAL (30%) and Qatar Petroleum (70%). TOTAL has held a 25-year interest in this field since 2017. TOTAL also holds a 24.5% interest in the offshore Dolphin Block, producing gas that is sold in the United Arab Emirates and Oman. The operations of Dolphin Energy were not impacted by the evolution of the diplomatic relations between the United Arab Emirates and Qatar.

The Group's LNG activities in Qatar are presented in the iGRP segment in point 2.1.2 of this chapter.

In **Libya**, production partly comes from the Al Jurf fields located on offshore areas 15, 16 and 32 (75%) and from the El Sharara fields located on onshore areas 129-130 (30%) and 130-131 (24%). On these areas, production was shutdown in July 2018 and from December 2018 to February 2019 for security reasons and around 10 days in July-August 2019 due to the unavailability of an export pipeline. The Mabruk fields (75%), located on onshore areas 70 and 87, have been shutdown since the end of 2014.

Additionally, in March 2018, TOTAL acquired Marathon Oil Libya Limited, which holds an 16.33% interest in the onshore Waha Concessions, with a production of 47 kboe/d in 2019. This acquisition was definitively approved by the competent authorities in December 2019.

In **Algeria**, production comes from the shares in the TFT II and Timimoun gas fields and in the oil fields in the Berkine basin (Blocks 404a and 208).

Under the terms of a Global Agreement signed in 2017 with the authorities, two new concession contracts and the corresponding contracts for the sale of gas came into effect for TFT II (26.4%) in October 2018 and for TFT SUD (49%) in February 2019. Also, TOTAL finalized an agreement to buy the 22.6% share of a partner in TFTII. This acquisition is subject to the prior approval of the competent authorities. A concession contract and a gas marketing contract for Timimoun (37.75%) also took effect in July 2018, replacing those dated July 2012. Production on this field started in March 2018.

Additionally, in May 2019, TOTAL announced the signing of a binding agreement with the Occidental Petroleum Corporation to acquire the Anadarko Petroleum Corporation's assets in Algeria. However, the Algerian authorities have announced that they were contesting the change of control between Occidental and Anadarko and they were considering to exercise their pre-emption right.

Late 2018, TOTAL was granted two authorizations to conduct exploration works on two offshore prospective areas, with operatorship for one of them.

In **Oman**, TOTAL participates in the production of oil in Block 6 (4%) principally and on Block 53 (2%), the sale of which is subject to the approval of the competent authorities. The Group's LNG activities in Oman are presented in the iGRP segment in point 2.1.2 of this chapter.

Additionally, in February 2020, TOTAL signed a concession agreement with the Oman government to explore the resources of the onshore Block 12, located in the Greater Barik area.

In **Iraq**, the Group's production comes mainly from its 22.5% interest in the risked service contract for the Halfaya field, located in Missan province. Phase 3 of the project to develop the Halfaya field came into production in 2018 and reached the production plateau of 400 kb/d in March 2019. In July 2019, a contract was awarded for the treatment of the associated gas and the recovery of the LPG and condensates.

Following the finalization of the acquisition of Mærsk Oil in March 2018, TOTAL also holds an interest in the Sarsang field in Iraqi Kurdistan, which is already in production.

In **Yemen**, the deterioration of security conditions in the vicinity of the Baihaf site caused the company Yemen LNG, in which the Group holds a stake of 39.62%, to stop its commercial production and export of LNG and to declare *force majeure* to its various stakeholders in 2015. The plant has been put in preservation mode (for more information, refer to point 3.2 of chapter 3). TOTAL holds various stakes in four onshore exploration licenses, for which a situation of *force majeure* has been declared. In addition, TOTAL signed an agreement to sell its interest in Block 5 (Marib Basin, Jannah license, 15%) in 2018. This agreement remains subject to the authorities' approval.

In **Iran**, TOTAL ceased all operational activity in Iran before November 4, 2018. Following the withdrawal of the United States from the Global Joint Comprehensive Plan of Action in May 2018, TOTAL withdrew from the project SP11 of the giant South Pars gas field and finalized its withdrawal on October 29, 2018, before the re-imposition of US secondary sanctions on the oil industry as of November 5, 2018. TOTAL was the operator and had a 50.1% interest alongside the Chinese state-owned company CNPC (30%) and Petropars (19.9%); a wholly-owned subsidiary of National Iranian Oil Company (NIOC). For information on international economic sanctions concerning Iran, refer to point 3.2 of chapter 3.

In **Syria**, TOTAL ceased its activities that contributed to oil and gas production in December 2011. For information on international economic sanctions concerning Syria, refer to point 3.2 of chapter 3.

In **Cyprus**, TOTAL is present in the offshore Blocks 6 (50%) and 11 (50%, operator) and entered the exploration Blocks 2 (20%), 3 (30%), 7 (50%, operator), 8 (40%) and 9 (20%) in October 2019.

In **Lebanon**, TOTAL is operator since February 2018 of two offshore exploration Blocks 4 and 9 (40%, operator).

Rest of the zone of the Middle East and North Africa

TOTAL also holds interests in an offshore exploration license in Block 7 (25%) in Egypt.

2.2.2.4 Americas

In the **United States**, hydrocarbon production in the Gulf of Mexico comes from its interests in the deep offshore fields Tahiti (17%), and, since March 2018, Jack (25%). It divested its 33.33% interest in the Chinook field in 2019.

TOTAL is operator of the North Platte discovery (60%) and holds interests in the Anchor (37.14%) discoveries. In December 2019, the Group started the FEED (Front End Engineering and Design) studies for the development of North Platte and decided to launch the development of Anchor. Production is expected to start on Anchor in 2024, and the field is expected to reach a plateau of 80 kboe/d.

On the Ballymore discovery (40%), announced in January 2018, the studies launched after the appreciation program completed in 2019, aim to establish the profitability of the project by optimizing its development plan.

TOTAL also holds a 25% interest in an asset in the Utica basin (on mining acreage located mainly in Ohio), where TOTAL has not taken part in any drilling in the last three years.

The Group's other Upstream activities in the United States are presented in 2.1.2 of this chapter.

In **Canada**, the Group's output comprises bituminous oil sands. TOTAL has a 50% interest in Surmont, a steam assisted gravity drainage (SAGD⁽¹⁾) production project, and a 24.58% interest of the Fort Hills mining extraction project, both in the province of Alberta. The application in January 2019 of production quotas by the Alberta government affected the production of Surmont and Fort Hills, but significantly improved the netbacks of the projects.

In **Argentina**, TOTAL operated approximately 27%⁽²⁾ of the country's gas production in 2019:

- in Tierra del Fuego, on the CMA-1 concession, TOTAL operates the Ara and Cañadon Alfa Complex onshore fields and the Hidra, Carina, Aries and Vega Pleyade offshore fields (37.5%).
- in the Neuquén onshore Basin, the Group holds interests in 10 licenses and operates six of them, including Aguada Pichana Este and San Roque, where production has already started. Three shale gas and oil pilot projects operated by TOTAL were launched: the first on the Aguada Pichana Block, where production started mid-2015 in order to produce gas; the second on the Rincón la Ceniza Block, located on the gas and condensate portion of Vaca Muerta (45%, operator), where production started in 2016; and the third on the Aguada San Roque Block (24.71%, operator), started production in 2018 in order to produce oil.

Following the good results of the Aguada Pichana gas pilot project and a reduction in drilling costs, the first phase of development of the giant Vaca Muerta shale play was launched in 2017 in the eastern part of the Block. In this project, all the partners of Aguada Pichana have signed an agreement to split the block in two which has enabled TOTAL to remain the operator of the Aguada Pichana Este Block, with 27.27% of the conventional part (Mulichinco), and 41% of the unconventional part (Vaca Muerta), and to adjust to 25% its interest in the Aguada Pichana Oeste, which is now non-operated by TOTAL and where a pilot came to production in 2017.

A second development phase was launched on the Aguada Pichana Este – Vaca Muerta Block in 2018. It should allow the production plateau to reach 500 Mcf/d, which corresponds to the capacity of the existing plant.

The wells of the first pilot on San Roque have been in production since 2018, and a second series of wells started up in May 2019, confirming the formation's oil potential.

The pilot development on the Rincón la Ceniza Block was completed in 2019 with the start of production of three new wells in the gas and condensates part. The delineation well drilled in 2016 on the neighboring La Escalonada Block in order to test the oil portion of the formation has also demonstrated good productivity. This well was connected to the Rincón la Ceniza plant in 2019. Two additional wells on the Rincón la Ceniza are expected to confirm the oil potential of these two blocks.

In December 2019, TOTAL divested its 2.51% interests in the bloc Sierra Chiata in the Neuquén onshore Basin.

In Exploration, TOTAL is operator of three new exploration licenses, in conventional offshore: CAN 111 and CAN 113 (50%) since October 2019 and MLO 123 (37.5%) since November 2019.

In **Bolivia**, TOTAL is present on six licenses, five of which are in production: San Alberto (15%), San Antonio (15%), the XX Tarija Oeste Block (Itau) (41%), Aquio and Ipati (50%, operator).

Production on the Incahuasi field, on the d'Aquio and Ipati Blocks, started in 2016. The connection of the ICS-3 well in 2018, the drilling of the ICS-5 well in May 2019, and the increase in the capacity of the treatment plant to 390 Mcf/d, are expected to durably maintain the production of the field.

On the Azero exploration license (50%, operator), the drilling of the NCZ-X1 exploration well continued in 2019.

In **Brazil**, production comes from the Mero field in the Libra (20%), Lapa (35%, operator) and Lara (22.5%) Blocks. The acquisition by the Group of an additional 10% interest in Lapa under the agreement signed in December 2018, thus increasing TOTAL's interest in the asset from 35% to 45%, is ongoing. The finalization of this transaction remains subjects to the Brazilian authorities in 2020.

The Mero field is located in the Santos Basin, approximately 170 km off the coast of Rio de Janeiro. At year-end 2019, 18 wells had been drilled and the production started in 2017 with the FPSO Pioneiro de Libra (50 kb/d capacity) designed to carry out the long-term production tests necessary for optimizing future development phases. The first FPSO of the Mero development project, Mero 1, with a liquid treatment capacity of 180 kb/d was launched in 2017, is currently under construction and is expected to start up in 2021. The second development FPSO, Mero 2 (with 16 wells connected to the FPSO with a liquid treatment capacity of 180 kb/d) was launched in 2019 and is expected to start up in 2023.

On Lara, production started in November 2019, with the FPSO P-68 (capacity of 150 kb/d) with a view to developing the Berbigao and Sururu-West fields. The Atapu field is currently being developed and the FPSO P-70 (capacity of 150 kb/d) is expected to start in the first half of 2020.

On Lapa, a drilling campaign started in mid-2019 on the north-east part of the field in order to increase the production of the FPSO (capacity of 100 kb/d) by adding two injector wells and replacing two productive wells, on which integrity problems had been detected. The development of the south-east part of Lapa is expected to start in the first half of 2020, with two productive wells and one injector well.

(1) Steam Assisted Gravity Drainage.

(2) Source: Department of Federal Planning, Public Investment and Services, Energy Secretariat.

In exploration, TOTAL and its partners Qatar Petroleum and Petronas were awarded Block C-M-541 at the 16th oil auctions of the ANP in October 2019. The block is situated in the Campos pre-salt-bearing basin in ultra deep water. TOTAL's 40% interest in the block is expected to decrease to 30% subject to the closing of an ongoing 10% farm-out. In addition, the Group holds 18 exploration licenses located in the Barreirinhas, Ceará, Espírito Santo, Foz do Amazonas and Pelotas basins.

Under the terms of their strategic alliance, TOTAL and Petrobras have signed an agreement to promote the strengthening of technical cooperation between the two companies, in particular by the joint assessment of the exploration potential of promising areas in Brazil and by the development of new technologies, in particular in deep offshore.

TOTAL holds an interest in the Gato de Mato field discovered in 2012. The well GDM#3 drilled in 2019 has confirmed the field extension in the block Gato de Mato South and allows to start development studies.

TOTAL also has interests in the fields undergoing assessment of Wahoo (28.6%) and Itaipu (40%) on the BMC-30 and BMC-32 Blocks, respectively in the Campos basin, following the acquisition of Mærsk Oil in 2018. On December 2019, TOTAL (70%, operator) and his partner informed the regulatory body ANP of their decision to relinquish the license containing the Xelerete field.

In **Venezuela**, the production is sourced from the shareholdings held by the Group in PetroCedeño S.A (30.32%) and in Yucal Placer (69.5%). Following the new international economic sanctions imposed at the start of 2019, the development of the PetroCedeño extra heavy oil field and the debottlenecking project of the water separation and treatment facilities were suspended in 2019 (three wells were drilled in 2019, compared with 26 in 2018 and 49 in 2017). Production on the PetroCedeño field stopped at the end of June 2019 has resumed at the end of November at very low levels. For information on international economic sanctions concerning Venezuela, refer to point 3.2 of chapter 3.

In **Suriname**, TOTAL acquired in December 2019 a 50% interest and the right to operatorship in the highly prospective Block 58 offshore Suriname. On this offshore block, the discovery made early 2020 by the Maka Central -1 exploration well is now under evaluation and further drilling and testing will be carried out to appraise the resources and productivity of the reservoir. The drilling of a second exploration well, Sapaka West-1 is underway.

In **Mexico**, TOTAL holds licenses in seven offshore exploration blocks in the Gulf of Mexico: Block 2 (50%, operator) located in the Perdido Basin, Blocks 1 (33.33%) and 3 (33.33%) located in the Salina Basin, Block 15 (60%, operator), as well as Block 32 (50%), Block 33 (50%, operator) and Block 34 (42.5%) located in the shallow waters of the Campeche Basin. TOTAL has informed Mexican authorities of its intention to give back the Block 2.

In **Guyana**, TOTAL has interests in the Canje Block (35%), the Kanuku Block (25%) and the Orinduik Block (25%) as part of the exploration of the prolific offshore Guyana Basin. In August 2019, TOTAL announced the signing of an agreement entitling Qatar Petroleum to acquire 40% of the company that owns the interests in Orinduik and Kanuku. The finalization of this transaction remains subject to the authorities' approval. Two discoveries currently being evaluated were made in 2019 on Orinduik Block.

Rest of the Americas zone

At the end of 2018, TOTAL disposed of its interests in the Aruba exploration license. In French Guiana, the Guyane Maritime license (100%) expired in June 2019. In Colombia, following the stoppage of production on the Nicosta field, in which TOTAL holds a 71.4% interest, the Group decided to withdraw from the production sharing contract.

2.2.2.5 Asia-Pacific

In **Thailand**, the production of condensates and natural gas comes from the Bongkot (33.33%) offshore gas and condensates field and is all bought by the PTT Thai state company. Several new wells were drilled in 2019 to maintain the production plateau.

In **Brunei**, production comes from the Maharaja Lela Jamalulalam condensate gas field on Block B (37.5%, operator), whence the gas is supplied to the Brunei LNG liquefaction plant, and from the unitized Gumusut-Kakap field, of which the part in Brunei is located on Block CA1 (86.95%, operator).

In October 2019, TOTAL has signed an agreement to sell its subsidiary (100%), Total E&P Deep Offshore Borneo BV, which holds 86.95% of Block CA1, 100 km offshore of Brunei. The finalization of the transaction is subject to approval by the competent authorities.

In **China**, production comes from the South Sulige Block (49%) in the Ordos Basin of Inner Mongolia, where the drilling of tight gas development wells is ongoing.

TOTAL holds a 49% interest and is operator of the Taiyang exploration block in the China Sea, situated in both Chinese and Taiwanese waters. Two 2D seismic surveying campaigns were completed in 2018 and 2019.

In **Myanmar**, the Yadana and Sein fields (31.24%, operator), located on the offshore Blocks M5 and M6, primarily produce gas for delivery to PTT for use in Thai power plants. These fields also supply the domestic market via an offshore pipeline built and operated by MOGE, a Myanmar state-owned company. In 2017, TOTAL started production on the Badamyar field, a satellite of the Yadana field, which is expected to extend the production plateau beyond 2020. The 3D seismic (5,700 km²) acquired on Block M5 in the first quarter of 2019 is currently under study.

On the A6 exploration license (40%), located in deep offshore waters west of Myanmar, and on which a gas discovery has been made, the design studies completed in the second quarter of 2019 confirmed the technical and economic viability of the project. On the YWB deep offshore Block (100%, operator), TOTAL holds an exploration license that has been renewed until August 2020. The studies based on the 2018 3D seismic survey are currently in progress.

In **Papua New Guinea**, TOTAL holds interests in the PPL339 (35%), PPL589 (100%) and PPL576 (100%) exploration licenses. The interpretation of the multi-client seismic survey performed in late 2016 on PPL576 revealed some promising prospects. The Group's LNG activities in Papua New Guinea are presented in point 2.1.2 of this chapter.

Rest of the Asia-Pacific zone

TOTAL also holds interests in exploration licenses in Malaysia and the Philippines. In Cambodia, TOTAL is working to implement an agreement entered into in 2009 with the Cambodian government for the exploration of Block 3 located in an area of the Gulf of Thailand disputed by the governments of Cambodia and Thailand. This agreement remains subject to the establishment by both countries of an appropriate contractual framework. In Sri Lanka, in 2016 TOTAL signed an agreement to proceed with surveys on the offshore JS-5 and JS-6 Blocks off the east coast. The surveys are underway. A new partner joined the agreement with a 30% interest, reducing TOTAL's interest to 70% in August 2019.

2.3 Upstream hydrocarbons activities



The Group's Upstream hydrocarbons activities include the oil and gas exploration and production activities of the Exploration & Production and the Integrated Gas, Renewables & Power (iGRP) segments. They are conducted in more than 50 countries.

3.0 Mboe/d

of hydrocarbons produced in 2019

12.7 Bboe

of proved reserves of hydrocarbons as of December 31, 2019⁽¹⁾

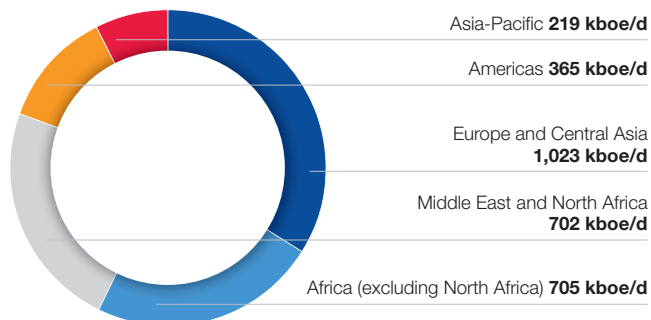
5.4 \$/boe

Production costs (ASC932) in 2019

Production⁽²⁾

Hydrocarbon production	2019	2018	2017
Combined production (kboe/d)	3,014	2,775	2,566
Oil (including bitumen) (kb/d)	1,431	1,378	1,167
Gas (including Condensates and associated NGL) (kboe/d)	1,583	1,397	1,399

Hydrocarbon production	2019	2018	2017
Combined production (kboe/d)	3,014	2,775	2,566
Liquids (kb/d)	1,672	1,566	1,346
Gas (Mcf/d)	7,364	6,599	6,662



In 2019, the Group's hydrocarbon production was 3,014 kboe/d, an increase of 9% compared to last year, due to:

- +13% related to the start-up and ramp-up of new projects, including Yamal LNG in Russia, Egina in Nigeria, Ichthys in Australia, Kaombo in Angola, Culzean in the United Kingdom and Johan Sverdrup in Norway;
- -3% due to the natural decline of the fields;
- -1% due to maintenance, notably in Nigeria, Norway and Tyra redevelopment project in Denmark.

Thanks to a significant decrease in capital investments, which peaked in 2013, the Group regained some flexibility for opportunities, including, in particular, the acquisitions of assets in Mozambique, Russia and North Sea, and to launch new projects, taking advantage of the current low level of costs. In order to high grade its portfolio, the Group also performed asset sales in various areas such as notably the North Sea and Africa.

Since 2018, the Group has launched, or plans to launch, numerous projects with an aggregate production potential that is expected to exceed 800 kboe/d.

All these actions are expected to increase production by more than 5% per year on average for the period 2018-2021, of which 2% to 4% in 2020 compared to 2019, and by more than 3% per year on average for the period 2023-2025.

(1) Based on a Brent crude price of \$62.74/b (reference price in 2019), according to the rules established by the Securities and Exchange Commission (refer to point 2.3.1 of this chapter).

(2) Group production = EP production + iGRP production.

Technical costs

	2019	2018	2017
Operating expenses (\$/b)	5.4	5.7	5.4
Exploration costs (\$/b)	1.0	1.0	1.2
DD&A (\$/b)	12.9	12.2	12.8
Technical costs (\$/b) ^(a)	19.3	18.9	19.4

(a) Technical costs for the consolidated subsidiaries, calculated in accordance with ASC 932⁽¹⁾ standards, excluding non-recurrents items (chapter 9.1.5).

Production costs for the consolidated subsidiaries, calculated in accordance with ASC 932⁽¹⁾ standards, continued to decrease and were \$5.4/boe in 2019, compared to \$5.7/boe in 2018.

Liquids and gas sale price

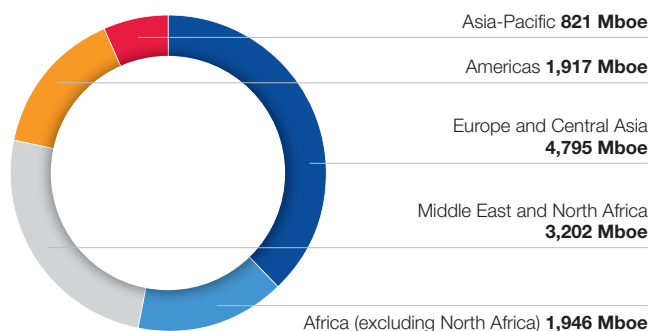
Price realizations ^(b)	2019	2018	2017
Average liquids price (\$/b)	59.8	64.3	50.2
Average gas price (\$/Mbtu)	3.88	4.87	4.08

(b) Consolidated subsidiaries.

Proved reserves

As of December 31	2019	2018	2017
Hydrocarbon reserves (Mboe)	12,681	12,050	11,475
Oil (including bitumen) (Mb)	5,167	5,203	4,615
Gas (including Condensates and associated NGL) (Mboe)	7,514	6,847	6,860

As of December 31	2019	2018	2017
Hydrocarbon reserves (Mboe)	12,681	12,050	11,475
Liquids (Mb)	6,006	6,049	5,450
Gas (Bcf)	36,015	32,325	32,506



Proved reserves of hydrocarbons based on SEC rules (Brent at \$62.74/b in 2019) were 12,681 Mboe at December 31, 2019. The proved reserve replacement rate⁽²⁾, based on SEC rules (Brent at \$62.74/b in 2019), was 157% in 2019 and 138% over three years.

(1) FASB Accounting Standards Codification 932, Extractive industries – Oil and Gas.

(2) Change in reserves excluding production: (revisions + discoveries, extensions + acquisitions – divestments)/production for the period.

2.3.1 Hydrocarbons reserves

The definitions used for proved, proved developed and proved undeveloped oil and gas reserves are in accordance with the United States Securities & Exchange Commission (SEC) Rule 4-10 of Regulation S-X as amended by the SEC Modernization of Oil and Gas Reporting release issued on December 31, 2008. Proved reserves are estimated using geological and engineering data to determine with reasonable certainty whether the crude oil or natural gas in known reservoirs is economically producible under existing regulatory, economic and operating conditions.

TOTAL's oil and gas reserves are consolidated annually, taking into account among other factors, levels of production, field reassessments, additional reserves from discoveries and extensions, disposal and acquisitions of reserves and other economic factors.

Unless otherwise indicated, any reference to TOTAL's proved reserves, proved developed reserves, proved undeveloped reserves and production reflects the Group's entire share of such reserves or such production. TOTAL's worldwide proved reserves include the proved reserves of its consolidated entities as well as its proportionate share of the proved reserves of equity affiliates. The reserves estimation process involves making subjective judgments. Consequently, estimates of reserves are not exact measurements and are subject to revision under well-established control procedures.

The reserves booking process requires, among other actions:

- that an internal peer review of technical evaluations is carried out to ensure that the SEC definitions and guidance are followed; and
- that management makes the necessary funding commitments to their development prior to booking.

For further information concerning the reserves and their evaluation process, refer to points 9.1 and 9.2 of chapter 9.

Proved reserves for 2019, 2018 and 2017

In accordance with the amended Rule 4-10 of Regulation S-X, proved reserves at December 31 are calculated using a 12-month average price determined as the unweighted arithmetic average of the first-day-of-the-month price for each month of the relevant year, unless prices are defined by contractual arrangements, excluding escalations based upon future conditions. The average reference prices for Brent crude for 2019, 2018 and 2017 were, respectively, \$62.74/b, \$71.43/b and \$54.36/b.

As of December 31, 2019, TOTAL's combined proved reserves of oil and gas were 12,681 Mboe (67% of which were proved developed reserves). Liquids (crude oil, condensates, natural gas liquids and bitumen) represented approximately 47% of these reserves and natural gas 53%. These reserves were located in Europe and Central Asia (mainly in Kazakhstan, Norway, the United Kingdom and Russia), Africa (mainly in Angola, Mozambique, Nigeria and the Republic of Congo), the Americas

(mainly in Argentina, Brazil, Canada, the United States and Venezuela), the Middle East and North Africa (mainly in the United Arab Emirates, Qatar, and Yemen), and Asia-Pacific (mainly in Australia).

Gas and associated products (condensates and natural gas liquids) represent approximately 59% of the reserves whilst crude oil and bitumen the remaining 41%.

Discoveries of new fields and extensions of existing fields added 1,654 Mboe to TOTAL's proved reserves during the three years 2017, 2018 and 2019 before deducting production and sales of reserves and adding any reserves acquired during this period. The net level of reserve revisions during this 3-year period is 1 794 Mboe, which was mainly due to the overall positive revisions in field behaviors and to the net impact of the changes in hydrocarbon prices in 2017 (increase), in 2018 (increase) and in 2019 (decrease) that led either to a decrease or increase in reserves resulting from shorter or longer producing life of certain producing fields and from partial debooking or rebooking of proved undeveloped reserves due to economic reasons, partially offset by reserves increase or decrease on fields with producing sharing or risked service contracts.

As of December 31, 2019, TOTAL's combined proved reserves of oil and gas are 12,681 Mboe (8,532 Mboe of which were proved developed reserves) compared to 12,050 Mboe (8,400 Mboe of which were proved developed reserves) as of December 31, 2018.

Reserve sensitivity to hydrocarbon prices

Changes in the price used as a reference for the proved reserves estimation result in non-proportionate inverse changes in proved reserves associated with production sharing and risked service contracts (which together represent approximately 20% of TOTAL's reserves as of December 31, 2019). Under such contracts, TOTAL is entitled to a portion of the production, the sale of which is meant to cover expenses incurred by the Group. The more the oil prices decrease, the more the number of barrels necessary to cover the same amount of expenses. Moreover, the number of barrels economically producible under these contracts may vary according to criteria such as cumulative production, the rate of return on investment or the income-cumulative expenses ratio. This increase in reserves is partly offset by a reduction of the duration over which fields are economically producible. However, the effect of a reduction of the duration of production is usually inferior to the impact of the drop in prices in production sharing contracts or risked service contracts. As a result, lower prices usually lead to an increase in TOTAL's reserves, and vice versa. In Canada, a decrease in the reference price per barrel leads to a decrease in the level of royalties and, therefore, an increase of the reserves.

Finally, for any type of contract, a significant decrease in the reference price of petroleum products that negatively impacts projects' profitability may lead to a reduction in proved reserves, and vice versa.

2.3.2 Exploration

TOTAL evaluates exploration opportunities based on a variety of geological, technical, political, economic (including tax and contractual terms), environmental and societal factors.

The exploration strategy deployed since 2015 aims to prioritize the most promising drill targets with a view to creating value. The Group plans balanced exploration investments:

- 50% for emerging basins, where the presence of hydrocarbons is already proven;

- 35% for exploration in mature hydrocarbon plays; and
- 15% for high-potential frontier basins.

In 2019, the Group's exploration expenditure was \$1.55 billion, mainly in Brazil, Suriname, the United States, the United Kingdom, South Africa, French Guiana, Guyana, Mexico, Cyprus, and Senegal, compared to \$1.2 billion in 2018 and in 2017.

2.3.3 Hydrocarbon production

The average daily production of liquids and natural gas was 3,014 kboe/d in 2019 compared to 2,775 kboe/d in 2018 and 2,566 kboe/d in 2017.

Gas and associated products (condensates and natural gas liquids) represented approximately 53% of TOTAL's overall production in 2019 compared to 50% in 2018, with crude oil and bitumen represented the remaining 47% in 2019 compared to 50% in 2018.

The tables on the following pages set forth TOTAL's annual and average daily production of liquids and natural gas by geographic area and for each of the last three fiscal years.

Consistent with industry practice, TOTAL often holds a percentage interest in its fields with the balance being held by joint-venture partners (which may include other international oil companies, state-owned oil companies or government entities). The Group's entities may frequently act as an operator (the party responsible for technical production) on the acreage in which it holds an interest. For further information, refer to the table on producing assets by geographical zone below.

The Trading & Shipping activity of TOTAL's Refining & Chemicals segment marketed in 2019, as in 2018 and 2017, substantially all of the liquids production from TOTAL (refer to table regarding Trading & Shipping's crude oil sales and supply and petroleum products sales in point 2.4.2.1 of this chapter).

Production by geographical zone

The following table sets forth the Group's annual liquids and natural gas production by geographical zone in 2019.

	2019			2018			2017		
	Liquids Mb ^(a)	Natural gas Bcf ^{(b)(c)}	Total Mboe	Liquids Mb ^(a)	Natural gas Bcf ^{(b)(c)}	Total Mboe	Liquids Mb ^(a)	Natural gas Bcf ^{(b)(c)}	Total Mboe
Europe and Central Asia	130	1,313	374	122	1,131	332	98	976	278
Denmark	12	42	20	9	36	15	–	–	–
Italy	<1	–	<1	<1	–	<1	–	–	–
Kazakhstan	22	25	27	20	26	26	11	19	15
Norway	38	197	75	38	211	77	46	234	88
Netherlands	0	33	6	–	36	7	–	41	7
United Kingdom	29	218	69	28	206	65	15	201	52
Russia	29	798	177	27	616	142	26	481	116
Africa (excluding North Africa)	204	289	257	187	287	245	183	277	239
Angola	75	71	85	68	48	77	73	47	83
Republic of Congo	47	12	49	47	12	50	36	12	38
Gabon	11	2	12	13	4	14	19	5	20
Nigeria	71	204	111	59	223	104	55	213	98
Middle East and North Africa	200	313	257	190	294	243	153	282	204
Algeria	13	48	22	11	34	17	1	21	5
United Arab Emirates	104	19	108	102	21	105	102	24	107
Iraq	7	1	7	7	1	7	6	–	6
Libya	28	5	29	22	3	23	11	–	11
Oman	10	24	14	9	25	14	9	23	13
Qatar	38	216	77	39	210	77	24	214	62
Americas	61	405	133	67	423	142	48	442	127
Argentina	3	160	32	3	147	29	2	141	27
Bolivia	2	70	15	2	74	15	2	79	17
Brazil	6	1	6	7	–	7	<1	–	<1
Canada	35	–	35	35	–	35	22	–	22
Colombia	<1	–	<1	<1	–	<1	<1	–	<1
United States	13	154	40	12	176	44	11	192	45
Venezuela	2	20	5	8	26	12	11	30	16
Asia-Pacific	16	368	79	6	273	51	10	455	89
Australia	10	151	38	1	66	12	–	41	7
Brunei	3	26	8	2	26	7	1	32	8
China	<1	39	6	–	32	6	<1	29	5
Indonesia	<1	4	1	–	5	1	6	190	41
Myanmar	–	46	6	–	49	6	–	55	7
Thailand	3	102	20	3	95	19	3	108	21
TOTAL PRODUCTION	611	2,688	1,100	572	2,408	1,013	492	2,432	937
INCLUDING SHARE OF EQUITY AFFILIATES	79	1,035	267	90	832	245	103	700	232
Angola	2	53	8	2	30	7	2	29	7
United Arab Emirates	9	14	12	15	16	18	42	19	46
Oman	9	24	13	9	25	13	8	23	13
Qatar	30	146	57	30	143	58	16	144	42
Russia	27	798	175	26	616	141	24	483	112
Venezuela	2	<1	2	8	2	8	11	2	12

(a) Liquids consist of crude oil, bitumen, condensates and natural gas liquids (NGL).

(b) Including fuel gas (194 Bcf in 2019, 166 Bcf in 2018 and 173 Bcf in 2017).

(c) Gas conversion ratio: 1 boe = 1 b of crude oil = 5,487 cf of gas in 2019 (5,460 cf in 2018 and 5,461 cf in 2017).

The following table sets forth the Group's average daily liquids and natural gas production by geographical zone in 2019.

	2019			2018			2017		
	Liquids kb/d ^(a)	Natural gas Mcf/d ^{(b)(c)}	Total kboe/d	Liquids kb/d ^(a)	Natural gas Mcf/d ^{(b)(c)}	Total kboe/d	Liquids kb/d ^(a)	Natural gas Mcf/d ^{(b)(c)}	Total kboe/d
Europe and Central Asia	354	3,596	1,023	334	3,099	909	265	2,674	761
Denmark	34	114	56	25	99	42	–	–	–
Italy	<1	–	<1	<1	–	<1	–	–	–
Kazakhstan	59	68	74	56	70	70	31	53	42
Norway	104	539	204	104	577	211	121	640	239
Netherlands	<1	90	16	–	98	18	–	112	20
United Kingdom	79	598	189	75	566	179	42	551	142
Russia	78	2,187	484	74	1,689	389	71	1,318	318
Africa (excluding North Africa)	558	791	705	513	786	670	502	759	654
Angola	205	194	232	186	132	211	204	130	229
Republic of Congo	128	32	134	130	32	136	98	32	104
Gabon	31	7	33	36	12	39	51	14	54
Nigeria	194	558	306	161	610	284	149	583	267
Middle East and North Africa	548	857	702	520	805	666	419	771	559
Algeria	35	132	59	30	94	47	4	58	15
United Arab Emirates	286	51	295	276	57	288	278	63	290
Iraq	19	3	20	18	1	19	15	1	16
Libya	78	15	80	62	9	63	31	–	31
Oman	26	65	38	26	67	38	25	64	37
Qatar	104	591	210	108	577	211	66	585	170
Americas	168	1,111	365	183	1,161	389	132	1,212	348
Argentina	7	438	86	7	402	79	6	388	76
Bolivia	5	193	39	5	204	42	5	216	46
Brazil	16	2	16	18	1	19	<1	–	<1
Canada	98	–	98	95	–	95	59	–	59
Colombia	<1	–	<1	1	–	1	<1	–	<1
United States	36	423	111	35	483	119	31	527	123
Venezuela	6	55	15	22	71	34	31	81	44
Asia-Pacific	44	1,009	219	16	748	141	28	1,247	244
Australia	29	415	106	3	181	34	–	114	19
Brunei	7	72	21	5	72	19	3	87	21
China	<1	106	19	–	88	16	<1	80	15
Indonesia	<1	10	2	–	14	3	16	519	112
Myanmar	–	126	16	–	133	17	–	151	19
Thailand	8	280	55	8	260	52	9	296	58
TOTAL PRODUCTION	1,672	7,364	3,014	1,566	6,599	2,775	1,346	6,663	2,566
INCLUDING SHARE OF EQUITY AFFILIATES	216	2,835	731	247	2,281	671	284	1,914	639
Angola	5	144	22	4	81	20	5	80	20
United Arab Emirates	24	39	32	41	45	49	115	53	125
Oman	25	66	37	24	67	37	23	64	35
Qatar	83	400	155	85	395	157	43	395	114
Russia	73	2,185	479	71	1,689	385	67	1,317	313
Venezuela	6	1	6	22	4	23	31	5	32

(a) Liquids consist of crude oil, bitumen, condensates and natural gas liquids (NGL).

(b) Including fuel gas (531 Mcf/d in 2019, 454 Mcf/d in 2018 and 473 Mcf/d in 2017).

(c) Gas conversion ratio: 1 boe = 1 b of crude oil = 5,487 cf of gas in 2019 (5,460 cf in 2018 and 5,461 cf in 2017).

Producing assets by geographical zone

The table below sets forth, as of December 31, 2019^(a) and by geographical zone, TOTAL's producing assets, the year in which TOTAL's activities started, the Group's interest in each asset (Group share in %) and whether the Group operates the asset.

Europe and Central Asia	Exploration & Production segment	iGRP segment
Denmark (2018)	Operated: Danish Underground Consortium (DUC) zone (43.20%), comprising the Dan/Halfdan, Gorm and Tyra fields, and all their satellites	
Italy (1960)	Operated: Tempa Rossa (50.00%)	
Kazakhstan (1992)	Operated: Dunga (60.00%)	
	Non-operated: Kashagan (16.81%)	
Norway (1965)	Operated: Atla (40.00%), Skirne (40.00%) Non-operated: Johan Sverdrup (8.44%), Åsgard (7.68%), Ekofisk (39.90%), Eldfisk (39.90%), Embla (39.90%), Flyndre (6.26%), Gimle (4.90%), Sindre (4.95%), Heimdal (16.76%), Islay (5.51%) ^(b) , Kristin (6.00%), Kvitebjørn (5.00%), Oseberg (14.70%), Oseberg East (14.70%), Oseberg South (14.70%), Troll (3.69%), Tune (10.00%), Tyrihans (23.15%)	Non-operated: Snøhvit (18.40%)
Netherlands (1964)	Operated: F6a oil (65.68%), J3a (30.00%), K1a (40.10%), K3b (56.16%), K4a (50.00%), K4b/K5a (36.31%), K5b (50.00%), K6 (56.16%), L1a (60.00%), L1d (60.00%), L1e (55.66%), L1f (55.66%), L4a (55.66%) Non-operated: E16a (16.92%), E17a/E17b (14.10%), J3b/J6 (25.00%), K9ab-A (22.46%), Q16a (6.49%)	
United Kingdom (1962)	Operated: Alwyn North (100.00%), Dunbar (100.00%), Ellon (100.00%), Forvie North (100.00%), Grant (100.00%), Jura (100.00%), Nuggets (100.00%), Islay (94.49%) (b), Elgin-Franklin (46.17%), West Franklin (46.17%), Glenelg (58.73%), Culzean (49.99%), Laggan Tormore, Edradour and Glenlivet (all 60.00%), Dumbarton, Balloch and Lochranza (100.00%), Gryphon (86.50%), Maclure (38.19%), South Gryphon (89.88%), Tullich (100.00%), Ballindalloch (91.8%), Flyndre (65.94%) Non-operated: Bruce (1.00%), Markham unitized field (7.35%), Golden Eagle, Peregrine and Solitaire (31.56%), Scott (5.16%), Telford (2.36%), Harding (30.00%)	
Russia (1991)	Non-operated: Kharyaga (20.00%), Termokarstovoye (58.89%) ^(c) , several fields through the participation in PAO Novatek (19.40%)	Non-operated: Yamal LNG (29.73%) ^(d)

(a) The Group's interest in the local entity is approximately 100% in all cases except for Total Gabon (58.28%), Total E&P Congo (85.00%) and certain entities in Abu Dhabi and Oman (see notes b through l below).

(b) The Islay field extends partially into Norway. Total E&P UK holds a 94.49% shareholding and Total E&P Norge 5.51%.

(c) TOTAL's aggregate interest through a direct interest of 49% in ZAO Terneftegas with PAO Novatek and a 9.89% indirect interest through its 19.40% shareholding in PAO Novatek.

(d) TOTAL's aggregate interest through a direct interest of 20.02% in OAO Yamal LNG and a 9.71% indirect interest through its 19.40% shareholding in Novatek.

Africa (excluding North Africa)	Exploration & Production segment	iGRP segment
Angola (1953)	Operated: Girassol, Dalia, Pazflor, CLOV (Block 17) (40.00%), Kaombo (Block 32) (30.00%)	
	Non-operated: Cabinda Block 0 (10.00%), Kuito, BBLT, Tombua-Landana (Block 14) (20.00%) ^(e) , Lianzi (Block 14K) (10.00%) ^(e)	Non-operated: Angola LNG (13.60%)
Gabon (1928)	Operated: Anguille Marine (100.00%), Anguille Nord Est (100.00%), Baliste (100.00%), Baudroie Marine (100.00%), Baudroie Nord Marine (100.00%), Grand Anguille Marine (100.00%), Lopez Nord (100.00%), Mérout Sardine Sud (100.00%), N'Tchengue (100.00%), Port Gentil Océan (100.00%), Torpille (100.00%), Torpille Nord Est (100.00%)	
	Non-operated: Barbier (65.28%), Girelle (65.28%), Gonelle (65.28%), Grondin (65.28%), Hylia Marine (37.50%), Mandaros (65.28%), Pageau (65.28%)	
Nigeria (1962)	Operated: OML 99 Amenam-Kpono (30.40%), OML 100 (40.00%), OML 102 (40.00%), OML 130 (24.00%)	Operated: OML 58 (40.00%)
	Non-operated: Shell Petroleum Development Company (SPDC 10.00%), OML 118 – Bonga (12.50%), OML 138 (20.00%)	Non-operated: Nigeria LNG (15.00%)
The Republic of Congo (1968)	Operated: Kombi-Likalala-Libondo (65.00%), Moho Bilondo (53.50%), Moho Nord (53.50%), Nkossa (53.50%), Nsoko (53.50%), Sendji (55.25%), Yanga (55.25%)	
	Non-operated: Lianzi (26.75%), Loango (42.50%), Zatchi (29.75%)	

(e) Shareholding in the company Angola Block 14 BV (TOTAL 50.01%).

Middle East and North Africa	Exploration & Production segment	iGRP segment
Algeria (1952)	Non-operated: TFT II (26.40%), Timimoun (37.75%), 404a & 208 (12.25%)	
United Arab Emirates (1939)	Operated: Abu Al Bukhoosh (100.00%)	
	Non-operated: ADNOC Onshore (10.00%), ADNOC Offshore: Umm Shaif/Nasr (20.00%), Lower Zakum (5.00%), ADNOC Gas Processing (15.00%)	Non-operated: ADNOC LNG (5.00%)
Iraq (1920)	Non-operated: Halfaya (22.5%) ^(f) , Sarsang (18.00%)	
Libya (1959)	Non-operated: zones 15, 16 & 32 (75.00%) ^(g) , zones 129 & 130 (30.00%) ^(g) , zones 130 & 131 (24.00%) ^(g) , zones 70 & 87 (75.00%) ^(g) , Waha (16.33%)	
Oman (1937)	Non-operated: various onshore fields (Block 6) (4.00%) ^(h) , Mukhaizna field (Block 53) (2.00%) ⁽ⁱ⁾	Non-operated: Oman LNG (5.54%), Qalhat LNG (2.04%, through Oman LNG)
Qatar (1936)	Operated: Al Khalij (40.00%)	
	Non-operated: North Field-Block NF Dolphin (24.50%), Al Shaheen (30.00%)	Non-operated: North Field-Qatargas 1 Upstream (20.00%), North Field-Qatargas 1 Downstream (10.00%), North Field-Qatargas 2 Train 5 (16.70%)

(f) TOTAL's shareholding in the joint-venture.

(g) TOTAL's shareholding in the foreign consortium.

(h) TOTAL's indirect interest (4.00%) in the concession through its 10.00% shareholding in Private Oil Holdings Oman Ltd.

(i) TOTAL's direct interest in Block 53.

Americas	Exploration & Production segment	iGRP segment
Argentina (1978)	Operated: Aguada Pichana Este – Mulichinco (27.27%), Aguada Pichana Este – Vaca Muerta (41.00%), Aguada San Roque (24.71%), Rincon La Ceniza (45.00%), Aries (37.50%), Cañadon Alfa Complex (37.50%), Carina (37.50%), Hidra (37.50%), Kaus (37.50%), Vega Pleyade (37.50%) Non-operated: Aguada Pichana Oeste (25%), Aguada de Castro (25%)	
Bolivia (1995)	Operated: Incahuasi (50.00%) Non-operated: San Alberto (15.00%), San Antonio (15.00%), Itaú (41.00%)	
Brazil (1999)	Operated: Lapa (35.00%) ^(j) Non-operated: Libra (20.00%), Iara (22.50%)	
Canada (1999)	Non-operated: Surmont (50.00%), Fort Hills (24.58%)	
United States (1957)	Non-operated: several assets in the Utica Shale area (25.00%) ^(k) , Tahiti (17.00%), Jack (25.00%)	Operated: several assets in the Barnett Shale area (90.92% in average)
Venezuela (1980)	Non-operated: PetroCedeño (30.32%), Yucal Placer (69.50%)	

(j) TOTAL signed in December 2018 an agreement to acquire an additional 10% interest in the Lapa project in Brazil. The transaction, which remains subject to the approval of the Brazilian authorities, will increase TOTAL's interest in this asset from 35% to 45%.

(k) TOTAL's shareholding in the joint-venture with Encino and Chesapeake.

Asia-Pacific	Exploration & Production segment	iGRP segment
Australia (2006)		Non-operated: several assets in UJV GLNG (27.50%) ^(l) , Ichthys (26.00%)
Brunei (1986)	Operated: Maharaja Lela Jamalulalam (37.50%) Non-operated: Block CA 1 – Unit (4.64%)	
China (2006)	Non-operated: South Sulige (49.00%)	
Indonesia (1968)		Non-operated: Block Sebuku (15.00%)
Myanmar (1992)	Operated: Blocks M5/M6 (Yadana, Sein, Badamayar) (31.24%)	
Thailand (1990)	Non-operated: Bongkot (33.33%)	

(l) TOTAL's interest in the unincorporated joint-venture.

2.3.4 Delivery commitments

The majority of TOTAL's natural gas production is sold under long-term contracts. However, most of its North American and United Kingdom production, and part of its production from Argentina, Denmark, the Netherlands, Norway and Russia, is sold in the spot market.

The long-term contracts under which TOTAL sells its natural gas usually provide for a price related to, among other factors, average crude oil and other petroleum product prices, as well as, in some cases, a cost-of-living index. Though the price of natural gas tends to fluctuate in line with crude oil prices, a slight delay may occur before changes in crude oil prices are reflected in long-term natural gas prices.

Some of TOTAL's long-term contracts, such as in Bolivia, Nigeria, Norway, Thailand and Qatar, specify the delivery of quantities of natural gas that may or may not be fixed and determinable. Such delivery commitments vary substantially, both in duration and scope, from contract to contract throughout the world. For example, in some cases, contracts require delivery of natural gas on an as-needed basis, and, in other cases, contracts call for the delivery of varied amounts of natural gas over different periods of time. Nevertheless, TOTAL estimates the fixed and determinable quantity of gas to be delivered over the period 2020-2022 to be 5,525 Bcf. The Group expects to satisfy most of these obligations through the production of its proved reserves of natural gas, with, if needed, additional sourcing from spot market purchases (refer to points 9.1 and 9.2 of chapter 9).

2.3.5 Contractual framework of Upstream hydrocarbons production activities

Licenses, permits and contracts governing the Group entities' ownership of oil and gas interests have terms that vary from country to country and are generally granted by or entered into with a government entity or a state-owned company or sometimes with private owners. These agreements usually take the form of concessions or production-sharing contracts.

In the framework of oil concession agreements, the oil company (or consortium) owns the assets and the facilities and is entitled to the entire production. In exchange, the operating risks, costs and investments are the oil company's or the consortium's responsibility and it agrees to remit to the relevant host country, usually the owner of the subsoil resources, a production-based royalty, income tax, and possibly other taxes that may apply under local tax legislation.

The production sharing contract (PSC) involves a more complex legal framework than the concession agreement. It defines the terms and conditions of production sharing and sets the rules governing the cooperation between the company (the contractor) or consortium (the contracting group) in possession of the license and the host country, which is generally represented by a state-owned company. The latter can thus be involved in operating decisions, cost accounting and production allocation. The contractor (or contractor group) undertakes the execution and financing, at its own risk, of all exploration, development or operational activities. In exchange, it is entitled to a portion of the production, known as "cost oil", the sale of which is intended to cover its incurred expenses (capital and operating costs). The balance of production, known as "profit oil", is then shared in varying proportions, between the contractor (or the contracting group), on the one hand, and the host country or state-owned company, on the other hand.

Today, concession agreements and PSCs can coexist, sometimes in the same country. Even though there are other contractual models, TOTAL's license portfolio is comprised mainly of concession agreements.

On most licenses, the partners and authorities of the host country, often assisted by international accounting firms, perform joint-venture and PSC cost audits and ensure the observance of contractual obligations.

In some countries, TOTAL has also signed contracts called "risked service contracts", which are similar to PSCs. However, the profit oil is replaced by a defined or determinable cash monetary remuneration, agreed by contract, which depends notably on field performance parameters such as the amount of barrels produced.

Oil and gas exploration and production activities are subject to authorization granted by public authorities (licenses), which are granted for specific and limited periods of time and include an obligation to relinquish a large portion, or the entire portion in case of failure, of the area covered by the license at the end of the exploration period.

TOTAL pays taxes on income generated from its oil and gas production and sales activities under its concessions, PSCs and risked service contracts, as provided for by local regulations. In addition, depending on the country, TOTAL's production and sales activities may be subject to a number of other taxes, fees and withholdings, including special petroleum taxes and fees. The taxes imposed on oil and gas production and sales activities are generally substantially higher than those imposed on other industrial or commercial businesses.

2.3.6 Oil and gas acreage

		2019	
		Undeveloped acreage ^(a)	Developed acreage
As of December 31 (in thousands of acres)			
Europe and Central Asia (excl. Russia)	Gross	29,124	917
	Net	11,625	231
Russia ^(b)	Gross	23,697	709
	Net	4,280	146
Africa (excl. North Africa)	Gross	75,322	803
	Net	48,101	218
Middle East and North Africa	Gross	50,515	3,389
	Net	9,660	496
Americas	Gross	21,052	1,040
	Net	8,505	477
Asia-Pacific	Gross	39,741	713
	Net	22,323	229
TOTAL		GROSS	239,451
		NET^(c)	104,494
			7,571
			1,797

(a) Undeveloped acreage includes leases and concessions.

(b) Undeveloped acreage in Russia includes all the licenses of Novatek in which the Group has an indirect interest. As of December 31, 2018, the gross undeveloped acreage was 20,308 thousands of acres and the net undeveloped acreage was 3,623 thousands of acres, including those licences.

(c) Net acreage equals the sum of the Group's equity interests in gross acreage.

2.3.7 Productive wells

		2019	
		Gross productive wells	Net productive wells ^(a)
As of December 31 (number of wells)			
Europe and Central Asia (excl. Russia)	Oil	778	279
	Gas	281	96
Russia	Oil	418	71
	Gas	766	141
Africa (excl. North Africa)	Oil	1,531	429
	Gas	83	19
Middle East and North Africa	Oil	12,391	829
	Gas	197	48
Americas	Oil	1,085	357
	Gas	3,500	2,246
Asia-Pacific	Oil	10	9
	Gas	2,917	920
TOTAL		OIL	16,213
		GAS	7,744
			1,974
			3,470

(a) Net wells equal the sum of the Group's equity interests in gross wells.

2.3.8 Net productive and dry wells drilled

As of December 31 (number of wells)	2019			2018			2017		
	Net productive wells drilled (a)(b)(d)	Net dry wells drilled (a)(c)(d)	Net total wells drilled (a)(c)(d)	Net productive wells drilled (a)(b)	Net dry wells drilled (a)(c)	Net dry wells drilled (a)(c)	Net productive wells drilled (a)(b)	Net dry wells drilled (a)(c)	Net total wells drilled (a)(c)
Exploration									
Europe and Central Asia (excl. Russia)	1.3	0.6	1.9	0.9	0.8	1.7	0.1	1.8	1.9
Russia	–	–	–	–	–	–	–	–	–
Africa (excl. North Africa)	1.1	0.6	1.7	0.1	1.0	1.1	0.2	0.5	0.8
Middle East and North Africa	1	1.4	2.4	0.5	–	0.5	0.6	0.5	1.1
Americas	1.4	2.2	3.6	0.5	1.6	2.1	1.3	0.5	1.7
Asia-Pacific	–	–	–	0.8	–	0.8	1.2	0.7	1.9
TOTAL	4.8	4.8	9.6	2.8	3.4	6.2	3.4	4.0	7.4
Development									
Europe and Central Asia (excl. Russia)	9.1	–	9.1	10.1	–	10.1	8.8	–	8.8
Russia	26.2	–	26.2	13.4	–	13.4	21.5	–	21.5
Africa (excl. North Africa)	17.4	–	17.4	13.0	0.1	13.1	14.4	–	14.4
Middle East and North Africa	69.6	–	69.6	68.8	–	68.8	82.0	–	82.0
Americas	64.3	–	64.3	38.8	0.3	39.1	29.2	0.5	29.7
Asia-Pacific	170.1	–	170.1	116.3	–	116.3	132.4	–	132.4
TOTAL	356.7	–	356.7	260.4	0.4	260.8	288.3	0.5	288.8
TOTAL	361.5	4.8	366.3	263.2	3.8	267.0	291.7	4.5	296.2

(a) Net wells equal the sum of the Group's equity interests in gross wells.

(b) Includes certain exploratory wells that were abandoned, but which would have been capable of producing oil in sufficient quantities to justify completion.

(c) For information: service wells and stratigraphic wells are not reported in this table.

(d) Includes 1.7 extension wells in 2019.

2.3.9 Wells in the process of being drilled (including wells temporarily suspended)

As of December 31 (number of wells)	2019	
	Gross	Net ^(a)
Exploration		
Europe and Central Asia (excl. Russia)	1	0.3
Russia	–	–
Africa (excl. North Africa)	–	–
Middle East and North Africa	2	0.7
Americas	2	0.8
Asia-Pacific	–	–
TOTAL	5	1.8
Other wells^(b)		
Europe and Central Asia (excl. Russia)	122	67.3
Russia	25	6.3
Africa (excl. North Africa)	61	10.7
Middle East and North Africa	250	29.8
Americas	27	6.9
Asia-Pacific	537	136.0
TOTAL	1,022	257.0
TOTAL	1,027	258.8

(a) Net wells equal the sum of the Group's equity interests in gross wells. Includes wells for which surface facilities permitting production have not yet been constructed. Such wells are also reported in the table "Number of net productive and dry wells drilled", above, for the year in which they were drilled.

(b) Other wells are developments wells, service wells and stratigraphic wells.

2.3.10 Interests in pipelines

The table below shows the main interests held by Group entities⁽¹⁾ in pipelines as of December 31, 2019.

Pipeline(s)	Origin	Destination	(%) interest	Operator	Liquids	Gas
Europe and Central Asia						
Azerbaijan						
BTC	Baku (Azerbaijan)	Ceyhan (Turkey, Mediterranean)	5.00		X	
Norway						
Frostpipe (inhibited)	Lille-Frigg, Froy	Oseberg	36.25		X	
Heimdal to Brae Condensate Line	Heimdal	Brae	16.76		X	
Kvitebjorn Pipeline	Kvitebjorn	Mongstad	5.00		X	
Norpipe Oil	Ekofisk Treatment center	Teesside (United Kingdom)	45.22		X	
Oseberg Transport System	Oseberg, Brage and Veslefrikk	Sture	12.98		X	
Troll Oil Pipeline I and II	Troll B and C	Vestprosess (Mongstad refinery)	3.71		X	
Vestprosess	Kollsnes (Area E)	Vestprosess (Mongstad refinery)	5.00		X	
Netherlands						
WGT K13-Den Helder	K13A	Den Helder	4.66			X
WGT K13-Extension	Markham	K13 (via K4/K5)	23.00			X
United Kingdom						
Alwyn Liquid Export Line	Alwyn North	Cormorant	100.00	X	X	
Bruce Liquid Export Line	Bruce	Forties (Unity)	1.00		X	
Graben Area Export Line (GAEL) Northern Spur	ETAP	Forties (Unity)	9.58		X	
Graben Area Export Line (GAEL) Southern Spur	Elgin-Franklin	ETAP	32.09		X	
Ninian Pipeline System	Ninian	Sullom Voe	16.36		X	
Shearwater Elgin Area Line (SEAL)	Elgin-Franklin, Shearwater	Bacton	25.73			X
SEAL to Interconnector Link (SILK)	Bacton	Interconnector	54.66	X		X
Africa (excluding North Africa)						
Gabon						
Mandji Pipes	Mandji fields	Cap Lopez Terminal	100.00 ^(a)	X	X	
Nigeria						
O.U.R	Obite	Rumuji	40.00	X		X
NOPL	Rumuji	Owaza	40.00	X		X
Middle East and North Africa						
United Arab Emirates						
Dolphin	North Field (Qatar)	Taweelah-Fujairah- Al Ain (United Arab Emirates)	24.50			X
Americas						
Argentina						
TGM	Aldea Brasileira (Entre Rios)	Paso de Los Libres (Brazil border)	32.68			X
Brazil						
TBG	Bolivia-Brazil border	Porto Alegre via São Paulo	9.67			X
TSB	Argentina-Brazil border (TGM)	Uruguayana (Brazil)	25.00			X
	Porto Alegre	Canoas	25.00			X
Asia-Pacific						
Australia						
GLNG	Fairview, Roma, Scotia, Arcadia	GLNG (Curtis Island)	27.50			X
Myanmar						
Yadana	Yadana field	Ban-I Tong (Thai border)	31.24	X		X

(a) 100% interest held by Total Gabon. The Group holds an interest of 58.28% in Total Gabon.

All interests in the oil and gas pipelines included above are also included in the Exploration & Production segment, excluding that in Australia, which belongs to the iGRP segment.

(1) Excluding equity affiliates, except for the Yadana and Dolphin pipelines.

2.4 Refining & Chemicals segment



Refining & Chemicals is a large industrial segment that encompasses refining, base petrochemicals (olefins and aromatics), polymer derivatives (polyethylene, polypropylene, polystyrene and hydrocarbon resins), the transformation of biomass and the transformation of elastomers (Hutchinson). This segment also includes the activities of Trading & Shipping.

Among the world's 10 largest integrated producers⁽¹⁾

2 Mb/d

Refining capacity at year-end 2019

One of the leading traders of oil and refined products worldwide

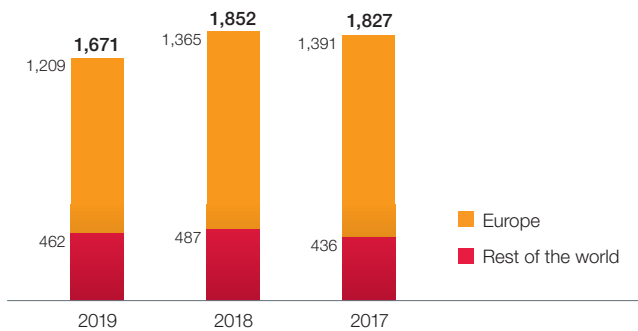
\$1.4 B

of organic investments⁽²⁾ in 2019

50,314

employees present

Refinery throughput^(a) (in kb/d)



Refinery throughput decreased by 10% in 2019 notably due to the shutdown for nearly 6 months of Grandpuits refinery in France and planned maintenance at Normandy refinery.

(a) Includes refineries in Africa that are reported in the Marketing & Services segment.

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

(1) Based on publicly available information, production capacities at year-end 2018.

(2) Organic investments = net investments, excluding acquisitions, divestments and other operations with non-controlling interests (refer to point 2.6.1 of this chapter).

2.4.1 Refining & Chemicals

Refining Chemicals' activities include refining (including the production of biofuels), base petrochemicals (olefins and aromatics), polymer derivatives (polyethylene, polypropylene, polystyrene and hydrocarbon resins), biomass conversion and elastomer processing (Hutchinson)⁽¹⁾. The volume of its Refining & Chemicals activities places TOTAL among the top 10 integrated producers worldwide⁽²⁾.

Refining & Chemicals' strategy integrates a constant requirement for safety, core value of the Group, and the priority given to the management of its environmental footprint. In a context of increasing worldwide demand for oil and petrochemicals driven by non-OECD countries and the entry of new capacities into the market, the strategy involves:

- improving competitiveness of refining and petrochemicals activities by making optimal use of production assets and concentrating investments on the large integrated platforms;
- developing petrochemicals, mainly in the United States and the Middle East, by exploiting the proximity of cost-effective oil and gas resources in order to supply growing markets, particularly in Asia; and
- innovating in low carbon activities by developing biofuels, biopolymers and plastics recycling solutions as well as materials contributing to the energy efficiency of the Group's customers, particularly in the automotive market.

2.4.1.1 Refining and petrochemicals

TOTAL has equity stakes in 17 refineries (out of which nine are operated by companies of the Group), located in Europe, the Middle East, the United States, Asia and Africa. As of December 31, 2019, TOTAL's refining capacity was 1,959 kb/d compared to 2,021 kb/d at year-end 2018, same as at year-end 2017. The Refining & Chemicals segment managed a refining capacity of 1,942 kb/d at year-end 2019, or 99% of the Group's total capacity⁽³⁾.

The petrochemicals businesses are located in Europe, United States, Qatar, South Korea and Saudi Arabia. Most of these sites are either adjacent to or connected by pipelines to Group refineries. As a result, TOTAL's petrochemical operations are integrated within its refining operations, thereby maximizing synergies.

Between 2011 and 2016, the Group reduced its production capacities in Europe by 20%, thereby fully meeting its initial target. Since then, the major investment project launched in 2013 on the Antwerp platform in Belgium was completed in 2017, improving the site's conversion rate and increasing the flexibility of the steam crackers.

The start-up of the La Mède biorefinery mid-2019 achieved the conversion of the former hydrocarbons refinery into a platform focusing on new energies.

Activities by geographical area

Europe

TOTAL is the second largest refiner and the second largest petrochemist in Western Europe⁽⁴⁾.

Western Europe accounts for 73% of the Group's refining capacity, i.e., 1,437 kb/d at year-end 2019, same as at year-end 2018 compared to 1,454 kb/d at year-end 2017.

In Western Europe, the Group operates seven refineries (one in Belgium in Antwerp, four in France in Donges, Feyzin, Gonfreville and Grandpuits, one in the United Kingdom in Immingham and one in Germany in Leuna) and one biorefinery in France in La Mède and owns a 55% stake in the Zeeland refinery in the Netherlands in Vlissingen. In 2018, the Group sold its stake in TotalErg, which held a stake in the Trecate refinery in Italy.

The Group's main petrochemical sites in Europe are located in Belgium in Antwerp (steam crackers, aromatics, polyethylene) and Feluy (polyolefins, polystyrene), and in France, in Carling (polyethylene, polystyrene, polypropylene compounds), Feyzin (steam cracker, aromatics), Gonfreville (steam crackers, aromatics, styrene, polyolefins, polystyrene) and Lavéra (steam cracker, aromatics, polypropylene). Europe accounts for 48% of the Group's petrochemicals capacity, i.e., 10,203 kt at year-end 2019, compared to 10,277 kt at year-end 2018 and 10,293 kt at year-end 2017.

- In **France**, the Group continues to improve its operational efficiency in a context of stagnation in the consumption of petroleum products in Europe.

In 2019, TOTAL continued modernizing its refining activity in France, in particular at La Mède, with an investment decision made in 2015 for around €275 million to transform the site into the first biorefinery in France. The start-up of the biorefinery mid-2019, with a production capacity of 500 kt/y, marked the completion of the industrial conversion project of La Mède, in which helps address the growing demand for biofuels in Europe. The conversion of the site, which contributes to maintain local industrial activities, also includes a logistics and storage platform, a solar energy farm and a training center, that have been developed on the site since 2017, plus an AdBlue⁽⁵⁾ production unit, which started up in August 2018.

In 2019, TOTAL and Ecoslops SA founded Ecoslops Provence, a joint-venture in which TOTAL holds a 25% shareholding that is currently building a unit to regenerate hydrocarbon residues from maritime transport on the La Mède platform. This joint-venture is part of the development of the circular economy and uses an innovative technology to produce fuel and light bitumen from oil residues.

In May 2019, in Donges, the various stakeholders (TOTAL, the French State and local authorities) entered into an agreement to finance the works to divert the railway that crosses the site. The study of the investment project for the construction of intermediate feedstock desulfurization units and hydrogen production units is continuing. This investment project amounts to €400 million.

In petrochemicals, the Group reconfigured the Carling platform in Lorraine. Since the shutdown of the steam cracking activity in 2015, new hydrocarbon resins and compound polypropylene production units have been in activity.

(1) The electroplating chemistry (Atotech) and adhesives (Bostik) activities were sold in 2017 and 2015, respectively.

(2) Based on publicly available information, refining distillation capacity and petrochemicals production capacities at year-end 2018.

(3) The balance of the refining capacity is reported in the Marketing & Services segment.

(4) Based on refining distillation capacity and petrochemicals production capacities at year-end 2018.

(5) Fuel additive intended for road transport and designed to lower nitrogen oxide (NOX) compound emissions.

- In **Belgium**, the Group finalized a major project in 2017 to modernize its Antwerp platform with new conversion units in response to the shift in demand towards lighter petroleum products with a very low sulfur content, and a new unit to convert part of the combustible gases recovered from the refining process into raw materials for the petrochemical units. In addition, the Group has developed a project to enable greater flexibility on one of the steam-cracking units and has thus been processing ethane since 2017.
- In **Germany**, TOTAL operates the Leuna refinery (100%), where a new benzene extraction unit (approximately 60 kt/y) has been in service since late 2017.
- In the **United Kingdom**, TOTAL operates the Lindsey refinery, with a capacity of 5.5 Mt/y.

North America

The Group's main sites in North America are located in Texas, at Port Arthur (refinery, steam cracker), Bayport (polyethylene), La Porte (polypropylene) and in Louisiana, at Carville (styrene, polystyrene).

At Port Arthur, TOTAL holds at the same site a 100% interest in a 178 kb/d capacity refinery and a 40% shareholding in BASF Total Petrochemicals (BTP), the main assets of which being a condensate splitter and a steam cracker. The Group continues to work on strengthening the synergies between these two plants. The BTP cracker has a production capacity of more than 1 Mt/y of ethylene, of which more than 85% is from ethane, propane and butane, which are produced in abundance locally.

At La Porte, TOTAL holds a 100% interest in a large polypropylene plant, with a capacity of 1.2 Mt/y.

At Carville, TOTAL operates a styrene plant with a capacity of 1.2 Mt/y, in a 50% joint-venture with SABIC and a polystyrene unit with a capacity of 600 kt/y, which is 100% owned.

Finally, the joint-venture between TOTAL (50%) and Novealis, itself a 50/50 joint-venture between Borealis and Nova Chemicals, continued on the Port Arthur site the construction of a new ethane cracker with an ethylene production capacity of 1 Mt/y for an investment of \$1.7 billion. The commissioning of this new cracker is expected to take place in 2021. The joint-venture also started the construction of a new polyethylene unit downstream of the cracker. This integrated development will more than double the site's polyethylene production capacity to about 1 Mt/y and thus maximize synergies with the existing assets at Port Arthur and Bayport.

Asia, the Middle East and Africa

The Group holds interests in first-rate platforms that are ideally positioned, with easier access to feedstock under competitive conditions, enabling its continuous development in order to supply growing areas.

In **Saudi Arabia**, TOTAL has a 37.5% shareholding in SATORP (Saudi Aramco Total Refining and Petrochemical Company) which operates the Jubail refinery. This refinery, located close to Saudi Arabia's heavy crude oil fields, increased its capacity by 10% at the beginning of 2018

to 440 kb/d. The refinery's configuration enables it to process heavy crudes and produce fuels and other light products that meet very strict specifications and are mainly intended for export. The refinery is also integrated with petrochemical units: a 800 kt/y paraxylene unit, a 200 kt/y propylene unit, and a 140 kt/y benzene unit. In addition, TOTAL and Saudi Aramco signed in 2018 an agreement to jointly develop the engineering studies for the construction of a petrochemicals complex adjacent to the refinery. This world class project will include a mixed-load steam cracker (50% ethane and refinery gases) with a capacity of 1.5 Mt/y and polyethylene units with a capacity of 1 Mt/y, for a total investment of about \$5.5 billion.

In **South Korea**, TOTAL has a 50% stake in Hanwha Total Petrochemical Co. (HTC), which operates a petrochemical complex in Daesan (condensate splitter, steam cracker, styrene, paraxylene, polyolefins). Investments totaling \$750 million, decided in 2017, have increased the ethylene production capacity by 30% in 2019 and the polyethylene production capacity by more than 50% in 2020. At the end of 2018, TOTAL decided to make an additional investment of \$500 million that will increase the polypropylene production capacity by nearly 60% by 2021 to reach 1.1 Mt/y, and increase the ethylene production capacity by 10% to reach 1.5 Mt/y.

In **Qatar**, the Group holds interests⁽¹⁾ in two ethane-based steam crackers (Qapco, Ras Laffan Olefin Cracker-RLOC) and four polyethylene lines operated by Qapco in Messaied, including a linear low-density polyethylene plant with a capacity of 550 kt/y (Qatofin) and a 300 kt/y low-density polyethylene line (Qapco). TOTAL also holds a 10% interest in the Ras Laffan condensates refinery, with a total capacity of 300 kb/d.

In **China**, during the second quarter 2019, TOTAL completed the sale to Petrochina of its 22.4% shareholding in WEPEC, a company operating a refinery located in Dalian. As part of its dynamic asset portfolio management policy, the Group also sold in the first quarter of 2019 its polystyrene activity in China, which included two plants in Foshan and Ningbo in the Shanghai region, each with a capacity of 200 kt/y.

In the **United Arab Emirates**, TOTAL sold in 2018 the 33.3% shareholding that it held in ADNOC Fertilizers, which operates a plant producing 2 Mt/y of urea in Ruwais.

In **Algeria**, in October 2018, the Group signed a shareholders' agreement to create the STEP joint-venture (Sonatrach Total Entreprise de Polymères, in which Sonatrach holds 51% and TOTAL 49%) to implement a petrochemical project in Arzew, in western Algeria. This project includes the construction of a propane dehydrogenation plant and a polypropylene production unit with a capacity of 550 kt/y. The joint-venture was created in January 2019.

In the rest of Africa, the Group also has interests in four refineries (South Africa, Cameroon, Côte d'Ivoire and Senegal). Refining & Chemicals provides technical assistance for two of these refineries: the Natref refinery with a capacity of 109 kb/d in South Africa and the SIR refinery with a capacity of 80 kb/d in Côte d'Ivoire.

(1) TOTAL shareholdings: Qapco (20%); Qatofin (49%); RLOC (22.5%).

Crude oil refining capacity

The table below sets forth TOTAL's crude oil refining capacity^(a) :

As of December 31 (kb/d)	2019	2018	2017
Nine refineries operated by Group companies			
Normandy-Gonfreville (100%)	253	253	253
Provence-La Mède (100%)	— ^(b)	— ^(b)	— ^(b)
Donges (100%)	219	219	219
Feyzin (100%)	109	109	109
Grandpuits (100%)	101	101	101
Antwerp (100%)	338	338	338
Leuna (100%)	227	227	227
Lindsey-Immingham (100%)	109	109	109
Port Arthur (100%) and BTP (40%)	202	202	202
SUBTOTAL	1,558	1,558	1,558
Other refineries in which the Group has equity stakes ^(c)	401	463	463
TOTAL	1,959	2,021	2,021

(a) Capacity data based on crude distillation unit stream-day capacities under normal operating conditions, less the average impact of shutdowns for regular repair and maintenance activities.

(b) Crude oil processing stopped definitively at the end of 2016.

(c) TOTAL's share as of December 31, 2019, in the eight refineries in which it has equity stakes ranging from 7% to 55% (one each in the Netherlands, South Korea, Qatar, Saudi Arabia and four in Africa). In 2019, TOTAL sold its stake in the wepec refinery in China. In 2018, the Group sold its stake in TotalErg, which held a stake in the Trecate refinery in Italy. In 2017, TOTAL sold a portion of its interests in the SIR refinery in Côte d'Ivoire and SAR refinery in Senegal.

Refined products

The table below sets forth by product category TOTAL's net share^(a) of refined quantities produced by the Group's refineries:

(kb/d)	2019	2018	2017
Gasoline	288	291	283
Aviation fuel ^(b)	187	210	196
Diesel and heating oils	672	732	726
Heavy fuels	82	99	115
Other products	377	461	438
TOTAL	1,606	1,793	1,758

(a) For refineries not 100% owned by TOTAL, the production shown is TOTAL's equity share in the site's overall production.

(b) Avgas, jet fuel and kerosene.

Utilization rate

The table below sets forth the average utilization rates of the Group's refineries:

	2019	2018	2017
On crude and other feedstock ^{(a)(b)}	83%	92%	91%
On crude ^{(a)(c)}	80%	88%	88%

(a) Including equity share of refineries in which the Group has a stake.

(b) Crude + crackers' feedstock/distillation capacity at the beginning of the year.

(c) Crude/distillation capacity at the beginning of the year.

Petrochemicals: breakdown of TOTAL's main production capacities

As of December 31 (in kt)	2019				2018	2017
	Europe	North America ^(a)	Asia and Middle East ^(b)	Worldwide	Worldwide	Worldwide
Olefins ^(b)	4,371	1,555	1,938	7,863	7,430	7,378
Aromatics ^(c)	2,929	1,512	2,554	6,995	6,967	6,909
Polyethylene	1,120	223	880	2,223	2,135	2,357
Polypropylene	1,370	1,200	420	2,290	2,950	2,950
Polystyrene	413	600	–	1,013	1,745	1,745
Other ^(d)	–	–	116	116	100	63
TOTAL	10,203	5,090	5,907	21,200	21,327	21,401

(a) Including 50% of the joint-venture between TOTAL and Novealis.

(b) Including interests in Qatar, 50% of Hanwha Total Petrochemicals Co. Ltd. in South Korea and 37.5% of SATORP in Saudi Arabia.

(c) Ethylene + propylene + butadiene.

(d) Including monomer styrene.

(e) Mainly monoethylene glycol (MEG), polylactic acid polymer (PLA) and cyclohexane.

Developing new ways to produce fuels and polymers

TOTAL is exploring new ways to valorize conventional and non-conventional carbon resources (natural gas, biomass, waste). These projects are part of the Group's commitment to building a diversified energy mix generating lower CO₂ emissions.

Regarding biomass valorization, TOTAL is pursuing several industrial and exploratory projects. The scope of these developments is broad since they entail defining access to the resource (nature, sustainability, location, supply method, transport), the nature of the molecules and target markets (fuels, petrochemicals, specialty chemicals) as well as the most appropriate, efficient and environment friendly conversion processes.

Biomass to fuels

In Europe, TOTAL produces biofuels, notably hydrotreated vegetable oils (HVO) for incorporation into diesel, and ether produced from ethanol and isobutene (ETBE) for incorporation into gasoline.

As part of the La Mède refinery conversion program, the Group started up the first biorefinery in France in mid-2019, with a production capacity of 500 kt/y of biofuels, mainly high-quality HVO type biodiesel, but also biojet fuel and petrochemical bio-feedstocks.

TOTAL continued extensive research activity in 2019, which targeted the emergence of new solutions in the field of biofuels. The BioTFuel consortium's construction of a pilot demonstration unit on the Dunkerque (France) site led to the commencement in 2017 of a gasification test program for synthesis of biomass into fungible, sulfur-free fuels.

Biomass to polymers

TOTAL is actively involved in developing activities associated with the conversion of biomass to polymers. The main area of focus is developing drop-in solutions for direct substitutions, by incorporating biomass into the Group's existing units, for example HVO or other hydrotreated vegetable oil co-products in a naphtha cracker and developing the production of new molecules such as polylactic acid polymer (PLA) from sugar. In 2017, the Group thus set up a joint-venture with Corbion for the production and marketing of PLA from a site in Thailand containing existing lactide units and PLA units, which started in December 2018 and have a production capacity of 75 kt/y.

Biotechnologies and the conversion of biomass

TOTAL is exploring various opportunities for promoting biomass and has launched numerous collaborative R&D projects for the development of bio-sourced molecules with several academic partners (the Joint BioEnergy Institute, United States, the University of Wageningen, Netherlands and the Toulouse White Biotechnology consortium, France) or through its Novogy subsidiary (Massachusetts, United States). In addition, TOTAL holds an interest in Amyris Inc.⁽¹⁾, an American company listed on NASDAQ.

On its R&D platform in Solaize (France), TOTAL develops new biocomponents derived from the transformation of the biomass by using a methodology based on predictive modeling and chemical conversion into high added-value biomolecules.

In the longer term, the Group is also studying the potential for developing a cost-effective phototrophic process for producing biofuels through bioengineering of microalgae and microalgae cultivation methods. It has several European partners in this field (CEA, Wageningen).

Plastics recycling and circular economy

TOTAL is deeply committed to developing recycling in order to address the issue of end-of-life of plastics. In addition, TOTAL has the ambition to produce 30% of its polymers from recycled materials by 2030.

TOTAL is a founding member of the Alliance to End Plastic Waste, which brings together approximately 40 companies in the plastics and consumer goods value chain. Those companies committed to spend more than \$1 billion, with the target of reaching \$1.5 billion in five years, to help end plastic waste in the environment, especially in oceans, and to promote recycling solutions of used plastics by supporting a circular economy approach.

In France, TOTAL, Saint-Gobain, the eco-organization Citeo and the French fresh dairy producers union Syndifrais have founded a partnership to conduct a feasibility study that aims to incorporate collected polystyrene in the Group's plastics production units in Carling and Feluy.

(1) 7.26% on December 31, 2019.

Regarding mechanical recycling, in February 2019, TOTAL acquired the French company Synova, a leader in the production of recycled polypropylene that meets the high-quality standards of automotive equipment manufacturers and carmakers. The current production capacity of 20 kt/y of polypropylene made from recycled plastics, sourced from the collection and sorting of industrial and post-consumer waste, will be doubled by 2021, addressing the growing market demand for high-performance recycled materials.

TOTAL is also assessing the development of industrial value chains in order to build a chemical recycling economic model, in synergy with its refining and petrochemicals activities. Chemical recycling addresses the issues of the circular economy, and in particular the use of plastics in applications related to food. TOTAL notably announced the creation of a consortium with leading actors in the packaging value chain (Citeo, Recycling Technologies, a provider of plastic recycling technologies, food industry leaders Mars and Nestlé) to study the technical and economic feasibility of recycling complex waste, such as small flexible and multilayered food-grade packaging.

2.4.2 Trading & Shipping

The activities of Trading & Shipping are focused primarily on serving the Group's needs, and notably include:

- selling and marketing the Group's crude oil production;
- providing a supply of crude oil for the Group's refineries;
- importing and exporting the appropriate petroleum products for the Group's refineries to be able to adjust their production to the needs of local markets;
- chartering appropriate ships for these activities; and
- trading on various derivatives markets.

In addition, with its acquired expertise, Trading & Shipping is able to extend its scope beyond the aforementioned activities.

Trading & Shipping conducts its activities worldwide through various wholly-owned subsidiaries established on strategically important oil markets in Europe, Asia and North America.

Trading's crude oil sales and supply and petroleum products sales^(a)

(kb/d)	2019	2018	2017
Group's worldwide liquids production	1,672	1,566	1,346
Purchased from Exploration & Production	1,357	1,167	1,120
Purchased from external suppliers	3,156	3,193 ^(b)	2,870
TOTAL OF TRADING'S CRUDE SUPPLY	4,513	4,360	3,990
Sales to Refining & Chemicals and Marketing & Services segments	1,356	1,480	1,527
Sales to external customers	3,157 ^(b)	2,880	2,463
TOTAL OF TRADING'S CRUDE SALES	4,513	4,360	3,990
PETROLEUM PRODUCTS SALES BY TRADING	2,393	2,286	2,154

(a) Including condensates.

(b) Including inventory variations.

2.4.1.2 Elastomer processing (Hutchinson)

The elastomer transformation specialist Hutchinson is one of the world leaders in anti-vibratory systems, fluid management, precision sealing and bodywork sealing. These solutions are used worldwide, especially in the automotive, aeronautical and industrial manufacturing sectors (defense, railroads, energy).

Hutchinson draws on wide-ranging expertise and employs its know-how from the custom design of materials to the integration of connected solutions: structural sealing solutions, precision sealing, management of fluids, materials and structures, anti-vibration systems and transmission systems.

Hutchinson had 89 production sites across the world (of which 55 are located in Europe and 18 in North America) and approximately 40,000 employees as of December 31, 2019.

In December 2019, Hutchinson completed the acquisition of PFW Aerospace, a German-based company specialized in the production of components for the aeronautical sector, with two production sites in Turkey and in Germany.

2.4.2.1 Trading

Oil prices have been very volatile during year 2019, marked by various geopolitical (tensions in the Persian Gulf, tightening of sanctions) and regulatory events (prospect of the start of maritime regulations IMO 2020, relating to the sulfur content of bunkers notably). After firming up until May 2019, prices fell during the summer before resuming an uptrend until the end of the year. TOTAL is one of the world's largest traders of crude oil and petroleum products on the basis of volumes traded⁽¹⁾. The table below presents Trading's worldwide crude oil sales and supply sources and petroleum products sales for each of the past three years. Trading of physical volumes of crude oil and petroleum products amounted to 6.9 Mb/d in 2019, compared to 6.6 Mb/d in 2018 and to 6.1 Mb/d in 2017.

(1) Company data.

Trading operates extensively on physical and derivatives markets, both organized and over the counter. In connection with its Trading activities, TOTAL, like most other oil companies, uses derivative energy instruments (futures, forwards, swaps and options) in order to adjust its exposure to fluctuations in the price of crude oil and petroleum products. These transactions are entered into with a wide variety of counterparties.

For additional information concerning derivatives transactions by Trading & Shipping, see Note 16 (Financial instruments related to commodity contracts) to the Consolidated Financial Statements (refer to point 8.7 of chapter 8).

All of TOTAL's Trading activities are subject to strict internal controls and trading limits.

2.4.2.2 Shipping

The transportation of crude oil and petroleum products necessary for the activities of the Group is coordinated by Shipping. These requirements are fulfilled through the balanced use of spot and time-charter markets. Additional transport capacity can also be used to transport third-party cargo. Shipping maintains a rigorous safety policy, mainly through a strict selection of chartered vessels.

In 2019, Shipping chartered approximately 3,000 voyages (slightly lower than 2018 and slightly higher than 2017) to transport 140 Mt of crude oil and petroleum products, compared to 143 Mt in 2018 and 133 Mt in 2017. On December 31, 2019, the mid-term and long-term chartered fleet amounted to 57 vessels (including 9 LPG vessels), compared to 56 in 2018 and 59 in 2017. Shipping only charters vessels satisfying the best international standards and the average age of the fleet is approximately six years.

As part of its Shipping activity, the Group, like other oil companies and ship owners, uses freight rate derivative contracts to adjust its exposure to market fluctuations.

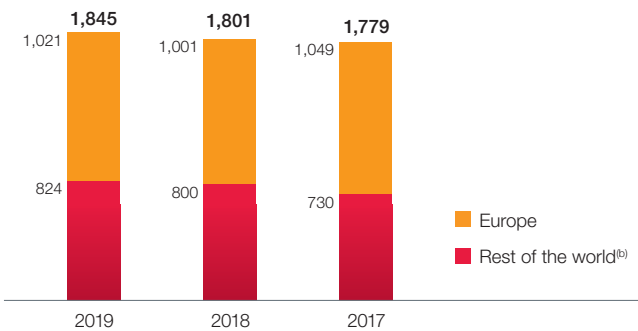
2.5 Marketing & Services segment



The Marketing & Services segment includes worldwide supply and marketing activities of oil products and services. It is also growing in low carbon fuels.

<p>2nd largest retail distribution among majors outside of North America⁽¹⁾</p>	<p>4th worldwide distributor of inland lubricants⁽²⁾</p>	<p>15,615 branded service stations Groupe⁽³⁾ at December 31 2019</p>	<p>\$1.0 B of organic investments⁽⁴⁾ in 2019</p>	<p>24,858 employees present</p>
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Petroleum products sales^(a) (in kb/d)



(a) Excludes trading and Refining bulk sales.
 (b) Including Turkey.

Sales of petroleum products increased by 2% in 2019, thanks notably to business development in the African and American regions, notably Mexico and Brazil.

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

(1) Source IHS 2018, number of service stations for TOTAL, BP, Chevron, Exxon and Shell.
 (2) Source IHS 2018.
 (3) TOTAL, Total Access, Elf, Elan and AS24, including service stations owned by third parties.
 (4) Organic investments = net investments, excluding acquisitions, divestments and other operations with non-controlling interests (refer to point 2.6.1 of this chapter).

2.5.1 Presentation of the segment

The Marketing & Services (M&S) business segment is dedicated to the development of TOTAL's petroleum products distribution activities and related services throughout the world.

Present in more than 130 countries, TOTAL's ambition is to be a leading brand recognized for its proximity to its customers and the value that it brings to each of them for its M&S activities. The Group achieves this ambition by creating solutions aimed at performance, energy efficiency, new energies for mobility⁽¹⁾ and digital transformation. M&S promotes the brand awareness through significant advertising campaigns and a strong presence on the ground, with more than 15,000 service stations around the world. To best meet its customers' current and future needs, M&S continues its efforts in R&D in order to design and develop new products, in particular for the low-carbon energy engines of the future.

M&S pursues a proactive, primarily organic development strategy focused on large fast growing markets. In 2019, organic investments were approximately \$1 billion, stable compared to 2018, and focused mainly on retail activity. M&S is one of the main distributors of petroleum products on the key markets in Western Europe⁽²⁾. M&S continues to develop its activities in Africa, where it is the market leader⁽³⁾.

M&S is implementing a dynamic portfolio management strategy. In 2019, the Group continued to make acquisitions and enter targeted partnerships in order to support the development of its activities on the growing markets of the future. M&S continues to grow in the largest Asian markets, with the signature in 2018 of a major partnership with the Indian conglomerate Adani, with an objective to build over time a retail network of 1,500 service stations in India. This partnership was extended with the announcement in October 2019 of the acquisition of a 37.4% stake in Adani Gas Limited, with the ambition to develop a network of 1,500 natural gas stations for vehicles, of which 500 are in synergy with service stations. In February 2019, TOTAL and Saudi Aramco signed a joint-venture agreement to develop a network of fuel and retail services in Saudi Arabia. M&S is continuing to grow in the Americas zone, in countries such as Brazil and Mexico, the largest and second-largest petroleum products distribution markets⁽⁴⁾ in Latin America, and in the natural gas vehicles market in the United States.

In August 2019, TOTAL entered into an agreement in order to sell its 30% stake in the French company Société des Transports Pétroliers par Pipeline (TRAPIL).

M&S' three main business areas are:

- retail, with a network of more than 15,000 Group-branded service stations⁽⁵⁾. The Group is present in the key markets in Western Europe and continues to develop in Africa, where it is present in almost 40 countries, as well as in large growing markets in Asia (China, India)

and the Americas (Brazil, Mexico). TOTAL sells high-performance fuels and petroleum products and new energies for mobility (NGV, hydrogen, electric charging for vehicles). M&S is developing partnerships with leading brands in catering and convenience stores, and new services built on digital innovations to capture and retain new customers. The Group is also pursuing its growth in the car wash market through its TOTAL WASH brand. These offers support customers in their mobility by providing them with all of the products and services they need at "One Stop Shop" service stations. M&S addresses the road freight transport sector through the network of almost 1,000 specialized AS24 stations in Europe. It is pursuing its solarization program and inaugurated its 1,000th solarized station in August 2019 in Morocco;

- the production and sale of lubricants, a business that accounts for a significant share of M&S' adjusted net operating income. TOTAL intends to maintain the growth dynamic of its positions by strengthening in particular growth of the sales of its premium products with higher unit margins, with new packaging at the start of 2020. To strengthen its positions on the metalworking market, in 2018, TOTAL launched Folia, an innovative biosourced fluid and, in 2019, acquired Houghton's lubrication activities dedicated to rolling in 20 European countries, the United States, Canada and Mexico. M&S is pursuing its commercial and technological partnerships with car manufacturers. Investments in R&D enable the Group to supply high-quality premium lubricants to its customers worldwide. TOTAL has 35 operated production sites (blending plants);
- the distribution of products and services for professional markets. Based on the diversity of its product ranges and its worldwide logistics network deployed in proximity to more than one million customers, TOTAL is a partner of choice and a local supplier of products and multi-energy offers (mainly bulk fuels, special fluids, liquefied petroleum gas, compressed natural gas, liquefied natural gas, bitumens and marine and aviation fuels), in particular for major multinational industrial groups. M&S proposes an offering of fuel cards that provides fuel payment solutions and services for vehicle fleet management to businesses of all sizes. Regarding new mobility energies, TOTAL is growing on the entire electric vehicle recharging value chain relying on its broad geographical footprint on the key European markets. In addition, TOTAL and Deutsche Post DHL Group reached a strategic cooperation agreement in October 2019 to strengthen their collaboration, in particular in the field of sustainable mobility and low-carbon energies. The Group also offers solutions that help its customers manage all of their energy needs with new digital platforms such as the management of on-site facilities and the reduction of their environmental footprint.

As part of its business, M&S owns stakes through its subsidiaries in four refineries in Africa.

(1) Electro-mobility, natural gas vehicles (NGV), hydrogen, marine LNG.

(2) France, Germany, Belgium, Luxembourg and the Netherlands.

(3) Publicly available information, based on the number of Group-branded service stations in Africa in 2018.

(4) Source: IHS 2019.

(5) This figure takes into account more than 500 stations licensed under the TOTAL brand in Turkey and excludes more than 2,500 TOTAL service stations sold in Italy at the start of 2018.

2.5.2 Sales of petroleum products

The following table presents M&S petroleum products sales^(a) by geographical area:

(kb/d)	2019	2018	2017
Europe	1,021	1,001	1,049
France	512	517	519
Europe, excluding France	509	484	530
Africa	444	443	431
Middle East ^(b)	34	41	45
Asia Pacific ^(c)	198	199	173
Americas	148	117	81

(a) In addition to M&S's petroleum product sales, the Group's sales also include international trading (1,730 kb/d in 2019, 1,777 kb/d in 2018, 1,659 kb/d in 2017) and bulk Refining sales (536 kb/d in 2019, 575 kb/d in 2018, 581 kb/d in 2017).

(b) Including Turkey.

(c) Including Indian Ocean islands.

2.5.3 Service stations breakdown

The table below presents the geographical breakdown of the Group's branded^(a) service stations:

As of December 31	2019	2018	2017
Europe ^(b)	5,632	5,625	8,194 ^(c)
of which France	3,480	3,490	3,548
Africa	4,568	4,449	4,377
Middle East	889	877	821
Asia-Pacific ^(d)	2,042	1,951	1,864
Americas	1,498	561	555
AS24 network (dedicated to heavy-duty vehicles)	986	848	819
TOTAL	15,615	14,311	16,630

(a) TOTAL, TOTAL ACCESS, Elf, Elan and AS24. Including service stations owned by third parties. Turkey is included in Middle East breakdown.

(b) Excluding AS24 network.

(c) The decrease of the number of service stations between 2017 and 2018 results from the sale of the Group's stake in TotalErg joint-venture early 2018.

(d) Including Indian Ocean islands.

2.5.4 Activities by geographical area

The information below describes M&S principal activities presented by geographical zone and main business areas.

2.5.4.1 Europe

Retail

M&S is responding to changing markets in Western Europe by developing an innovative and diversified line of products and services. The network is made up more than 6,500 Group-branded service stations⁽¹⁾, mainly divided among its key markets, which are France, Germany, Belgium, the Netherlands and Luxembourg where M&S reached an average and stable market share of 16%⁽²⁾ in 2019.

- In **France**, the dense retail network of almost 3,500 stations includes over 1,800 TOTAL-branded service stations, nearly 700 TOTAL ACCESS-branded stations (service stations combining low prices and high-quality fuels) and nearly 850 Elan-branded stations (located in rural areas), of which 140 are expected to be rebranded as TOTAL stations by the end of 2020.

The Group-branded service stations enjoy close relationships with their local customers, meeting their everyday needs with a multi-service, multi-product offering developed through services in restaurants, convenience stores and car washes provided by leading

brands such as Bonjour and TOTAL WASH (the top branded network in France⁽²⁾), as well as partnerships tailored to local requirements.

TOTAL has interests in 27 depots in France, seven of which are operated by Group companies and, since 2017, in the Dépôt Rouen Petit-Coronne (DRPC).

- In **Germany**, TOTAL is the country's third-largest operator⁽³⁾ with nearly 1,200 Group-branded service stations at the end of 2019.
- In **Belgium**, TOTAL is the country's top operator⁽³⁾ with nearly 530 Group-branded service stations.
- In the **Netherlands**, TOTAL is also growing, with a number of Group-branded service stations at the end of 2019 close to 350.
- In **Turkey**, approximately 500 service stations use the TOTAL brand under the terms of a brand licensing agreement.
- In the **United Kingdom**, in November 2019, M&S entered into an agreement in the fuel distribution sector with a trading, storage, distribution and retail sale group of petroleum products and biofuels, which will allow the company to develop its network of service stations and to secure its fuels supply.

(1) Including the AS24 network and after the sale of the network of TotalErg service stations in Italy.

(2) Company data.

(3) Source: IHS 2018, based on the number of stations in the country.

In transport, TOTAL proposes an offer dedicated to this growing sector with its AS24 brand and has a network of more than 900 service stations for road freight transport customers in 28 European countries. AS24 seeks continued growth, primarily in the Mediterranean basin and Eastern Europe and through its toll payment service which covers nearly 20 countries. AS24 is also addressing the future needs of the freight transport sector by diversifying its offering with the gradual introduction of NGV to its network in France and certain other European countries and new digital services.

The Group is diversifying its offering of new energies for mobility by extending the roll-out of electric charging points and NGV stations, and acquired Pitpoint in 2017, renamed Total Gas Mobility in January 2020 and G2Mobility renamed Total EV Charge during the second semester 2019, one of France's leading suppliers of charging solutions for electric vehicles for public authorities and on professional markets⁽¹⁾. In 2017, TOTAL launched the deployment of its NGV offer and operates close to 180 stations including 50 AS24-branded stations at the end of 2019. 'Metropolitan Region Amsterdam Electric' (MRA-Electric) has awarded Europe's largest concession contract for electric vehicles charging to TOTAL in January 2020. Under this agreement, TOTAL will install and operate up to 20,000 new public charging points in the Netherlands⁽²⁾.

Lubricants

TOTAL continues its development in Europe, where it relies mainly on its lubricants production sites in Rouen (France) and Ertvelde (Belgium). During the course of 2018, the European production system was completed by a new lubricants production plant in Russia.

In addition, TOTAL resumed in 2017 the distribution of its lubricants in Portugal. In Italy, the Group is reinforcing its position following the purchase from Erg of its shares in the lubricants business previously operated by TotalErg.

In November 2019, the Group announced the launch of ECO2, a range of hydraulic fluids from the circular economy (re-refining and specific patented treatment of waste oil) that enable companies to reduce their environmental footprint.

Professional markets, mobility and other specialties

In Europe, TOTAL produces and markets bulk fuels, heating fuels, and specialty products and relies on its industrial facilities to produce special fluids (Oudalle in France) and bitumen (Brunsbüttel in Germany).

In France, TOTAL provides a wide range of fuels and services to 145,000 card clients. TOTAL is indeed a major player in the European market for fuel payment cards with nearly 3.5 million cards, enabling companies of all sizes to improve fuel cost management and access an ever-increasing number of services.

With its TOTAL FLEET offer, the Group assists companies in optimizing the costs related to their company vehicles, irrespective of their motorization (conventional fuels, electricity, gas, etc.) and broadly the costs related to the mobility of their employees. The card related to the offer can be used to charge electric vehicles in more than 125,000 charging points in Europe. The acquisition of the French start-up WayKonec enables the Group to reinforce its company vehicle fleet management services by integrating a series of tools combining digital data processing solutions, an application for drivers and an on-board box.

Fuel sales (heavy fuels, domestic fuels, etc.) reach nearly one million customers.

2.5.4.2 Africa

Retail

TOTAL is the leading retailer of petroleum products on the African continent, with a market share of 17%⁽³⁾ in the network in 2019, and it is pursuing a strategy in Africa to achieve profitable growth higher than that of the markets.

In the Africa zone, the retail network in 2019 was made up of more than 4,500 Group-branded service stations, in nearly 40 countries. The Group has major retail networks in South Africa, Nigeria, Egypt and Morocco. In 2018, TOTAL also launched in Angola a fuel retail network with the national company Sonangol.

In order to achieve its goal of gaining market share in all of the countries where M&S is present in Africa, and in addition to its organic growth strategy, TOTAL acquires independent petroleum networks in certain countries. The Group finalized in 2017 the purchase of assets in Kenya, Uganda and Tanzania, enabling it to strengthen its supply and logistics activities in East Africa and boost the growth of the retail network with nearly 100 additional service stations, notably in Tanzania.

M&S is diversifying its offering at service stations and is deploying a range of products and new services in food services, stores and car wash. To this end, the Group is developing partnerships, particularly with African start-ups, in order to introduce gradually over the continent new electronic payment solutions capable of improving customer experience at the point of sale. In 2019, M&S acquired a payment card software and organizational solutions provider in Mauritius, which has been operating in Africa, the Caribbean and the Middle East for approximately 15 years.

(1) Company data based on the number of installed charging points in France for public authorities and professional customers.

(2) In the three provinces of North-Holland, Flevoland and Utrecht and with the exception of the municipalities of Amsterdam and Utrecht.

(3) Company data.

Lubricants

TOTAL is the leading distributor⁽¹⁾ of lubricants on the African continent and continues its growth strategy. M&S relies in particular on its lubricant production plants in Nigeria, Egypt, Kenya and South Africa. A new production site is under construction in Algeria. In 2018, TOTAL acquired a lubricants production plant in Tanzania and the associated commercial activities, which are enabling it to grow in the country and in neighboring countries. In addition, at the end of 2018, TOTAL entered a partnership with the CFAO group especially to strengthen its presence in the network of vehicle maintenance centers.

Professional markets, mobility and other specialties

TOTAL is a top-ranking partner, in particular for mining customers in Africa, where it delivers fuel supply and management innovative, low-carbon and comprehensive energy solutions, as part of hybrid offers that include solar energy in its existing portfolio of products and services.

In this way, M&S offers a diverse range of products and services aimed at professionals in Africa. Industrial customers receive support from TOTAL for the maintenance of on-site facilities with a lubricants in-service analysis solution, for example. In mining, construction and agriculture, the Group offers its Optimizer digital platform, which enables customers to cut their costs through better control of their energy consumption using the data sent from sensors installed on their facilities and equipment.

2.5.4.3 Asia-Pacific – Middle East

M&S markets its products and services in more than 20 countries in this zone.

Retail

TOTAL had more than 2,000 Group-branded service stations over the Asia-Pacific – Middle East zone at year-end 2019, with service station networks in Cambodia, China, Indonesia, Jordan, Lebanon, Pakistan and the Philippines. The Group is also a significant player in the Pacific islands.

While pursuing its growth in Pakistan, the Philippines and China, TOTAL continues to grow on the major markets, in particular in India, where it aims to deploy 1,500 service stations over 10 years in partnership with the Indian conglomerate Adani. This partnership was extended in October 2019 with the announcement of the acquisition of a 37.4% stake in Adani Gas Limited, with the ambition to develop a network of 1,500 natural gas stations for vehicles, of which 500 in synergy with service stations.

In February 2019, Saudi Aramco and TOTAL signed a joint-venture agreement to develop a network of fuel and retail services in Saudi Arabia. The two partners also acquired a network of 270 service stations they plan to modernize.

TOTAL is also pursuing its growth in the zone by offering TOTAL EXCELLIUM premium fuels, which are now available in China, Fiji, New Caledonia, Pakistan, the Philippines, Cambodia and Lebanon.

Lubricants

The lubricants business is contributing to M&S's expansion in Asia. The lubricants blending capacity in this zone is spread over 11 production sites, and in particular the plants in Singapore, Tianjin and Dubai. M&S proposes a premium product and services offering through its

network of more than 800 service centers. The Group is also developing partnerships with leading Asian car manufacturers, other industries and major actors in online commerce in order to grow its sales and develop new services.

Professional markets, mobility and other specialties

TOTAL has signed several partnership agreements with industrial customers, enabling it to expand its operations on a number of markets, such as mining and construction, in several countries in the zone.

In Asia, the Group supplies lubricants and services to more than 50 mining sites, including leading mining players operating in Australia, Indonesia, Mongolia, Papua New Guinea, China, Philippines and New Caledonia.

Following an agreement signed in 2018 with China Communications Construction Company Ltd. (CCCC), a leading Chinese player in the construction sector, TOTAL entered into another preferred supplier agreement in 2019 with a leading Chinese player in the energy and construction sector in order to extend their partnership, currently focused on Africa, to a worldwide scope.

In specialty products, TOTAL confirmed its position as number three⁽²⁾ on the LPG market in Vietnam. In India, where TOTAL is among the leading private operators, the M&S also conducts LPG activities, including a network close to 80 service stations providing only LPG fuels.

2.5.4.4 Americas

In retail, the Group operates on several Caribbean islands and has at year-end 2019 nearly 1,500 Group-branded service stations.

At the end of 2018, TOTAL entered the fuel distribution sector in Brazil, Latin America's largest petroleum products distribution market⁽³⁾, by acquiring from a Brazilian company a network of 280 service stations, along with its petroleum products distribution, resale and import activities. M&S is already present in Brazil in lubricants.

Benefiting from the reforms and liberalization of the Mexican energy market, TOTAL entered into a partnership in 2017 with local service station groups and will gradually switch a network of nearly 250 service stations in Mexico over to the TOTAL brand.

In 2018, TOTAL also expanded in new energies for mobility by becoming a major shareholder (25%) in the American NASDAQ-listed company Clean Energy Fuels Corp., which is the leading⁽⁴⁾ supplier of natural gas fuel in North America.

Since 2016, the Group has held a 70% stake in the fuel marketing leader in the Dominican Republic, which operates a network of more than 120 service stations, commercial sales and lubricants activities. Furthermore, TOTAL sold its network of 92 stations and its general commercial activities in Haiti in 2018, as well as its network of almost 20 service stations in Costa Rica in 2017.

In lubricants and other specialty products, TOTAL is pursuing its strategy of growth across the region, mainly in lubricants, aviation fuel and special fluids. The Group has a production plant in Bayport (Texas) that has been operational since the start of 2016 with an annual production that reached 200,000 tons in January 2020.

(1) Company data.

(2) Company data.

(3) Source: IHS 2019.

(4) Company data.

2.5.5 Products and services development

The Group develops technologically advanced products, some of which are formulated for use in motor sport competition before being generally released on the market, and continues its technical partnerships. The Group is notably associated with the PSA group, with which a cooperation agreement was renewed in late 2016 relating to R&D, business relations with the PSA brands (Peugeot, Citroën, DS) and automobile racing. In 2019, TOTAL continued to supply DS Performance with lubricants specifically developed for the Formula E⁽¹⁾ championship. In addition, in 2018, TOTAL became the official supplier of fuel for various endurance racing championships⁽²⁾, including the Le Mans 24 Hours, for five years. In 2019, this partnership was extended to include the supply of hydrogen to support the development of a hydrogen-powered endurance car for a category dedicated to the Le Mans 24 Hours race in 2024. These partnerships demonstrate TOTAL's technical excellence in the formulation of fuels and lubricants under extreme conditions, subject to requirements to reduce fuel consumption, for the engines of the future.

TOTAL is accelerating its digital innovation strategy in order to develop new offerings for its customers and improve operational efficiency. In Europe, M&S is developing a digital solution that allows drivers to pay for their fuel directly from a connected car, and the TOTAL eWallet mobile payment solution, for its professional customers in Germany as well as for its customers in Belgium. In Africa, TOTAL is continuing to develop new electronic payment solutions that will enable it to extend its money transfer and smartphone payment services. In addition, the ongoing deployment of Customer Relationship Management enables big data to be used to develop customer relationships more efficiently. Thus, more than 8 million customers in 13 countries can receive personalized offers from the Group.

The Group is also continuing to carry out research of and launch IoT⁽³⁾ applications for logistics, maintenance and safety. Transporter customers can thus use a new service to geolocate their trailers.

TOTAL offers online domestic heating oil orders in France via the fioulmarket.fr website, as well as its online platform Bitume Online for fixed-price bitumen purchases aimed at its professional customers.

In order to address the world markets' developments and prepare for tomorrow's growth opportunities, TOTAL develops products and services in collaboration with its customers, that optimize their energy consumption, such as the products under the Total Ecosolutions label, which include Total Excellium fuels and Fuel Economy lubricants. These products and services include a diversified range of energy supplies (fuels, gas, solar and wood pellets) as well as consumption auditing, monitoring and management services, particularly through innovative digital platforms for industrial customers, such as the Optimizer solution, developed for customers in mining, construction and agriculture.

For the longer term, TOTAL intends to expand into alternatives to traditional fuels and already has comprehensive commercial offerings in this area:

- **Natural gas for land transportation:** At year-end 2019, TOTAL has more than 190 stations⁽⁴⁾ supplying NGV in Asia, Africa, the United States and Europe to private and professional customers. TOTAL is deploying new NGV stations in Europe in its TOTAL – and AS24-branded stations, with a target of 500 stations in 2025. The

Group intends to accelerate the development of this network to quickly establish coverage that meets its customers' expectations, and will initially target the freight transportation segment on its key European markets (Germany, Belgium, France, Luxembourg, the Netherlands). TOTAL has a network of more than 180 stations in the Netherlands, Germany, Belgium and France. In addition, Clean Energy Fuels Corp., the leading supplier of natural gas fuel for the transport sector in North America, has developed an innovative leasing program. This program enables transport companies to acquire NGV heavy goods vehicles at no extra cost, compared to diesel. This program entitles transport operators to benefit from natural gas fuel prices lower than the price of diesel fuel. TOTAL is supporting the energy transition and the reduction of its customers' carbon footprint by proposing a bio-NGV offer, with an incorporation rate adapted to the consumer's needs.

- **Electro-mobility:** The acquisition of G2Mobility, renamed Total EV Charge, now enables the Group to offer optimized electric charging solutions to its customers. At the end of 2019, TOTAL was already operating a number of charging points close to 16,000 in Europe for public authorities and professional customers, in order to provide charging service to all types of customers. The Group plans to operate more than 150,000 charging points in Europe by 2025. TOTAL also launched in 2019 the equipment of its stations with ultra-fast chargers on major highways, this deployment will continue in the coming years, with the ambition of ensuring a network in Western Europe with a network of charging points operated every 150 km. TOTAL has more than 100 service stations with charging points in Germany, Benelux and France at end of 2019 (including 11 operated).
- **Hydrogen:** TOTAL continues to rollout hydrogen stations under the H2 Mobility Germany joint-venture. This partnership was created in 2015 with Air Liquide, Daimler, Linde, OMV and Shell, to build a network in Germany. The joint-venture had close to 80 stations in 2019, of which about one quarter are based on the Group branded service stations network. TOTAL closely monitors rail developments: hydrogen is indeed an appropriate zero-emissions alternative, and TOTAL wants to support the French railroad operator (SNCF) in its plans that aim to renew its fleet and to gradually use hydrogen.
- **Natural gas for shipping:** In order to meet the new emission standards for marine fuels that came into effect on January 1, 2020, TOTAL is supporting its customers through this transition with its subsidiary Total Marine Fuels Global Solutions (TMFGS), which offers a diversified range of marine fuels and associated services. Consequently, the Group reorients its product portfolio with fuels with a sulfur content below 0.5% and LNG.

Regarding the development of low-sulfur fuels, TMFGS has worked closely with the Group's Refining & Chemicals and Trading & Shipping activities to develop fuels that comply with the new regulations, in order to be in a position to meet the needs of its customers in the main hubs where TMFGS already operates. Finally, TOTAL entered into an agreement with the public Chinese company Zhejiang Energy Group (ZEG) to set up a joint-venture in the Zhoushan region of China, dedicated to the procurement and supply of low-sulfur fuels for shipping.

(1) Formula E: motor racing championship using single-seater electrically-powered cars.

(2) FIA World Endurance Championship, 24 Hours of Le Mans, European Le Mans Series and the Asian Le Mans Series.

(3) Internet of Things: connected objects.

(4) Operated stations.

In an effort to promote the use of LNG fuel in shipping, and to meet the needs of its customers in the major supply hubs, the Group is ramping up its logistical facilities in the Amsterdam-Rotterdam-Antwerp, Singapore and Oman areas and in the Mediterranean. In October 2019, the Group launched its first LNG supply ship, following to the conclusion of a chartering contract with Mutsui O.S.K Lines, Ltd (MOL) in February 2018. The ship, which should be delivered during the second quarter of 2020, will be based in Rotterdam and supplied, amongst other vessels, the nine LNG-powered mega container ships operated by CMA-CGM through a 0.3 Mt/y agreement. TOTAL's first contracts for the sale of bunker LNG to several shipping companies

were entered into in 2017. TOTAL and Pavilion Energy Singapore have signed a 10-year fully-termed agreement in december 2019 in order to jointly develop an LNG supply chain in the port of Singapore, which follow a memorandum of understanding signed in 2018. Finally, at the end of 2019, the Group announced the signing of a long-term charter contract with MOL for a second LNG bunker vessel, to be delivered in 2021 and positioned in the Marseille-Fos area in France, and the signing of an agreement for 0.3 Mt/y agreement LNG supply of CMA CGM's future containerships located in the same region.

2.6 Investments

2.6.1 Major investments over the 2017-2019 period

The data for the 2017 and 2018 financial years have been restated to take into account the change in the organization of the Group that has been fully effective since January 1, 2019.

Gross investments ⁽¹⁾ (M\$)	2019	2018	2017
Exploration & Production	8,992	13,789	10,005
Integrated Gas, Renewables & Power	7,053	5,032	3,594
Refining & Chemicals	1,698	1,781	1,734
Marketing & Services	1,374	1,458	1,457
Corporate	120	125	106
TOTAL	19,237	22,185	16,896

Net investments ⁽²⁾ (M\$)	2019	2018	2017
Exploration & Production	8,649	10,115	8,214
Integrated Gas, Renewables & Power	6,180	3,445	3,398
Refining & Chemicals	1,382	862	(1,086)
Marketing & Services	1,131	1,030	1,044
Corporate	107	116	66
TOTAL	17,449	15,568	11,636

Net acquisitions ⁽³⁾ (M\$)	2019	2018	2017
Acquisitions	5,980	7,692	1,476
Divestments	(1,939)	(5,172)	(4,239)
Other operations with non-controlling interests	11	622	4
TOTAL	4,052	3,141	(2,759)

Organic investments ⁽⁴⁾ (M\$)	2019	2018	2017
Exploration & Production	8,635	7,953	9,110
Integrated Gas, Renewables & Power	2,259	1,745	2,553
Refining & Chemicals	1,426	1,604	1,625
Marketing & Services	969	1,010	1,019
Corporate	108	115	88
TOTAL	13,397	12,427	14,395

In the Exploration & Production segment, most of the organic investments were dedicated to the development of new hydrocarbon production facilities, the maintenance of existing facilities as well as exploration activities. Development investments related in particular to the five major projects that started up in 2019 (Kaombo Sul in Angola, Culzean in the United Kingdom, Johan Sverdrup 1 in Norway, Iara 1 in Brazil, and Tempa Rossa in Italy), and the other major projects under construction that are expected to start in the years to come (Iara 2 and Libra 1 & 2 in Brazil, Johan Sverdrup 2 in Norway, Absheron in Azerbaijan, Zinia 2 in Angola, and Ikike in Nigeria).

In the Integrated Gas, Renewables & Power segment, LNG organic investments were made mainly in the development of trains 1 and 2 of Cameron LNG in the United States, which started in 2019, and the other trains of LNG plants under construction that are expected to start in the years to come (Cameron LNG train 3 in the United States, Yamal LNG train 4 and Arctic LNG 2 in Russia, and Mozambique LNG in Mozambique). The organic investments in low-carbon electricity are mostly related to projects to build solar and wind power plants, managed by Total Solar, Total Quadran, and Total Eren, as well as the industrial activities of Saft Groupe and SunPower.

(1) Including acquisitions and increases in non-current loans. The main acquisitions for the 2017-2019 period are detailed in Note 2 to the Consolidated Financial Statements (point 8.7 of chapter 8).

(2) Net investments = Organic investments + net acquisitions.

(3) Net acquisitions = acquisitions – divestments – other operations with non-controlling interests.

(4) Organic investments = net investments excluding acquisitions, divestments and other operations with non-controlling interests.

In the Refining & Chemicals segment, organic investments were made, on the one hand, in the safety and maintenance of facilities, and, on the other hand, in projects aimed at improving the competitiveness of plants. In 2019, the Group completed the transformation of the French refinery at La Mède into a biorefinery that came into service in July 2019. In addition, further significant investments were made in the development of petrochemical activities in Texas (United States) as part of a joint-venture with Borealis and Nova, and in a project to increase the capacity of the Daesan integrated platform in South Korea.

In the Marketing & Services segment, organic investments in 2019 mainly concerned retail networks in growing regions in Africa, Asia, and the Americas, logistics and specialty products production and storage facilities.

The Group's acquisitions completed in 2019 amounted to around \$6.0 billion, compared to \$8.3 billion in 2018 and \$1.5 billion in 2017.

In 2019, the Group notably signed an agreement with Occidental Petroleum Corporation to acquire Anadarko's assets in Africa, thus

2.6.2 Major planned investments

The Group anticipates that its net investments will be between \$16 billion and \$18 billion per year between 2019 and 2023, a range ensuring the profitable future growth of the Group. In February 2020, the Group announced that the investment amount for 2020 is expected to be on the order of \$18 billion, and the Group will complete its 5 B\$ asset sale program over the years 2019-20 (~3 B\$ already announced). The Group has flexibility on its 2020 investment programs since almost 20% of the upstream CAPEX are short cycle capex, i.e. short term arbitrable.

Investments in the Exploration & Production segment are expected to mainly be in the major ongoing development projects for which the final investment decision has already been made (Iara 2 and Libra 1 & 2 in Brazil, Johan Sverdrup 2 in Norway, Absheron in Azerbaijan, Zinia 2 in Angola, and Ikike in Nigeria). The Group expects to launch more than 10 major projects in the coming years. In addition, a portion of the investments is expected to be allocated to assets already in production, in particular for maintenance capital expenditures and in-fill wells.

Investments in the Integrated Gas, Renewables & Power segment are expected to be particularly dedicated to the trains of major LNG plants under construction for which the final investment decision has already been made (Cameron LNG train 3 in the United States, Yamal LNG train 4 and Arctic LNG 2 in Russia, and Mozambique LNG in Mozambique). The Group expects to launch around 5 major LNG projects in the coming years. The Group enters the gas and renewables market in India

2.6.3 Financing mechanisms

TOTAL self-finances most of its investments with cash flow from operating activities and may occasionally access the bond market when financial market conditions are favorable. Certain subsidiaries or certain specific projects may be financed through external financing, notably in the case of joint-ventures. This is the case, for example, for Ichthys LNG in Australia, of Satorp in Saudi Arabia, of Yamal LNG in Russia, of Cameron LNG in the United States or Hanwha Total Petrochemical in South Korea.

preparing for the future and capitalizing on its strengths. The acquisition of Anadarko's shareholding in Mozambique LNG, which was finalized in September 2019, together with the purchase of a 10% interest in Arctic LNG 2 project in Russia in the first quarter of 2019, strengthened the Group's position in LNG. In addition, the Group continued to expand in the North Sea in 2019 with the purchase of Chevron's shareholding in the Danish Underground Consortium in Denmark, where it is already the operator.

TOTAL pursued the dynamic management of its portfolio and finalized divestments amounting to \$1.9 billion. This finalized divestment amount is particularly linked to the payment received on the takeover of Toshiba's LNG portfolio in the United States, and the sale of the interests in the Wepec refinery in China, the Hazira terminal in India, and the polystyrene activity in China.

Net investments were thus \$17.4 billion in 2019 compared to \$15.6 billion in 2018 and \$11.6 billion in 2017.

and continues to invest in low-carbon electricity: it has notably signed an agreement with EPH to acquire in 2020 the two gas power plants from Uniper France's portfolio, and it will pursue its development in the generation of electricity from renewable energies with notably the construction of a giant 800 MW solar power plant in Qatar. Finally, in June 2019 the Group created a new entity, Total Nature Based Solutions (NBS), dedicated to investments in nature-based carbon sinks. TOTAL wishes to invest \$100 million per year in the entity as of 2020.

In the Refining & Chemicals segment, and in line with its growth strategy in petrochemicals, the Group expects to continue its investments to develop its petrochemicals activities in Texas in the United States, as part of a joint-venture with Borealis and Nova, and increase its petrochemicals capacities on the Daesan integrated platform in South Korea. In addition, the Group has launched a major cooperation project with Saudi Aramco in Saudi Arabia, and announced the signature of a shareholders' agreement with Sonatrach to build a petrochemicals complex in Arzew, Algeria. A significant portion of the segment's investment budget will also be allocated to safety and maintenance of the Group's facilities.

In the Marketing & Services segment, investments are expected to be allocated in particular to the service station network, logistics, and production and storage facilities of specialty products, particularly lubricants. Most of the segment's investment budget will be allocated to growing regions, notably Africa, the Middle East, Asia, and the Americas.

As part of certain project financing arrangements, TOTAL S.A. has provided guarantees. These guarantees ("Guarantees given on borrowings") as well as other information on the Group's off-balance sheet commitments and contractual obligations appear in Note 13 to the Consolidated Financial Statements (refer to point 8.7 of chapter 8). The Group believes that neither these guarantees nor the other off-balance sheet commitments of TOTAL S.A. or of any other Group company have, or could reasonably have in the future, a material effect on the Group's financial position, income and expenses, liquidity, investments or financial resources.

2.7 Research & Development

In 2019, the Group invested \$968 million in Research & Development (R&D), compared to \$986 million in 2018 and \$912 million in 2017. There were 4,339 people dedicated to R&D activities in 2019 compared to 4,288 in 2018 and 4,132 in 2017.

TOTAL invested \$1.1 billion to prepare for the future, this includes the entire Research & Development (R&D) effort, as well as developments in the fields of digital, technology and the investments funded by Total Carbon Neutrality Ventures (TOTAL's venture capital fund entirely dedicated to carbon neutrality activities is expected to have invested a total of \$400 million by 2023).

As part of the Group's ambition to become the responsible energy major, in 2019 TOTAL R&D finalized its strategic plan to determine its positioning for the next five years, together with its research programs portfolio. The Group's R&D is based around five focus areas that aim to address both the specific challenges of each segment and the Group's transverse challenges:

- Safety and environment;
- Low-carbon mix;
- Operational efficiency;
- New products;
- Digital.

The R&D programs have been operational since early 2020; as appropriate, they may be conducted by a business segment in the interests of its own or other segments' activities, or coordinated at a Group level for transverse issues in order to establish synergies, make the best possible use of the expertise available, and mutualize knowledge and infrastructures.

2.7.1 Safety and Environment

The R&D programs developed around safety and environment are aimed at reducing risks and accidents, mitigating lifecycle impact of the Group's activities and products, developing the circular economy, recycling and frugal use of resources:

- the *Sustainable Development* program aims to bring together the interdependent issues of safety, climate, biodiversity and society, with the environment as a common denominator. The emphasis is on measuring methane leaks, and in 2019 industrial pilot schemes enabled real-life testing of the technologies selected during test campaigns on the Lacq platform as part of the TADI (Total Anomalies Detection Initiatives) project. Innovation efforts relate to monitoring technologies and, in particular to breakthrough approaches to learning about biodiversity in the areas where the Group operates;
- the *Plastics Ecodesign and Recycling* program reflects the Group's desire, as a major player in the plastics chain, to contribute to growing the circular economy and developing a competitive, sustainable plastics recycling chain. R&D efforts are implemented both upstream, with ecodesign of polymers in order to facilitate recycling, and downstream, by developing recycling methods in the three channels of mechanical recycling, chemical recycling and organic recycling. The work carried out in 2019 furthered developments in

Meanwhile, an anticipation program is carried out by forward-looking projects that aim to assess the potential for the Group's business segments of new technologies, such as nanotechnology, robotics, hydrogen, and the mobility of the future.

The Group is investing in the preparation of its future in open innovation by calling on its talents, its research infrastructures, its pilot sites and its international research centers, as well as on start-ups and top-level academic partners. Consequently, the Group has 18 R&D centers worldwide and approximately 1,000 agreements with its partners.

In 2019, three important framework agreements enabling the development of partnership R&D projects were signed with:

- the IFP Energies nouvelles (IFPEN) for a period of five years, relating to carbon capture, utilization and storage (CCUS) in order to reduce the cost of infrastructures and improve the CCUS chain's energy efficiency to secure its large-scale deployment. A chair has also been endowed at the IFP School to train a new generation of international researchers and experts who will develop technologies to reduce carbon in the atmosphere;
- the French Alternative Energies and Atomic Energy Commission (CEA) for a period of five years, in order to develop joint R&D programs in the field of low-carbon energy in particular. A first project is under way on microalgae with the aim of converting CO₂ into beneficial products such as biofuels;
- the French National Center for Scientific Research (CNRS), to renew scientific collaboration for a four-year period in order to continue with a number of cooperation agreements, particularly in organic chemistry and thin-film photovoltaic technologies.

Additionally, the Group implements an active industrial property policy to protect its innovations, and to maximize their use and technological differentiation. In 2019, the Group filed more than 200 patent applications.

demonstrating the recyclability of polystyrene, with successful pilot and industrial tests showing that the recyclates can be purified. New areas for development have been opened up to help to improve the level of incorporation of recycled polymers and the applications accessible. Finally, the Group undertook a number of preliminary studies with players in the plastics recycling chain to launch timely collaborative work in the field of chemical recycling. The main priority in this area is recycling plastic waste through pyrolytic conversion. TOTAL aims to be able to sell 30% of its polymers out of recycled feedstocks by 2030;

- the *Product Ecodesign and Recycling* program consists of incorporating a sustainable approach right from the start of development of new products in order to reduce their environmental footprint. This program notably aims at assessing opportunities to integrate low carbon footprint components into the Group's formulations while improving the recyclability of used products.
- the *Site end-of-life management* program aims to optimize the management and minimize the environmental impact and cost of end-of-life oil and gas fields. The program evaluates new solutions such as converting offshore oil platforms into artificial reefs, CO₂ reinjection sites, or renewable energy production sites.

2.7.2 Low-carbon mix

The R&D programs developed around the low-carbon mix aim to reduce the carbon intensity of energy by developing the entire gas and LNG value chain, renewable and alternative energies, storage, energy management systems, carbon capture, utilization and storage, energy efficiency, biofuels and fluids for carbon-neutral mobility:

- the *Carbon capture, utilization and storage (CCUS)* program covers the Northern Lights carbon transport and storage project, with a capacity of approximately 1.5 Mt/y, which is taking place in Norway alongside Shell and Equinor, and the Group's involvement in the preliminary stages of new projects, including two in the United Kingdom and one in the Netherlands. TOTAL also contributes to projects in the United States developed by the National Carbon Capture Center (NCCC) relating to carbon capture technologies.

In addition, the Group is involved in the 3D (DMX™ Demonstration in Dunkirk) project in Dunkirk, France, alongside ArcelorMittal, IFPEN, Axens and seven other European partners. The work is focused on an innovative carbon capture process on an industrial pilot (0.5 tCO₂/h) that will be built on the ArcelorMittal steelworks site, preparing the implementation of a carbon capture/storage demonstration unit that could be operational by 2025 and should be able to capture more than 1 Mt/y, from packing and transportation infrastructures for storage in the North Sea, and designing the future European Dunkirk North Sea capture and storage cluster (with a capacity of 10 MtCO₂/y), which should be operational in 2035.

TOTAL has also initiated a pilot project in Germany for converting CO₂ from the Leuna refinery and hydrogen into methanol. The hydrogen will be produced by the most powerful high-temperature electrolyzer in the world, developed by start-up Sunfire. The Group's venture capital fund, Total Carbon Neutrality Ventures, has been a shareholder of Sunfire since 2014.

Overall, the Group is involved in more than 80 research projects in this field with world-renowned laboratories;

- in addition to reducing gas production and processing costs, the *Gas value chain* program places particular emphasis on reducing the carbon footprint of the gas chain. This program is based not only on improving energy efficiency along the entire chain and developing new ways to valorize the gas with a smaller carbon footprint, but also on using renewable energies and incorporating low-carbon inputs such as biomethane. The work carried out with partners GTC/SULZER and UOP on converting methane into olefins is based on the same principles;
- the goal of the *Electric and gas mobility* program is to develop products tailored to these new types of power train. For vehicles with a gas or electric hybrid engine, the operating conditions of these combustion engines are different from those of engines of vehicles with 100% internal combustion, gasoline or diesel; which justifies developing new fluid lubricants (fuels, lubricants,) adapted to these new engine operating ranges;
- the *Biofuels and bioproducts* program aims to further the Refining & Chemicals segment's research efforts in the field of bio sourced products in order to reduce the carbon footprint of the Group's products and facilities. The work relates to developing increasingly sustainable biofuels by focusing on utilizing raw materials seen as waste and developing expertise in oleaginous waste and methods for

converting it into biodiesel. The Group is preparing for next-generation solutions by developing its own strains and algae cultivation methods in order to produce fuels from CO₂ and without the need for arable land. Alongside this, research continues into overcoming the technical challenges of utilizing lignocellulosic biomass, which is very unyielding by nature, including through the BioTfuels gasification pilot, which the Group started operating in 2019. R&D efforts also relate to the production of sustainable, bio sourced polymers, i.e. that can be recycled or are fully biodegradable, including in marine conditions, which are the most difficult;

- the *Zero carbon emissions* assets program aims to minimize and then eliminate greenhouse gas emissions (CO₂ and methane) from Group entities' industrial centers. All of the R&D actions relating to energy efficiency come under this program, which will also benefit from all of the recent innovations in low-carbon energies. There are still numerous technical challenges to overcome, such as reliable, continuous renewable energy production systems, efficient energy storage systems on an industrial scale, and electrification methods;
- the *Low-carbon electricity: production & storage* program aims to develop and test low-carbon electricity generation and storage technologies notably via the use of pilots to meet future electricity market demand. It also centers on understanding and developing the technologies included in these systems. Initially based on photovoltaic systems and components, it now includes new technologies that are being developed in wind power, power-to-X and other renewable energies;
- the *Energy management, distribution & services* program aims to develop products and services that improve energy efficiency and access to affordable low-carbon energy while offering operational flexibility. This program focuses on electrical system technologies in relation to management, distribution and energy services. This includes aggregation and network back-up services, energy consumption management by the end customer, autonomous and smart buildings, technological solutions for customers, and off-grid electricity distribution for isolated industrial sites and developing countries;
- the *Hybrid power systems* program aims to optimize the integration of electricity generation, storage and energy management from the design stage so that CO₂ emissions and costs can also be optimized at the same time. These systems represent significant challenges in managing electricity flows, fluids, heat and water in a single system, while maintaining flexibility in order to meet customer expectations. The program focuses on the design, optimization, simulation and control of systems that include more than two technologies of generation or storage (for example solar panels associated with a battery) so that they operate as a single system. Hybrid systems can be used in electricity generation or for distribution to customers.

In the realm of electricity storage, Saft Group is actively working with other European partners on a program for the research, development and industrialization of new generations of solid electrolyte lithium-ion (Li-ion) batteries that are more efficient, cheaper and safer. R&D investments focus on electrochemistry, new materials and improving production processes and battery management systems and software. This program targets every market segments, from electro-mobility (electric cars and buses, the railroads, maritime and aviation sectors) and energy storage, to specialized industries.

2.7.3 Operational efficiency

The programs in the field of operational efficiency aim to increase the sustainability and growth of the Group's activities by finding new resources, reducing the cost of design and operations, and improving performance and reducing carbon intensity through electrification, automation, digital technology, and subsurface and process modeling:

- the *Plant & Process Computational Optimization* program is aimed at delivering powerful decision support models in all of the Refining & Chemicals and Exploration & Production segments, to make the Group's facilities safer and more resilient and develop end products (fuel, marine fuels and bitumen) as cost-effectively as possible against an increasingly stringent regulatory backdrop;
- the goal of the *New exploration concepts* program is to identify geological concepts that will enable the potential of proved basins to be reassessed and new potential basins for oil and gas exploration to be envisaged. The researchers are using their expertise to develop a clearer understanding of the deposition, transformation and filling of deep offshore carbonate reservoirs, for example in Brazil;
- the *Planet imaging* program aims to develop remote detection, airborne multi-physics acquisition systems for the real-time imaging of steep margins, and new-generation algorithms. From the acquisition

to the processing of data, this program innovates along the entire geophysical exploration chain to produce high-added value 3D ultrasound images of the subsoil more quickly and at a reduced cost;

- the actions of the *Field reservoir* program focus on our understanding of the physico-chemical phenomena in reservoirs, from pores to fields, and on the integration of all the available data. The development of a new generation of reservoir modeling tools, the continual improvement of reservoir simulation tools and the development of low-cost enhanced recovery techniques are the key themes of this program;
- the *Wells* program aims to achieve the dual objectives of maximizing the safety and operational efficiency of wells, thereby increasing their profitability. This program provides real-time access to data from well bottoms during drilling;
- the goal of the *Deep Offshore* program is to further reduce technical costs with completely underwater development solutions, develop breakthrough technologies to economically explore and develop assets at depths of more than 3,000 meters, and design disruptive operating modes offering higher profitability, without compromising safety.

2.7.4 New products

On differentiated new products, R&D programs aim to support new market opportunities, particularly those relating to polymers, lubricants, fluids and fuels:

- the *Polymer differentiation* program is using in-depth knowledge of catalysts and polymerization processes to enable the Group to extend its range of polyolefins and polystyrene, by giving them properties that go far beyond conventional products and meet customers' future challenges. To this end, its work relates to the development of new catalyst supports resulting in polymers with enhanced mechanical properties or improved optical properties, for example. It also covers the creation of polymers that will be easier to process at customers' processing facilities while retaining their end qualities. Emphasis is also placed on reducing the environmental impact of plastics by providing products that are lighter but just as strong. Research is being carried out into the development of a scientific computing approach to highlight the relationships between catalyst structures and the properties of the polymers, and a dedicated team was set up in 2019;

- the goal of the *Road of the future* program is to improve bitumen laying, increase bitumen service life and identify new functions such as the change of color depending on the outside temperature to prevent a risk of black ice or the ability to absorb heat to limit high temperatures in urban areas;
- the *Products for non-electric powertrains* program aims to consolidate the development of fuels, lubricants and other fluids to support the evolution of new internal combustion engines towards reduced emissions, particularly of CO₂ and air pollutants. The objective is to develop innovative solutions through the acquisition of skills around artificial intelligence, to strengthen competitiveness and reduce development times;
- the *Differentiated products for industry* program covers developments of new products in the field of industrial lubricants, special fluids and bitumen for industry. The program prioritizes HSE issues and competitiveness in addition to a high level of product performance. The current projects concern in particular hydrolubrication, the development of special fluids formulated from bio-based components and greases using soaps instead of lithium.

2.7.5 Digital

The goal of our digital technology research programs is to leverage computing science & engineering, artificial intelligence and advanced analytical methods to speed up and improve problem solving. They are also used to develop data-driven materials, together with nanotechnologies, robotics and edge computing:

- the *Digital* program explores future computing technologies for digital simulations and effective artificial intelligence applications, with the development of innovative, advanced, energy-saving algorithms for more efficient, faster, cheaper and more accurate computation to meet HSE challenges, to the benefit of TOTAL's current and future activities and for the energies of the future.

In 2019, TOTAL brought online its new supercomputer, *Pangea III*, which increases the Group's computing power fivefold. The capacity

of *Pangea III* is combined with that of its predecessors *Pangea I* and *II* and makes it the most powerful industrial supercomputer, and the 11th most powerful public or private computer, in the world⁽¹⁾:

- the *Measurement and Analytics* program focuses its research on the complex new matrices resulting from biomass and plastics recycling channels at the laboratory jointly operated by the University of Pau (UPPA), the University of Normandy, TOTAL, the CNRS, and the University of Florida. The first molecular maps of feedstocks resulting from the hydrothermal conversion of algae reflect a considerable complexity in the diversity of the chemical families that coexist in a single feedstock. Accessing and interpreting these maps quickly is decisive for guiding research into methods for utilizing these new feedstocks.

2.7.6 Materials and integrated solutions for mobility: Hutchinson

Next to the five focus areas of the Group's R&D, Hutchinson has a R&D activity centered around its activities. It is an important factor in innovation and differentiation for Hutchinson, which is present from the design of custom materials (rubber, thermoplastics, composites) to the incorporation of connected solutions and objects (complex solutions, mechatronics, hardware, software, systems, Internet of Things, big data, etc.). Hutchinson's ambition is to rise to the challenges of the mobility of the future by developing technologies that enable safer, more comfortable, more responsible ways to travel.

In 2019, a new advanced engineering team was set up in Singapore to add to its network of research centers. The team aims to take advantage of Singapore's innovation ecosystem in the field of smart network management, connected objects, advanced robotics and aerospace maintenance, in which it is a global center of excellence. The facility in Asia also improves links with the world's leading economic area and the main automotive production cluster (40% of the world's vehicle production).

In 2019, Hutchinson also finalized the acquisition of Midé Technology. This high-tech company, which originated at MIT (Massachusetts Institute of Technology), has specialized in solving cutting-edge technical and scientific problems using its expertise in advanced mechatronics, piezoelectric systems and smart materials. Midé's skills set strengthens Hutchinson's R&D and gives the Group a foothold on the East Coast of the United States, in one of the most dynamic innovation ecosystems in the world.

This significant investment by the Group provides a response to the common preoccupations across all of Hutchinson's markets (automotive, aerospace, defense, railroads, etc.) such as weight reduction, increased energy efficiency, improved diagnostic and passive and active control functionality, and greater acoustic, thermal and vibratory comfort and safety, in line with its cross-fertilization approach.

(1) Source: TOP500.

3

Risks and control

3

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3.1 Risk factors

The Group conducts its activities in an ever-changing environment. It is exposed to risks that, if they were to occur, could have a material adverse effect on its business, financial condition, reputation, outlook, or the Total share price.

This section presents the significant risk factors specific to the Group, to which it believes it is exposed as of the filing date of the Universal Registration Document. However, the Group may be exposed to other non-specific risks, or of which it may not be aware, or which it may be underestimating the potential consequences of, or other risks that may not have been considered by the Group as being likely to have a material adverse impact on the Group, its business, financial condition, reputation or outlook.

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

The main internal control and risk management procedures implemented by the Group are described in point 3.3 of this chapter.

3.1.1 Market environment parameters

Sensitivity of results to oil and gas prices, refining margins, exchange rates and interest rates

The results of TOTAL are sensitive to various market environment parameters, the most significant being oil and gas prices, refining margins, exchange rates and interest rates.

Prices for oil and natural gas may fluctuate widely due to many factors over which TOTAL has no control. These factors include:

- global and regional economic and political developments in natural resource-producing regions, particularly in the Middle East, Africa, South America and Russia; along with the security situation in certain regions, the magnitude of international terrorist threats, wars or other conflicts;
- the ability of the OPEC and other producing nations to influence global oil and gas production levels and prices;
- prices of unconventional energies as well as evolving approaches for developing oil sands and shale oil, which may affect the Group's realized prices, notably under its long-term gas sales contracts and asset valuations, particularly in North America;
- global economic and financial market conditions;
- regulations and governmental actions;
- variations in global and regional supply of and demand for energy; and changes in consumer preferences including when due to epidemics such as Covid-19.

Generally, a decline in oil and gas prices has a negative effect on the Group's results due to a decrease in revenues from oil and gas production. Conversely, a rise in oil and gas prices increases the Group's results.

In addition to the adverse effect on sales, margins and profitability, a prolonged period of low oil or natural gas prices may lead the Group to review its development projects, reduce the Group's reported reserves, and cause the Group to revise the price assumptions upon which asset impairment tests are based, which could have an adverse effect on the Group's results in the period in which it occurs. For additional information on impairments recognized on the Group's assets, refer to Note 3 to the Consolidated Financial Statements (point 8.7 of chapter 8).

Prolonged periods of low oil and natural gas prices may reduce the economic viability of projects in production or in development and reduce the Group's liquidity, thereby decreasing its ability to finance capital expenditures and/or causing it to cancel or postpone investment projects.

Conversely, in a high oil and gas price environment, the Group can experience significant increases in cost and government withholdings, and, under some production-sharing contracts, the Group's production rights could be reduced. Higher prices can also reduce demand for the Group's products.

The Group's results from its Refining & Chemicals and Marketing & Services segments are primarily dependent upon the supply and demand for petroleum products and the associated margins on sales of these products. Changes in oil and gas prices affect results on these segments, depending on the speed at which the prices of petroleum products adjust to reflect movements in oil and gas prices. The Group's refining margins, which fell in 2019, remain highly volatile.

The activities of trading and shipping (oil, gas and power trading and shipping activities) are particularly sensitive to market risks and more specifically to price risk as a consequence of the volatility of oil and gas prices, to liquidity risk (inability to buy or sell cargoes at market prices) and to counterparty risks (when a counterparty does not fulfill its contractual obligations).

In 2019, oil prices gradually firmed up until May when they stood at around \$70/b (Brent), supported by continued demand, OPEC+ quotas and the geopolitical context in the Middle East. From June, they stood at around \$60/b due to ongoing increases in production in the United States, and slowing growth in demand.

Gas prices, which were not aligned with oil prices in 2019, fell sharply, particularly in Europe and Asia, from an average of over \$7.5 per Mbtu in January 2019 to less than \$4.5 per Mbtu during the summer, owing to a well-supplied market with supply still abundant and Asian demand slightly less dynamic (particularly in China), although still a driver of global demand. Prices firmed up in the autumn, increasing to over \$5 per Mbtu on average in the last quarter of 2019.

The oil and gas markets remain highly volatile.

For the fiscal year 2020, according to the scenarios retained below, the Group estimates that an increase of \$10 per barrel in the average liquids price would increase annual adjusted net operating income⁽¹⁾ by approximately \$2.9 billion and annual cash flow from operations by approximately \$3.3 billion. Conversely, a decrease of \$10 per barrel in the average liquids price would decrease annual adjusted net operating income by approximately \$2.9 billion and annual cash flow from operations by approximately \$3.3 billion. In addition, the Group estimates that an increase in the average sales price for NBP gas of \$1 per Mbtu would increase annual adjusted net operating income⁽¹⁾ by approximately \$0.35 billion, and increase annual cash flow by the same amount. Conversely, a fall in the average sales price for NBP gas of \$1 per Mbtu would decrease annual adjusted net operating income by approximately \$0.35 billion, and decrease annual cash flow by the same amount.

The impact of changes in crude oil and gas prices on downstream operations depends upon the speed at which the prices of finished products adjust to reflect these changes. The Group estimates that a decrease in the variable cost margin – Refining Europe (VCM) of \$10 per ton would decrease annual adjusted net operating income by \$0.5 billion and annual cash flow from operations by approximately \$0.6 billion. Conversely, an increase in the VCM of \$10 per ton would increase annual adjusted net operating income by \$0.5 billion and annual cash flow from operations by approximately \$0.6 billion.

All of the Group's activities are, for various reasons and to varying degrees, sensitive to fluctuations in the dollar/euro exchange rate. The Group estimates that a decrease of \$0.10 per euro (strengthening of the dollar versus the euro) would increase annual adjusted net operating income by approximately \$0.1 billion and have a limited impact on annual cash flow from operations. Conversely, an increase of \$0.10 per euro (weakening of the dollar versus the euro) would decrease adjusted net operating income by approximately \$0.1 billion and have a limited impact on annual cash flow from operations.

(1) Adjusted results are defined as income at replacement cost, excluding non-recurring items and the impact of changes in fair value.

Sensitivities 2020 ^(a)	Change	Estimated impact on net adjusted operating income ⁽¹⁾	Estimated impact on cash flow from operations
US dollar	+/- \$0.1/€	-/+ \$0.1 B	~ \$0 B
Average liquids sales price ^{(b) (c)}	+/- \$10/b	+/- \$2.9 B	+/- \$3.3 B
Price of NBP European gas ^(d)	+/- \$1/Mbtu	+/- \$0.35 B	+/- \$0.35 B
Margin on variable costs – Refining Europe	+/- \$10/t	+/- \$0.5 B	+/- \$0.6 B

(a) Sensitivities revised once per year upon publication of the previous year's fourth quarter results. Indicated sensitivities are approximate and based upon TOTAL's current view of its 2020 portfolio. Results may differ significantly from the estimates implied by the application of these sensitivities. The impact of the \$/€ sensitivity on adjusted net operating income is attributable essentially to Refining & Chemicals.

(b) Sales in \$/sales volume for consolidated subsidiaries (excludes the variation of inventory values).

(c) Brent environment at \$60/b.

(d) NBP (National Balancing Point) is a virtual natural gas trading point in the United Kingdom for transferring rights in respect of physical gas and which is widely used as a price benchmark for the natural gas markets in Europe. NBP is operated by National Grid Gas plc, the operator of the UK transmission network.

In addition, as part of its financing, the Group is susceptible to fluctuations in interest rates. In its bond debt and short-term debt securities (commercial papers) portfolio, the Group's exposure to floating rates (after taking into account hedging instruments) was approximately \$28 billion on average in 2019. Within this scope, a fluctuation in the

USD 3-month LIBOR rate by +/- 1%, on the basis of a rate of 1.50%, would have resulted in a change in the cost of debt, and the impact of this on adjusted net income and on cash flow is estimated at approximately +/- \$0.24 billion.

3.1.2 Climate challenges

Deployment of the energy transition

TOTAL is exposed to the implementation of the energy transition, particularly by the States.

Civil society, numerous stakeholders and the States are encouraging the reduced consumption of carbon-based energy products and the establishment of an energy mix more geared towards low-carbon energies, so as to effectively combat climate change specifically pursuant to the objectives set by each State in connection with the Paris Agreement, and even beyond that.

The pace of change of the energy mix of countries should, however, take into consideration the needs and abilities to adapt of different energy consumers who expect energy players to supply them with energy that is affordable in terms of cost and environmentally friendly. In developing countries, the priority is access to energy, which is a source of economic and social development.

In this context, oil and gas companies will be guided to improve their control over greenhouse gas emissions. They will also be able to help create solutions that contribute to reducing CO₂ emissions by their products' users, and technologies and processes to capture, store and use CO₂. Consequently, they may be led to change the energy mix they offer. This is already the case for TOTAL, which has started to shift its portfolio towards low-carbon activities.

The accelerated rate of deployment of the energy transition towards low carbon or zero carbon energy in the various countries where TOTAL supplies energy to its clients could affect the Group's prospects as well as its financial position (lower Group profitability, loss of operating rights, loss of sales, increased funding difficulties), reputation or shareholder value.

Development of oil and gas reserves

The Group's profitability depends on the discovery, acquisition and development of new reserves profitably and in sufficient quantity.

A large portion of the Group's revenues and operating results are derived from the sale of oil and gas that the Group extracts from underground reserves developed as part of its exploration & production activities. The development of oil and gas fields, the construction of facilities and the drilling of production or injection wells is capital intensive and requires advanced technology.

For exploration & production activities to continue to be profitable, the Group needs to replace its reserves with new proved reserves (likely to be developed and produced in an economically viable manner). A number of factors may undermine TOTAL's ability to discover, acquire and develop new reserves, which are inherently uncertain, including:

- the geological nature of oil and gas fields, notably unexpected drilling conditions, including pressure or unexpected heterogeneities in geological formations; the risk of dry holes or failure to find expected commercial quantities of hydrocarbons;
- the Group's inability to anticipate market changes in a timely manner;
- anticipated and unanticipated governmental or regulatory requirements that may prevent the development of reserves, or give a competitive advantage to companies not subject to such regulations;
- competition from oil and gas companies for the acquisition and development of assets and licenses;
- disputes related to property titles, as well as increases in taxes and royalties, including retroactive claims and changes in regulations and tax reassessments;
- economic or political risks, including threats specific to a certain country or region.

(1) Adjusted results are defined as income at replacement cost, excluding non-recurring items and the impact of changes in fair value.

These factors may impair the Group's ability to complete development projects and to make production economical. They may also affect the Group's projects and facilities further down the oil and gas chain. If TOTAL fails to develop new reserves cost-effectively and in sufficient quantities, the Group's financial condition, including its operating income and cash flow, could be materially affected.

In addition, the Group's proved reserves figures are estimates prepared in accordance with SEC rules. Proved reserves are those reserves which, by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be economically recoverable – from a given date forward, from known reservoirs and under existing economic conditions, operating methods and government regulations – prior to the time at which contracts providing the right to operate expire, unless evidence indicates that renewal is reasonably certain, regardless of whether deterministic or probabilistic methods are used for the estimation. They involve making subjective judgment (including with respect to the estimate of hydrocarbons initially in place, initial production rates and recovery efficiency) based on available geological, technical and economic data.

The Group's reserves estimates may therefore require substantial downward revisions should its subjective judgments prove not to have been conservative enough based on the available geoscience and engineering data, or the Group's assumptions regarding factors or variables that are beyond its control prove to be incorrect over time. Any downward adjustment could indicate lower future production amounts, which could adversely affect the Group's financial condition, including its operating income and cash flow.

TOTAL is exposed to a risk of more difficult access to the financial resources it needs, in particular to develop its Oil & Gas activities.

The growth and profitability of the Group rely on its ability to successfully execute development projects that are capital-intensive.

A number of non-governmental organizations tend to increase the number of campaigns targeting investors and financial institutions, to encourage them to invest less in projects or companies related to fossil fuels. Some of these institutions have adopted policies aimed to restrict the funding of activities related to the exploration, production and marketing of certain categories of hydrocarbons, such as shales or oil sands.

Institutional investors are also adopting investment policies that take the carbon footprint of assets under management into consideration, or more generally in terms of ESG criteria.

The growing concern of civil society and stakeholders in terms of climate change could therefore make accessing external funding more difficult for a number of Group projects, or influence investors in their investment choices.

If the Group were unable to find adequate financing for its activities from investors, notably in the Oil & Gas sector, the significant increase in the cost of financing that may result from this could impair its ability to undertake projects, and worsen its financial position or shareholder value.

Operating and financial risks relating to the effects of climate change

The effects of climate change may leave TOTAL exposed to an increase in associated operating and financial costs.

TOTAL's businesses operate in various regions, where the potential physical impacts of climate change, including changes in climate prediction patterns, are highly uncertain. Climate change potentially has multiple effects that could harm the Group's operations. The increasing scarcity of water resources may negatively affect the Group's operations in some regions of the world, high sea levels may harm certain coastal activities, and the multiplication of extreme weather events may damage offshore and onshore facilities. All these factors may increase the operating costs of facilities and have an adverse effect on the Group's operating income.

In addition, in Europe, the Group's industrial facilities are part of the CO₂ emissions quotas market (EU-ETS), and the financial risk incurred by purchasing these quotas in the market could increase due to the reform of the system that was approved in 2018. This emission quotas market is in its third phase. The Group estimates that about 25% of emissions subjected to EU-ETS are not covered by free quotas in the period 2013-2020 (phase 3) and to 30% or more from 2021 to 2030 (phase 4). At the end of 2019, the price of these quotas was about €25/t, and the Group expects this price to be higher than €30/t in phase 4. Internal studies conducted by TOTAL have shown that a long-term CO₂ price of \$40/t⁽¹⁾ applied worldwide would have a negative impact of around 5% on the discounted present value of the Group's assets (upstream and downstream).

In the context of increased exposure to legal proceedings, TOTAL may receive claims issued by public entities in certain countries in view of financing the protective measures to be implemented in order to limit the consequences of climate change, which may adversely affect the financial situation of the Group or the Total share price.

Reputational risk and management of talent

TOTAL is exposed to reputational risk and may face difficulties to recruit and retain the key talent and skills required for its development.

The attention of many stakeholders as regards major industrial groups is on the increase, particularly given the challenges of climate change. As a major player in the oil and gas segment, TOTAL faces significant media exposure, both nationally and internationally. This is magnified through the use of social networks.

In addition, the expectations of new generations and employees regarding the Company's commitment in the face of environmental challenges, in particular those related to climate, as well as the increased competition with fast-growing high technology sectors, such as information technologies, are on the up and are visible both in the recruitment process and during their careers. TOTAL may therefore experience difficulties attracting and retaining the key talent and skills needed by the Group for its development.

If the Group were unable to respond adequately to stakeholders, its public image and its reputation could be affected. The Group may therefore face difficulties to recruit and retain the key talent and skills required for its development, which could impair its ability to develop, innovate and could as a result cause a loss of productivity and a slowdown in its growth.

(1) As from 2021 or the current price in a given country.

3.1.3 Risk relating to external threats

Cybersecurity risks

The Group is exposed to malicious acts that may permanently paralyze its information systems or cause losses of sensitive data.

The global cyber-threat evolves constantly and grows. TOTAL is exposed to it. Firstly, cyber-attacks, whose techniques are regularly renewed, are becoming more and more sophisticated. Secondly, many factors intensify the exposure and vulnerability of the Group's information systems: digital transformation, the adoption of new technologies such as the Internet of Things, the migration of data to the Cloud or even changes in the architecture of information systems that allow system interconnectivity.

The Group's activities depend on the reliability and security of its information systems. TOTAL is exposed to a risk of malicious actions, internal or external, committed individually or in loosely or tightly organized or structured groups against its infrastructure, information systems and data. The Group's information systems, some of which are managed by third parties, are susceptible to being compromised, damaged, disrupted or shutdown due to cyber-attacks (viruses, computer intrusions, etc.).

If the Group and its service providers were unable to conserve the integrity of its critical information systems and its sensitive data, the

Group's activities and assets could sustain damage, services provided by the Group could be interrupted, intellectual property rights could be usurped or stolen, and in some cases, personal injury, property damage, environmental harm and regulatory violations could occur, potentially having a material adverse effect on the Group's financial condition and its reputation, and exposing the Group to legal proceedings.

Security risks

The Group is exposed to risks that may jeopardize the security of its personnel, operations and facilities, which may specifically arise in the form of acts of terrorism or malicious acts.

TOTAL operates in countries where political, economic and social instability may favor the emergence of acts of terrorism or malicious acts, either by isolated individuals or by groups that are loosely or tightly organized, or structured. As such, TOTAL and its partners are exposed to risks that may jeopardize the security of its personnel, operations and facilities (plants, industrial or operational sites, pipelines, transport systems) which may lead to major industrial accidents.

Depending on the scale of these acts of terrorism or malicious acts, the damage that may result from them and be caused to people, property and/or the environment, could have an adverse effect on the Group's operating income, financial situation, and reputation.

3.1.4 Geopolitics and developments in the world

Protectionist measures affecting free trade

The development of protectionist measures affecting free trade between nations may have an impact on the Group's business, its strategy or its financial condition.

Against a backdrop of risks of globalization and fragmentation between nations highlighted by the development of protectionist measures affecting free trade, trade tensions between certain countries serve to restrict the free trade of goods and services, financial flows, along with international transfers of labor or knowledge.

Tensions between countries, in particular commercial tensions, particularly when they require the modification of the contractual framework of partnerships or the operating conditions of projects, are likely to have a negative impact on the Group's business and its operating income. If TOTAL were unable to manage the impacts of these commercial tensions in an appropriate manner, the Group would potentially incur significant increases in costs for the development of its projects, lose markets, see its production or the value of its assets fall, which may adversely affect its financial situation.

Deterioration of operating conditions

TOTAL is exposed to risks related to adverse changes in operating conditions in some geographic areas or strategic countries.

A substantial part of the Group's activities is located in strategic areas or countries that may face conditions of political, geopolitical, social and/or economic instability. In recent years, a number of these countries have experienced varying degrees of one or more of the following: economic, political, or geopolitical instability, civil war, violent conflict, and social unrest. Any of these conditions alone or in combination could disrupt the Group's economic and commercial activities in these countries or geographic areas.

In Africa (excluding North Africa), which represented 23% of the Group's 2019 combined liquids and gas production, certain of these situations of political, social and/or economic instability arose in countries where the Group has production, including Nigeria, which is one of the main contributing countries to the Group's production (refer to point 2.1.3 of chapter 2).

The Middle East and North Africa zone, which represented 23% of the Group's 2019 combined liquids and gas production, has suffered increased political instability in connection with violent conflict and social unrest, particularly in Libya or Iraq. In Yemen, the deterioration of security conditions in the vicinity of the Balhaf site caused the company Yemen LNG, in which the Group holds a stake of 39.62%, to stop its commercial production and export of LNG and to declare force majeure to its various stakeholders in 2015. The plant has been put in preservation mode.

In South America, which represented 5% of the Group's 2019 combined liquids and gas production, certain of the countries in which TOTAL has production have recently suffered from political or economic instability, including Argentina and Venezuela.

The occurrence and scale of incidents related to political, geopolitical, economic or social instability in certain geographic areas or strategic countries cannot be predicted. Such incidents are likely to adversely affect operating conditions, and may lead to a significant drop in production, the stoppage of some projects, and the loss of market share. Such incidents may also expose employees and jeopardize their security, as well as the safety of the Group's facilities. These risks may well have an adverse impact on the Group's operating income and financial condition.

The Group also faces an increased risk of the imposition of sanctions that are increasingly frequent and less and less coordinated at international level, as well as a tightening of regulations relating to export controls.

Economic sanction regimes, combined with export controls, can target those countries in which TOTAL operates, and thus restrict certain types of financing or access to critical technologies, impose restrictions on the export or re-export of a number of goods and services, and hinder the Group's ability to continue its operations, as was the case in 2018 for the South Pars 11 project in Iran.

In addition to particularly heavy financial penalties, the breaching of economic sanction regimes adopted by the United States may lead the authorities to impose measures that freeze companies out of the US market, such as a ban on using USD for funding, while most of the Group's funding occurs in US dollars.

For instance, TOTAL held 24% of its proved reserves and produced 16% of the Group's oil and gas in Russia in 2019. Since July 2014, international economic sanctions have been adopted against certain Russian individuals and entities, including various entities operating in the financial, energy and defense sectors. In this country, TOTAL takes part in major LNG projects (Yamal LNG and Arctic LNG 2) both directly and through its holding in the PAO Novatek company⁽¹⁾. The economic sanctions applicable notably to Cuba, Iran, Russia, Syria and Venezuela are described in point 3.2 of this chapter.

Developments in regulation

The increasing number of regulations, and the constant developments, whether anticipated or not, in the legal and tax frameworks in countries where the Group operates, may have significant operational and financial effects, jeopardize the Group's business model and affect the conduct of its business and its financial conditions, especially given the size of TOTAL and its international dimension.

Conducting its activities in more than 130 countries throughout the world, TOTAL is subject to increasingly numerous, complex and restrictive laws and regulations, particularly regarding health, safety and the environment, as well as business ethics, which generate significant compliance costs. In Europe and the United States, the Group's sites and products are subject to increasingly stringent laws governing the protection of the environment (water, air, soil, noise, protection of nature, waste management and impact assessments, etc.), health (occupational safety and chemical product risk, etc.), the safety of personnel and residents, product quality and consumer protection.

In some jurisdictions, the legal and fiscal framework of operations may be changed unexpectedly. The application of rights, including contractual rights, may be uncertain and the economics of projects called into question. The legal and fiscal framework of the Group's activities, in particular regarding exploration and production, established through concessions, licenses, permits and contracts granted by or entered into with a government entity, a state-owned company or private owners, is specifically subject to risks of renegotiation that, in certain cases, can reduce or challenge the protections offered by the initial legal framework and/or the economic benefit to TOTAL.

In recent years, in various regions globally, TOTAL has observed governments and state-owned companies impose more stringent conditions on companies pursuing exploration and production activities, increasing the costs and uncertainties of the Group's business operations. TOTAL expects this trend to continue.

Potential increasing intervention by governments in such countries can take a wide variety of forms, including:

- the award or denial of exploration and production interests;
- the imposition of specific drilling obligations;
- price and/or production quota controls and export limits;
- nationalization or expropriation of assets;
- unilateral cancellation or modification of license or contract rights;
- increases in taxes and royalties, including retroactive claims and changes in regulations and tax reassessments;
- the renegotiation of contracts;
- the imposition of increased local content requirements;
- payment delays; and
- currency exchange restrictions or currency devaluation.

As a result of the development of the Group's low-carbon activities, particularly in the electricity sector, it is subject to new, mainly local regulations and which may change at an unexpected pace.

The increasing number of legal and tax regulations, which are occasionally inconsistent with each other, and the constant changes, whether anticipated or not, of legal and fiscal frameworks in the countries in which the Group operates create legal instability, which heightens the risk of legal proceedings and promotes an increase in the number of national or transnational disputes. They may effectively cause a material increase in tax and customs duties, as well as costs relating to operations, thus affecting the profitability of projects or the economic value of a number of Group assets, or even oblige the Group to shorten, change and/or stop certain activities or to implement temporary or permanent site closures.

If TOTAL were unable to anticipate changes in regulations or comply in time with new regulations in force in one or more countries where the Group operates, TOTAL may face increased litigation, and be forced to modify and/or stop some of its activities, which may lead to a downturn in the profitability of certain projects, and adversely affect its financial condition and reputation.

(1) A Russian company listed in Moscow and London, in which the Group held a 19.4% stake as of December 31, 2019, which is the maximum limit specified in the initial 2011 agreement between TOTAL and PAO Novatek.

3.1.5 Risks relating to operations

HSE: risk of major accident or damage to third parties and the environment

The Group's activities entail several operating risks such as the risk of a major industrial accident, or damage to third parties or to the environment.

The Group must face the risk of a major industrial accident both at its sites and during transport by sea or land, or during activities related to its operations.

The Group's upstream activities are exposed to risks related to the physical characteristics of oil and gas fields during drilling operations, which can cause blow outs, explosions, fires or other damage, in particular to the environment, and lead to a disruption of the Group's operations or reduce its production. The activities of the Integrated Gas, Renewables & Power, Refining & Chemicals and Marketing & Services business segments are also subject to the risk of a major industrial accident such as fires, explosions, significant damage to the environment, as well as risks related to the overall life cycle of the products manufactured, and the materials used. In addition to its drilling and pipeline transport operations, the Group has at the end of 2019 180 sites and operating zones exposed to the risk of a major industrial accident, which could cause harm or damage to people, property and the environment.

The conduct of the Group's activities, and the nature of some of the products sold, may also entail risks of direct and repeated exposure which have longer-term effects on health and the environment (soil, air, water).

The Group's entities and their legal representatives may be exposed to legal proceedings, notably in the event of damage to human life, bodily injury and material damage, chronic damage to health and environmental damage. Such proceedings could also damage the Group's reputation.

The crisis management plans implemented at the Group level and at subsidiary level to cope with emergency situations may not make it possible to minimize the impacts on third parties or the environment, or exclude the risk that the Group's business and operations may be severely disrupted in a crisis situation. An inability for the Group to resume its activities in a timely manner could prolong the impact of any disruption and thus could have a material adverse effect on its financial condition.

The Group is not insured against all potential risks, and if a major industrial accident were to occur, TOTAL's liability may exceed the maximum coverage provided by its third-party liability insurance. The Group cannot guarantee that it will not suffer any uninsured loss, and there can be no guarantee that such loss would not have a material adverse effect on the Group's financial condition and its reputation.

Development of major projects

The Group's production growth and profitability depend on the delivery of its major development projects.

Growth of production and profitability of the Group rely heavily on the successful execution of its major development projects that are increasingly complex and capital-intensive. These major projects may be affected by the occurrence of a number of difficulties, including, in particular, those related to:

- economic or political risks, including threats specific to a certain country or region, such as terrorism, social unrest or other conflicts;

- negotiations with partners, governments, local communities, suppliers, customers and other third parties;
- obtaining project financing;
- controlling capital and operating costs;
- earning an adequate return in a low price environment (oil, gas and energy prices, etc.);
- respecting project schedules; and
- the timely issuance or renewal of permits and licenses by public agencies.

Failure to deliver any major project that underpins production or production growth could adversely affect the Group's financial condition, including its operating income and cash flow.

Business ethics

Ethical misconduct or non-compliance of the Group, its employees or third parties acting on its behalf with applicable laws and regulations in particular concerning corruption or fraud may well expose TOTAL to criminal and civil proceedings and be damaging to its reputation and shareholder value.

In the energy sector, where the amounts invested may be very high, governments and public authorities are the leading counterparties in this sector that are generally considered as strategic. The Group is present in more than 130 countries, some of which have a high perceived level of corruption according to the index drawn up by Transparency International. The Group advocates a zero tolerance principle for fraud of any kind, particularly corruption and influence peddling.

Non-compliance with laws and regulations as well as ethical or human rights misconduct by TOTAL, its employees or a third party acting on its behalf could expose TOTAL and/or its employees to investigations, administrative or legal proceedings, criminal and civil sanctions and to additional penalties (such as debarment from public procurement). Further measures could, depending on applicable legislation (notably, the US Foreign Corrupt Practices Act, the UK Bribery Act, the French law No. 2016-1691 dated December 9, 2016 relating to transparency, the fight against corruption and modernization of the economy or the Regulation (EU) 2016/679 with regard to the protection of personal data), be imposed by competent authorities, such as the review and reinforcement of the compliance program under the supervision of an independent third party. Any of the above may be damaging to the financial condition, shareholder value or reputation of the Group.

Integration of strategic acquisitions

The addition of an asset or company that presents a strategic interest for the Group may not produce the effects initially expected.

The Group has made and may make further acquisitions in numerous geographic markets, in various activities, and with companies of various sizes. In 2019, acquisitions made by the Group stood at a total of \$5.9 billion. Acquisitions present many challenges (synergies, governance, operating model, key employees, sufficient availability of TOTAL's teams) and require specific adaptation on a case-by-case basis.

If the Group were unable to integrate the assets acquired in line with the conditions provided, so as to achieve the expected synergies, to retain the key employees of the newly acquired company, or if the Group had to bear liabilities that were not yet identified or appropriately assessed at the time of the transaction, then the Group's financial condition and reputation may be adversely affected.

Partnership management

The Group faces risks related to partnership management.

Almost all exploration & production projects and, more recently, a number of projects undertaken by the Group's other business segments, occur via partnerships (including joint-ventures) to spread the investment costs and associated risks across the various partners. In some countries, specifically in Africa, legislation and/or the authorities make TOTAL's presence conditional on the establishment of a joint-venture with a local company. Some partnerships include companies exposed to specific risks linked to the financial markets, like PAO Novatek⁽¹⁾.

A partnership's success depends on many factors, primarily the quality of the partner (specifically technical skills and financial capacity), the quality of agreements negotiated, and the efficiency of the governance framework implemented. Inappropriate or incomplete contractual

agreements, or the partner's breaching of its obligations, specifically those that are financial, legal or ethical, may harm or prevent the development of projects, give rise to disputes and damage the Group's reputation.

Projects developed in partnership may be operated by the Group, by the partners, or by joint-ventures set up for this purpose in the form of a company or via contractual agreements. In cases where the Group's companies are not operators, these companies may have limited influence over, and control of, the behavior, performance and costs of the partnership, their ability to manage risks may be limited. Even if they are not operators, Group companies may be sued by the authorities or by plaintiffs.

The challenges and risks linked with partnerships may also cover the relationships of Group entities with their suppliers.

If TOTAL failed to select high-quality partners, failed to manage its partnerships in an optimum way, or failed to establish an appropriate governance framework, the Group could suffer a loss of profitability at project level, be obliged to incur costs in relation to potential litigation, and face the risk of damage to its reputation should the partner not comply with the rules applicable to the partnership, in particular those covering ethics or compliance.

3.1.6 Innovation

Digital transformation

The Group may be unable to manage its digital transformation at a suitable pace, or on the right scale, which may have an impact on its business model, its organization or its competitiveness.

Across the entire value chain, digital transformation acts on the interaction between the Group and its markets. The Group seeks to benefit from digital to improve its industrial operations, both in terms of availability and costs or performance, offer new services to customers notably in the area of managing and optimizing energy consumption, make progress in new decentralized energies, and reduce its environmental impact. The Group also seeks to integrate digital technology into its operations so as to improve their efficiency, and enable activities and investments to be managed with enhanced performance and agility.

An unsuitable pace or capacity to tailor the Group's organization and skills to the digital transformation may have a negative effect on the Group's financial condition, its reputation, and on its ability to attract and train the necessary human resources.

Technological or market developments

The Group may fail to anticipate appropriately the technological changes related to its main markets, the expectations of its customers and changes in its competitive environment or certain business models, or may not respond to them in an appropriate way and at an appropriate pace.

The Group's activities are carried out in a constantly changing environment with new products, new players, new business models and new technologies continuously emerging. The Group must be able to anticipate these changes, understand the market's challenges, identify and integrate technological developments in order to maintain its competitiveness, maintain a high level of performance and operational excellence, and best meet the needs and demands of its customers. The Group's innovation policy requires significant investment, notably in R&D, of which the expected impact cannot be guaranteed. TOTAL also seeks to be organized so as to favor the selection of relevant projects and the implementation or industrialization of innovative ideas, which requires that the necessary skills be used, found, and retained.

An unsuitable pace of innovation or a technological or market development that is unforeseen or uncontrolled may have a negative effect on the Group's market share, its profitability, its reputation, and its ability to attract the necessary human resources.

(1) A Russian company listed in Moscow and London, in which the Group held a 19.4% stake as of December 31, 2019 (the maximum limit specified in the initial 2011 agreement between TOTAL and PAO Novatek).

3.2 Countries targeted by economic sanctions

Economic sanctions or other restrictive measures could target countries, such as Cuba, Iran, and Syria and/or target actors or economic sectors, such as in Russia or in Venezuela.

U.S. and European restrictions relevant to the Group and information concerning the Group's limited activities or presence in certain targeted countries are outlined in points 3.2.1 and 3.2.2, respectively.

3.2.1 U.S. and European legal restrictions

TOTAL closely monitors applicable international economic sanctions regimes, including those adopted by the United States and the European Union ("EU") (collectively, "Sanctions Regimes"), changes to such regimes and possible impacts on the Group's activities. TOTAL takes steps to ensure compliance with applicable Sanctions Regimes and believes that its current activities in targeted countries do not infringe the applicable Sanctions Regimes. However, the Group cannot assure that current or future regulations related to Sanctions Regimes will not have a negative impact on its business, financial condition or reputation. A violation by the Group of applicable Sanctions Regimes could result in criminal, civil and/or material financial penalties.

A) Restrictions against Cuba

U.S. sanctions against Cuba prohibit any person subject to the jurisdiction of the United States⁽¹⁾ from engaging, directly or indirectly, in any activities or dealings related to Cuba, without government authorization. Therefore, U.S. dollar transactions involving U.S. banks, are prohibited for all transactions related to Cuba. Furthermore, it is prohibited to export and reexport to Cuba all goods subject to the Export Administration Regulations⁽²⁾ without a license or under a license exception (for example, certain medical equipment), as well as to import all goods of Cuban origin into the United States. Cuba is not subject to European economic sanctions.

TOTAL has had an interest in a liquefied petroleum gas (LPG) cylinder filling plant in Cuba since 1997, in accordance with the economic sanctions regime adopted by the United States.

B) Restrictions against Iran

Several countries and international organizations, including the United States and the EU, apply Sanctions Regimes of varying degrees targeting Iran.

On July 14, 2015, the EU, China, France, Russia, the United Kingdom, the United States and Germany entered into an agreement with Iran, known as the Joint Comprehensive Plan of Action (the "JCPOA"), regarding limits on Iran's nuclear activities and relief under certain U.S., EU and UN economic sanctions regarding Iran. On January 16, 2016, the International Atomic Energy Agency ("IAEA") confirmed that Iran had met its initial nuclear compliance commitments under the JCPOA. Therefore, as from that date, UN economic sanctions, most U.S. secondary sanctions (i.e., those covering non-U.S. persons⁽³⁾ and for activities outside U.S. jurisdiction) and most EU economic sanctions were suspended⁽⁴⁾.

Following the withdrawal of the United States from the JCPOA in May 2018, U.S. secondary sanctions concerning the oil industry were re-imposed as of November 5, 2018.

In July 2017, TOTAL signed a contract for a period of 20 years with the National Iranian Oil Company ("NIOC") relating to the development and production of phase 11 (SP11)⁽⁵⁾ of the giant South Pars gas field. TOTAL withdrew from this project and finalized its withdrawal on October 29, 2018. TOTAL ceased all operational activity in Iran before November 4, 2018. As a consequence, TOTAL has had no operational activity in Iran since the re-imposition of U.S. secondary sanctions on the oil industry as of November 5, 2018.

Furthermore, certain U.S. states have adopted regulations with respect to Iran requiring, in certain conditions, state pension funds and other state-owned institutional investors to divest securities in any company that has or had business operations in Iran and state public contracts not to be awarded to such companies. Certain U.S. state regulators have adopted similar initiatives relating to investments by insurance companies. TOTAL believes the impact of these regulations to be limited as the Group ceased all operational activity in Iran before November 4, 2018. Nevertheless, TOTAL continues to closely monitor these measures, which are generally still in effect following the withdrawal of the United States from the JCPOA.

With respect to the Group's activities conducted under the sanctions framework that was in place prior to the entry into force of the JCPOA, the U.S. Department of State made a determination on September 30, 2010 that certain historical activities would not be deemed sanctionable and that, so long as TOTAL acted in accordance with its commitments related to this determination, it would not be regarded as a company of concern for its past Iran-related activities. TOTAL's historical activities in Iran have been conducted in compliance with these Sanctions Regimes. Since 2011, TOTAL has had no production in Iran.

Refer to point 3.2.2 below for information concerning Section 13(r) of the Securities Exchange Act of 1934, as amended, pertaining to activities of the Group related to Iran.

C) Restrictions against Russia

Since July 2014, various Sanctions Regimes have been adopted against Russia, including prohibitions to deal with certain Russian individuals and entities or restrictions on financings, as well as restrictions on investments and exports to Russia.

(1) Cuban Assets Control Regulations (CACR), 31 CFR Part. 515.

(2) Export Administration Regulations (EAR) § 734.3.

(3) "U.S. person" means any U.S. citizen and permanent resident alien wherever he/she is in the world, entity organized under the laws of the United States or any jurisdiction within the United States, including foreign branches, or any person or entity located in the United States.

(4) Certain U.S. and EU human rights-related and terrorism-related sanctions remain in force.

(5) TOTAL was an operator of the SP11 project and held 50.1% alongside the national Chinese company China National Petroleum Corporation ("CNPC") (30%) and Petropars (19.9%), a 100% owned subsidiary of NIOC.

The economic sanctions adopted by the EU since 2014 do not materially affect TOTAL's activities in Russia. TOTAL has been formally authorized by the French government, which is the competent authority for granting authorization under the EU sanctions regime, to continue all its activities in Russia on the Kharyaga, Termokarstovoye and Chernichnoye fields and the Yamal LNG and the Arctic 2 LNG projects.

The United States adopted various economic sanctions, some of which target PAO Novatek⁽¹⁾ ("Novatek"), and the entities in which Novatek (individually or with other similarly targeted persons or entities) owns an interest of at least 50%, including OAO Yamal LNG⁽²⁾ ("Yamal LNG"), Terneftegas⁽³⁾ and OOO Arctic 2 LNG⁽⁴⁾. These sanctions currently restrict U.S. persons from all transactions in, provision of financing for, and other dealings in debt of longer than 60 days maturity. To be compliant with U.S. economic sanctions regime, transactions with these parties processed by U.S. banks must meet the regulatory payment restrictions. The Yamal LNG project's financing was finalized in successive steps in 2016 in compliance with applicable regulations. The financing of the Arctic LNG 2 project is under discussion.

In addition, the U.S. Department of Commerce has imposed restrictions on exports and reexports of certain goods to Russia under the regulation related to the U.S. export control with respect to certain oil projects, which do not materially impact TOTAL's current activities in Russia.

In August 2017, the United States adopted the Countering America's Adversaries Through Sanctions Act ("CAATSA"). This act provides for, in particular, the possibility to impose secondary sanctions against a non-U.S. person who (i) invests in certain types of crude oil projects; (ii) carries out a significant transaction with a Russian individual or entity targeted by a Sanctions Regime; (iii) carries out a significant transaction with an individual/entity party to or acting on behalf of Russian economic intelligence or defense sectors; (iv) carries out a direct and significant investment (beyond certain amounts), which contributes to the development of Russian export pipelines or (v) sells, leases or provides goods, services, technologies or information that could directly and in a significant manner facilitate the maintenance or expansion of the construction, modernization or repair of energy export pipelines by Russia. This act also, on the one hand, reduced the maturity periods of debts restricting the financing of certain entities and, on the other hand, extended, as from January 29, 2018, the prohibition applicable to certain entities to export goods and services outside of Russia in support of exploration or production projects of oil in deep water, beyond the Arctic offshore, or concerning shale formations (shale oil).

On April 6, 2018, the American Department of Treasury's Office of Foreign Assets Control (OFAC) for the first time designated and registered certain Russian oligarchs and political figures, as well as several entities owned by them, on the list of Specially Designated Nationals and Blocked Persons List. Non-U.S. persons may now be sanctioned under secondary sanctions for having carried out significant transactions with the designated persons.

TOTAL continues its activities in Russia in compliance with applicable sanctions regimes.

As of December 31, 2019, TOTAL held 24% of its proved reserves in Russia, where the Group had 16% of its combined oil and gas production in 2019.

D) Restrictions against Syria

The EU adopted measures in 2011 regarding trade with and investment in Syria that are applicable to European persons and to entities constituted under the laws of an EU Member State, including, notably, a prohibition on the purchase, import or transportation from Syria of crude oil and petroleum products. The United States also has adopted comprehensive measures that broadly prohibit trade and investment in and with Syria. Since 2011, the Group ceased its activities that contributed to oil and gas production in Syria and has not purchased hydrocarbons from Syria since that time (refer to point 3.2.2).

E) Restrictions against Venezuela

Since 2014, different Sanctions Regimes were adopted relating to Venezuela, including prohibitions to deal with certain Venezuelan individuals and entities, as well as restrictions on financings.

In August 2017, the United States adopted economic sanctions relating to the Government of Venezuela as well as certain state-owned or controlled entities (collectively, the "Government of Venezuela"), including Petroleos de Venezuela, S.A. ("PdVSA") as well as entities in which PdVSA (individually or with other similarly targeted persons or entities collectively) owns an interest of at least 50% (which includes PetroCedeño S.A., a company in which the Group held an interest of 30.32% as of December 31, 2019). These sanctions prohibit all U.S. persons⁽⁵⁾ from transacting in, providing financing for or otherwise dealing in debt issued by PdVSA as from August 25, 2017 of longer than 90 days maturity. The use of the U.S. dollar is therefore prohibited for these types of financings, including with PetroCedeño S.A.

On January 28, 2019, pursuant to Executive Order 13850, the U.S. Treasury Department's Office of Foreign Asset Control (OFAC) designated PdVSA on the list of Specially Designated Nationals and Blocked Persons List, as well as any entities in which PdVSA owns an interest of at least 50%, including PetroCedeño S.A.

In August 2019, the United States ordered the blocking of all property and interests in property of the Government of Venezuela that come into the possession or control of U.S. persons and prohibits U.S. persons from dealing in any such property. As a practical matter, these sanctions prohibit U.S. persons from directly or indirectly engaging in any transactions with the Government of Venezuela. This action did not create a U.S. comprehensive embargo against Venezuela and did not have a significant impact on TOTAL's activities.

Since November 13, 2017, Venezuela has also been subject to European sanctions, which mainly provide for the freezing of assets of certain individuals and entities, a military embargo as well as restrictions on the exportation of certain goods.

To date, TOTAL has organized the management of its interest to ensure compliance with applicable sanctions.

On December 31, 2019, less than 0.5% of the Group's combined oil and gas production came from Venezuela in 2019.

(1) A Russian company listed on the Moscow and London stock exchanges and in which the Group held an interest of 19.4% as of December 31, 2019.

(2) A company jointly owned by PAO Novatek, Total E&P Yamal (20.02%), YAYM Limited and China National Oil and Gas Exploration Development Corporation – CNODC, a subsidiary of CNPC.

(3) A company jointly owned by PAO Novatek and Total Termokarstovoye SAS (49%).

(4) A company jointly-owned by PAO Novatek, Total E&P Salmanov (10%), CNODC Dawn Light Limited, CEPR Limited et Japan Arctic LNG as of December 31, 2019.

(5) "U.S. person" means any U.S. citizen and permanent resident alien wherever he/she is in the world, entity organized under the laws of the United States or any jurisdiction within the United States, including foreign branches, or any person or entity located in the United States.

3.2.2 Information concerning certain limited activities in Iran and Syria

Information concerning TOTAL's activities related to Iran that took place in 2019 provided in this section is disclosed according to Section 13(f) of the Securities Exchange Act of 1934, as amended ("U.S. Exchange Act").

In addition, information for 2019 is provided concerning the payments made by Group affiliates to, or additional cash flow that operations of Group affiliates generate for, governments of any country identified by the United States as state sponsors of terrorism (currently, Iran, North Korea, Syria and Sudan)⁽¹⁾ or any entity controlled by those governments.

TOTAL believes that these activities are not subject to sanctions. For more information on certain U.S. and EU restrictions relevant to TOTAL in these jurisdictions, refer to point 3.2.1 of this chapter.

A) Iran

The Group's operational activities related to Iran were stopped in 2018 following the withdrawal of the United States from the Joint Comprehensive Plan of Action ("JCPOA") in May 2018 and prior to the re-imposition of U.S. secondary sanctions on the oil industry as of November 5, 2018.

Statements in this section concerning affiliates intending or expecting to continue activities described below are subject to such activities continuing to be permissible under applicable international economic sanctions regimes.

a) Exploration & Production

The Tehran branch office of Total E&P South Pars S.A.S. (a wholly-owned affiliate), which opened in 2017 for the purposes of the development and production of phase 11 of the South Pars gas field, ceased all operational activities prior to November 1, 2018. In addition, since November 2018, Total Iran BV maintains a local representative office in Tehran with few employees solely for non-operational functions. Concerning payments to Iranian entities in 2019, Total Iran BV and Elf Petroleum Iran collectively made payments of approximately IRR 1.87 billion (approximately €39,500)⁽²⁾ to the Iranian administration for taxes and social security contributions concerning the staff of the aforementioned representative office. None of these payments were executed in U.S. dollars.

Since November 30, 2018, Total E&P UK Limited ("TEP UK"), a wholly-owned affiliate, holds a 1% interest in a joint-venture relating to the Bruce field in the United Kingdom (the "Bruce Field Joint-Venture") with Serica Energy (UK) Limited ("Serica") (98%, operator) and BP Exploration Operating Company Limited ("BPEOC") (1%), following the completion of the sale of 42.25% of TEP UK's interest in the Bruce Field Joint-Venture on November 30, 2018 pursuant to a sale and purchase agreement dated August 2, 2018 entered into between TEP UK and Serica. Upon closing of the transaction on November 30, 2018, all other prior joint-venture partners also sold their interests in the Bruce Field Joint-Venture to Serica (BPEOC sold 36% retaining a 1% interest, BHP Billiton Petroleum Great Britain Limited ("BHP") sold its entire interest of 16% and Marubeni Oil & Gas (U.K.) Limited ("Marubeni") sold its entire interest of 3.75%).

The Bruce Field Joint-Venture is party to an agreement governing certain transportation, processing and operation services provided to another joint-venture at the Rhum field in the UK (the "Bruce Rhum Agreement"). The licensees of the Rhum field are Serica (50%, operator) and the Iranian Oil Company UK Ltd ("IOC UK"), a subsidiary of NIOC (50%), an Iranian government-owned corporation. Under the terms of the Bruce Rhum Agreement, the Rhum field owners pay a proportion of the operating costs of the Bruce field facilities calculated on a gas throughput basis.

In November 2018, the U.S. Treasury Department's Office of Foreign Asset Control ("OFAC") granted a conditional license to BPEOC and Serica authorizing provision of services to the Rhum field following the re-imposition of U.S. secondary sanctions. The principal condition of the license is that the ownership of shares in IOC UK by Naftiran Intertrade Company Limited (the trading branch of the NIOC) are transferred into and held in a Jersey-based trust, thereby ensuring that the Iranian government does not derive any economic benefit from the Rhum field so long as U.S. sanctions against these entities remain in place. IOC UK's interest is managed by an independent management company established by the trust and referred to as the "Rhum Management Company" ("RMC"). Where necessary TEP UK liaises with RMC in relation to the Bruce Rhum Agreement and TEP UK expects to continue liaising with RMC on the same basis in 2020.

In October 2019, OFAC renewed and extended the conditional license to Serica authorizing the provision of services to the Rhum field until February 2021. In addition, OFAC informed that, to the extent that the license remains valid and Serica represents that the conditions set out in the license are met, activities and transactions of non-U.S. persons involving the Rhum field or the Bruce field, including in relation to the operation of the trust, IOC UK and RMC will not be exposed to U.S. secondary sanctions with respect to Iran.

IOC UK's share of costs incurred under the Bruce Rhum Agreement have been paid to TEP UK in 2019 by RMC. In 2019, based upon TEP UK's 1% interest in the Bruce Field Joint-Venture and income from the net cash flow sharing arrangement with Serica, gross revenue to TEP UK from IOC UK's share of the Rhum field resulting from the Bruce Rhum Agreement was approximately £8 million. This amount was used to offset operating costs on the Bruce field and as such, generated no net profit to TEP UK. This arrangement is expected to continue in 2020.

Early 2019, TEP UK continued to act as agent for BHP and Marubeni pursuant to the agency agreement entered into in June 2018 between BHP, Marubeni and TEP UK according to which TEP UK received payments from RMC in relation to BHP and Marubeni's share of income from the Bruce Rhum Agreement (the "Agency Agreement"). The payments related to the period before November 30, 2018, prior to BHP and Marubeni divesting their respective interest in the Bruce Field Joint-Venture to Serica. In 2019, total payment received on behalf of BHP and Marubeni by TEP UK under this arrangement was approximately £1.1 million. TEP UK transferred all income received under the Agency Agreement to BHP and Marubeni and provided the service on a no profit, no loss basis. The Agency Agreement was terminated on June 27, 2019 following receipt of all payments relating to the period up to November 30, 2018.

(1) The Group is not present in North Korea. Other than fees related to the renewal of the registration of an international trademark with the world intellectual property organization (which includes North Korea) paid in 2019, TOTAL is not aware of any of its activities in 2019 having resulted in payments to, or additional cash flow for, the government of this country.

(2) Converted using the average exchange rate for fiscal year 2019, as published by the Central Bank of Iran.

TEP UK is also party to an agreement with Serica whereby TEP UK uses reasonable endeavors to evacuate Rhum NGL from the St Fergus Terminal (the "Rhum NGL Agreement"). TEP UK provides this service subject to Serica having title to all of the Rhum NGL to be evacuated and Serica having a valid license from OFAC for the activity. The service is provided on a cost basis, and TEP UK charges a monthly handling fee that generates an income of approximately £35,000 per annum relating to IOC UK's 50% stake in the Rhum field. After costs, TEP UK realizes little profit from this arrangement. TEP UK expects to continue this activity in 2020.

TOTAL S.A. paid approximately €2,000 to Iranian authorities related to various patents⁽¹⁾ in 2019. Similar payments are expected to be made in 2020.

b) Other business segments

In 2019, TOTAL S.A. paid fees of approximately €1,500 to Iranian authorities related to the maintenance and protection of trademarks and designs in Iran. Similar payments are expected to be made in 2020.

Refining & Chemicals

In 2019, Hanwha Total Petrochemicals ("HTC"), a South Korean joint-venture in which each of Total Holdings UK Limited (a wholly-owned affiliate) and its partner Hanwha General Chemicals holds a 50% interest, reported some activity in Iran. In November 2018, South Korea was granted a significant reduction exemption waiver (the "SRE waiver") allowing it to import Iranian condensate from NIOC for six months. In that context, HTC purchased approximately 13.5 Mb of condensates from NIOC for approximately KRW 1,000 billion (approximately €760 million)⁽²⁾ from January 2019 to April 2019. HTC stopped purchasing from NIOC thereafter. These condensates are used as raw material for certain of HTC's steam crackers.

In 2019, Total Research & Technology Feluy ("TRTF", a wholly-owned affiliate) and Total Raffinage Chimie ("TRC", a wholly-owned affiliate) paid fees related to three patents to Iranian authorities for an amount of approximately €1,400.

Marketing & Services

In 2019, Total Marketing France ("TMF", a wholly-owned affiliate), provided fuel payment cards to the Iranian embassy located in Neuilly-sur-Seine (France) and the Iranian delegation to UNESCO in Paris (France), to be used in the Group's service stations. In 2019, this activity generated gross revenue of approximately €30,300 and net profit of approximately €2,200. The Group expects to continue this activity in 2020.

In 2019, as part of its refueling activities in France, Caldeo, a company wholly-owned by TMF, delivered fuel oil to the Iranian embassy in Neuilly-sur-Seine (France). In 2019, this activity generated gross revenue of approximately €1,500 and net profit of approximately €14. The Group expects to continue this activity in 2020.

In 2019, Total Belgium (a wholly-owned affiliate) provided fuel payment cards to the Iranian embassy in Brussels (Belgium), to be used in the Group's service stations. In 2019, this activity generated gross revenue of approximately €11,000 and net profit of €4,000. The Group expects to continue this activity in 2020.

B) Syria

Since early December 2011, TOTAL has ceased its activities that contribute to oil and gas production in Syria and maintains a local office solely for non-operational functions. In late 2014, the Group initiated a downsizing of its Damascus office and reduced its staff to few employees. Following the termination of their employment contracts in May 2019, the Damascus office was closed. In 2019, TOTAL paid approximately €6,500 to the Syrian government as contributions for social security in relation to the aforementioned staff of the Damascus office before it was closed.

3.3 Internal control and risk management procedures

The following information was prepared with the support of several functional divisions of the Company, and in particular the Audit & Internal

Control, Legal and Finance Divisions. It was examined by the Audit Committee, then approved by the Board of Directors.

3.3.1 Fundamental elements of the internal control and risk management systems

The Group is structured around its business segments, to which the Group's operational entities report. The business segments' management is responsible, within its area of responsibility, for ensuring that operations are carried out in accordance with the strategic objectives defined by the Board of Directors and General Management. The functional divisions at the Holding level help General Management define norms and standards, oversee their application and monitor activities. They also lend their expertise to the operational divisions.

The Group's internal control and risk management systems are structured around a three-level organization – Holding, business segments, operational entities – where each level is directly involved and accountable in line with the level of delegation determined by General Management.

General Management constantly strives to maintain an efficient internal control system, based on the framework of the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In this framework, internal control is a process intended to provide reasonable assurance that the objectives related to operations, reporting and compliance with applicable laws and regulations are achieved. As for any internal control system, it cannot provide an absolute guarantee that all risks are completely controlled or eliminated.

The COSO framework is considered equivalent to the reference framework of the French Financial Markets Authority (Autorité des marchés financiers). The Group has also chosen to rely on this framework as part of its obligations under the Sarbanes-Oxley Act. The Group's internal control and risk management systems are therefore based on the five components of this framework: control environment, risk assessment, control activities, monitoring, and information and communication.

(1) Section 560.509 of the U.S. Iranian Transactions and Sanctions Regulations provides an authorization for certain transactions in connection with patent, trademark, copyright or other intellectual property protection in the United States or Iran, including payments for such services and payments to persons in Iran directly connected to intellectual property rights, and TOTAL believes that the activities related to the industrial property rights described in this point 3.2.2 are consistent with that authorization.

(2) Converted using the average exchange rate for fiscal year 2019, as published by Bloomberg.

The Group's risk management system draws on the main international standards (COSO Enterprise Risk Management integrated framework, ISO 31000: 2018 – Risk management) as well as on French standards (Reference framework of the French Financial Markets Authority). The internal Risk Management, Internal Control and Audit Charter forms the common framework on which the Group relies to ensure control of its activities.

The Group's internal control and risk management systems cover the processes of the fully consolidated entities. Regarding acquisitions, the Group's control environment is implemented in the acquired entities after a critical analysis of their own systems.

3.3.2 Control environment

Integrity and ethics

TOTAL's control environment is based primarily on its Code of Conduct, which spells out the Group's five values, including Respect for Each Other, which is reflected in the areas of integrity (fraud and corruption), respect for human rights, as well as environment and health. The principles of the Code of Conduct are set forth in a number of guides, such as the Business Integrity Guide and the Human Rights Guide. These documents are distributed to employees and are available on the intranet. They also set out the rules of individual behavior expected of all employees in the countries where the Group is present. Similarly, a Financial Code of Ethics sets forth the obligations applicable to the Chairman and Chief Executive Officer, the Chief Financial Officer, the Vice President of the Corporate Accounting Division and the financial and accounting officers of the principal Group activities.

As a priority of General Management, compliance programs are deployed at Group level, in particular for the prevention of corruption, fraud and competition law infringement, as well as the protection of personal data. The anti-corruption and anti-fraud programs include reporting and control actions (reviews and audits). Ethical assessments are also conducted (refer to point 5.7 of chapter 5). In these areas, the Group relies on the Compliance network, the Ethics Officers' network and the Ethics Committee, the role of which is key to listen and provide assistance.

Governance, authorities and responsibilities

The Board of Directors, with the support of its Committees, ensures that the internal control functions are operating properly. The Audit Committee ensures that General Management implements internal control and risk management procedures based on the risks identified, such that the Group's objectives are achieved.

General Management ensures that the organizational structure and reporting lines plan, execute, control and periodically assess the Group's activities. It regularly reviews the relevance of the organizational structures so as to be able to adapt them quickly to changes in the activities and in the environment in which they are carried out.

The principles of control fit into the framework of the rules of corporate governance. In particular, these rules task the Board of Directors' Audit Committee with monitoring the efficiency of the internal control and risk management systems, and of the internal audit performed to assess the risk management systems at all levels of the organization and make recommendations for their improvement. The Audit Committee also monitors the process of producing accounting and financial information, in order to guarantee its integrity.

Approximately 400 employees monitor the internal control systems within the Group. The assessment of the internal control and risk management system is mainly overseen by the Audit & Internal Control Division.

The business segments' and operational entities' general management bodies are responsible for the internal control and risk management system within the scope of their responsibility.

The Group has also defined central responsibilities that cover the three lines of internal control: (1) operational management, which is responsible for implementing internal control, (2) support functions (such as Finance, Legal, Human Resources, etc.), which prescribe the internal control systems, verify their implementation and effectiveness and assist operational employees, and (3) internal auditors who, through their internal control reports, provide recommendations to improve the effectiveness of the system.

An accountability system is defined and formalized at all levels of the organization, through organization notes, organization charts, appointment notes, job descriptions and delegations of powers. Each business segment has established, in accordance with the Group's instructions, clear rules applicable to its own scope.

TOTAL has a Group framework that is supplemented by a series of practical recommendations and feedbacks. Like the Group's organization, this framework has a three-level structure: a Group level, frameworks for each business segment, and a specific framework for each significant operational entity.

The Group's Audit & Internal Control Division pursues a continual process aimed at strengthening the assessment of the role and involvement of all employees in terms of internal control. Training initiatives tailored to the various stakeholders involved in the internal control process are regularly launched within the Group.

Control activities and assessment

Any activity, process or management system may be the subject of an internal audit conducted by the Group Audit in accordance with the international framework of the internal audit and its Code of Ethics. The Group's Audit & Internal Control Division also conducts joint audits with third parties and provides assistance (advice, analysis, input regarding methodology). The audit plan, which is based on an analysis of the risks and risk management systems, is submitted annually to the Executive Committee and the Audit Committee. The Group's Audit & Internal Control Division employed 75 people and conducted about 150 internal audit missions in 2019.

The Group regularly examines and assesses the design and effectiveness of the key operational, financial and information technology controls related to internal control over financial reporting, in compliance with the Sarbanes-Oxley Act.

In 2019, this assessment was performed with the assistance of the Group's main entities and the Audit & Internal Control Division. The system in place covers:

- the most significant entities, which assess the key operational controls of their main processes and respond to a Group questionnaire for assessing the internal control framework;
- other less significant entities, which respond only to the Group questionnaire for assessing the internal control framework.

These two categories of entities, which include the central functions of the business segments and the Holding, account for approximately 80% and 10%, respectively, of the financial aggregates in the Group's Consolidated Financial Statements.

The statutory auditors also review the internal controls that they deem necessary as part of their certification of the financial statements. Pursuant to American regulations, they reviewed in 2019 the

implementation of the Group's internal control framework and the design and effectiveness of key internal controls in its main entities regarding financial reporting. Based on their review, the statutory auditors stated that they had no remarks on the information presented on internal control and risk management procedures.

The reports on the work performed by the Group Audit and statutory auditors are periodically summarized and presented to the Audit Committee and, thereby, to the Board of Directors. The Senior Vice President Audit & Internal Control attended all Audit Committee meetings held in 2019. The Audit Committee also meets with the statutory auditors at least once a year without the presence of any Company representatives.

If areas of improvement are identified by these internal audits and operational controls, then corrective action plans are drawn up and shared with operational management, who, along with the Group's Audit & Internal Control Division, monitor their implementation closely.

Based on the internal reviews, General Management has reasonable assurance of the effectiveness of the Group's internal control.

3.3.3 Risk assessment and management

3.3.3.1 General principles

To implement its strategy, General Management ensures that clear and precise objectives are defined at the various levels of the organization with regard to operations, reporting and compliance.

Operational objectives focus on the definition and efficient use of human, financial and technical resources. In particular, they are formalized during the budgetary processes and in the long-term plan and are regularly monitored as part of the self-assessment process.

The monitoring of operational objectives (financial and non-financial) helps in making decisions and monitoring the performance of activities at each level of the organization.

The Group implements a global risk management system that is an essential factor in the deployment of its strategy. This system relies on a continuous process of identifying and analyzing risks in order to determine those that could prevent the achievement of TOTAL's goals, on an organization at Group level, and in business segments, and on management systems.

The Executive Committee, with the assistance of the Group Risk Management Committee (GRMC), is responsible for identifying and analyzing internal and external risks that could impact the achievement of the Group's objectives. The main responsibilities of the GRMC include ensuring that the Group has a mapping of the risks to which it is exposed and that suitable risk management systems are in place. The GRMC's work focuses on continuously improving risk awareness and the risk management systems.

Risk mapping, which has been carried out since the 2000s, is a dynamic process that has taken shape over the years. The Group's risk map feeds the audit plan, which is based on an analysis of the risks and the risk management systems, and the work of the GRMC.

The GRMC relies on the work carried out by the business segments and functional divisions, which concurrently establish their own risk mapping. The business segments are responsible for defining and implementing a risk management policy suited to their specific activities. However, the handling of certain transverse risks is more closely coordinated by the respective functional divisions.

Regarding commitments, General Management exercises operational control over TOTAL's activities through the Executive Committee's approval of investments and expenses that exceed defined thresholds. The Risk Committee (CORISK) is tasked with reviewing these projects in advance, and in particular, with verifying the analysis of the various associated risks.

3.3.3.2 Implementation of the organizational framework

The Group Risk Management Committee (GRMC)

The GRMC is chaired by the Group's Chief Financial Officer, who is a member of the Executive Committee, and includes the Senior Vice Presidents of the corporate functions, together with the chief administrative officers or chief financial officers from business segments. The Group's Chief Financial Officer attends all meetings of the Board of Directors' Audit Committee, thus strengthening the link between the GRMC and the Audit Committee.

The GRMC meets at least five times a year. At each meeting, the participants share any potential risks they have identified and presentations are given on one or more risk-related topics, during which the members of the GRMC are invited to cast a critical eye over the subject, question the work done including related action plans and audit reports and, if applicable, provide additional information or clarification in order to enhance the understanding of the risk and improve the risk management systems. The GRMC can request actions to be taken.

The work of the GRMC is led by the Audit & Internal Control Division, which assists contributors in preparing presentations and acts as the Committee's Secretary. In this capacity, the Audit & Internal Control Division reports annually on the work of the GRMC to the Executive Committee, and to the Audit Committee in the presence of the Group's Chief Financial Officer, who chairs the GRMC.

The Risk Committee (CORISK)

The Risk Committee is chaired by a member of the Executive Committee, the President of Strategy & Innovation or, during her absence, the Chief Financial Officer. It is made up of representatives from the corporate Strategy & Climate, Finance, Legal, Insurance, HSE and Civil Society Engagement divisions.

3 Risks and control

Internal control and risk management procedures

The Risk Committee meets on the same schedule as the Executive Committee. Any project submitted to the Executive Committee (and therefore giving rise to a financial commitment that exceeds certain thresholds) is first examined by the Risk Committee.

Following the review by the Risk Committee of the risks associated with the project submitted, a memorandum from the Strategy and Climate division reflecting its comments is sent to the Executive Committee.

The Audit & Internal Control Division

The Risk team of the Audit & Internal Control Division is responsible for producing and continuously updating the Group's risk mapping. To this end, it uses all of the risk-mapping work carried out across the Group, in the business segments and in the functional divisions, the results of all audits and internal control activities, the action plans resulting from this work and the monitoring of their implementation, structured feedback, benchmarks and other external information sources, regular interviews with the Group's executive officers, and all information gathered during GRMC meetings and the preparation for these meetings.

3.3.3.3 Systems in place

Risks management systems are implemented in the operational and financial fields. The main risk management systems covering social challenges, health, safety, industrial security, environment, climate change-related challenges and the prevention of corruption are presented in the Statement of Non-Financial Performance (chapter 5).

Regarding financial risks

The management and conditions of use of financial instruments are governed by strict rules, defined by the Group's General Management, which provide for centralization by the Treasury Division of liquidity, interest and exchange rate positions, management of financial instruments and access to capital markets. The Group's financing policy consists in incurring long-term debt at a floating or fixed rate, depending on the Group's general corporate needs, and the interest rate environment, in dollars or euros.

The Group's cash balances, which mainly consist of dollars and euros, are managed to maintain liquidity based on daily interest rates in the given currency. Ceilings are set for transactions exceeding one month, with placements not to exceed 12 months. TOTAL S.A. also has committed credit facilities granted by international banks. These credit facilities, along with the Group's net cash position, allow it to continually maintain a high level of liquidity in accordance with targets set by General Management.

In terms of counterparty risk linked to financial transactions, the Group adheres to a cautious policy, and only makes commitments with institutions featuring a high degree of financial soundness, as assessed based on a multi-criteria analysis. An overall credit limit is set for each authorised financial counterparty and allocated amongst the affiliates and the Group's central treasury entities according to the Group's financial needs. In addition, to reduce market valuation risk on its commitments, the Treasury Division has entered into margin call agreements with its counterparties in compliance with applicable regulations. Moreover, since December 21, 2018, pursuant to Regulation (EU) No. 648/2012 on OTC derivatives, central counterparties and trade repositories (EMIR), any new interest rate swap (excluding cross currency swaps) entered into by a Group's entity is centrally cleared.

The Group seeks to minimize its currency exposure, on the one hand, by financing its long-term assets in the functional currency of the entity to which they belong and, on the other hand, by systematically hedging

the currency exposure generated by commercial activity. These risks are managed centrally by the Treasury Division, which operates within a set of limits defined by General Management.

The policy for managing risks related to financing and cash management activities, as well as the Group's currency exposure and interest rate risks, are described in detail in Note 15 to the Consolidated Financial Statements (point 8.7 of chapter 8).

The Group finances its activities either by using its own resources, either by issuing bonds on international markets, or by obtaining financing for certain project from financial institutions and banks.

The Group's financing strategy is based firstly on maintaining significant cash resources allowing it to meet short-term requirements. The Group has established a medium- to long-term debt policy to ensure that cash is available to cover any significant acquisitions or major new projects.

The tightening up of the constraints set by some financial institutions and banks on financing activities linked to the exploration, production and sale of oil and gas could mean that the Group places further emphasis on the diversification towards financial institutions and banks. The Group will continue to rely on the long-term relationships already formed with numerous financial entities.

Regarding risks relating to security

With regard to **security**, the Group has put in place means to analyze threats and assess risks in order to take preventive measures to limit its exposure to security risks in the countries where it operates. Facing various types of threat, the Group ensures that people and assets are protected efficiently and accountably by conducting expert appraisal, consulting and control activities. In particular, it defines security measures for operational divisions and various entities, ensures that these measures are applied and can also provide expertise in the event of a crisis. It relies on a network of Country Chairs assisted by Country Security Officers and on a continuously updated security framework. The production, updating and distribution of this framework are part of the risk management system.

The Group also deploys policies to retain documents and to protect personal data and the security of its information assets in order to tackle ever-increasing levels of legal and safety-related risks.

Regarding risks relating to information systems' security

In order to maintain information systems that are appropriate to the organization's needs and limit the risks relating to **information systems' security** and their data, TOTAL's Information Systems Division has developed and distributed governance and security rules that describe the recommended infrastructure, organization and procedures. These rules are implemented across the Group under the responsibility of the various business segments. The Group has an Operational Security Center to detect and analyze information system security events.

To address cyber threats, the Group conducts specific risk analyses permitting the definition and implementation of appropriate security controls concerning information systems. In the event of a cyberattack on the information systems, a cyber crisis management process has been set up within the Group. In addition, cyber crisis management exercises based on specific risk scenarios are organized each year and used for training at the Group's various entities. In order to prevent cyber risks, awareness and training actions are also carried out regularly with the Group's employees.

Regarding risk prevention relating to changes in the regulatory environment and business ethics

Reporting to General Management, with a point of contact on the Executive Committee in the form of the Group's Chief Financial Officer, the Legal Division is responsible for establishing and implementing the Group's legal policy. It coordinates legal activities in close conjunction with the branch legal departments and supports the various Group entities in order to meet their legal needs. The Group's lawyers monitor their specific areas of expertise. The Compliance and Legal Risk Management team is responsible, at Group level, for formulating the corruption and fraud prevention policies, advising on and preventing risks relating to international economic sanctions, devising and overseeing the implementation of the corresponding training programs, as well as coordinating the network of anti-corruption and anti-fraud compliance officers.

Since 2015, the Group has implemented a **fraud fighting** and prevention program and has established a range of procedures and control systems that help preventing and detecting different types of fraud. This effort is supported by the business principles and values of individual behavior described in the Group's Code of Conduct and other standards applied by the Group's business segments.

The Group has issued a directive for handling incidents of fraud that has been widely distributed to employees, and has created an alert system that any employee can use to report acts including those that may constitute fraud.

The Group's anti-fraud compliance program particularly includes an e-learning module for all Group employees, a guide "Prevention and fight against fraud", a map of the risks of fraud in the Group, updated in 2019, a "Typological guide of the risks of fraud" that includes descriptions of the main risks and was published in 2016, and video campaigns to raise awareness of the major risks of fraud, launched at the end of 2016 and then again in 2018. This program is deployed by the network of fraud risk coordinators in the business segments and operational entities. The role of coordinator is usually performed by the Compliance Officer. Fraud risk analyses are also carried out in the subsidiaries.

For information on corruption prevention, refer to point 5.8.1 of chapter 5.

With regard to **international economic sanctions** and **export control**, the Group complies with the applicable regulations, particularly those set out by the European (EU) and American (US) authorities. Internal processes (due diligence, audit and business segment assistance missions, training programs) are used to ensure that the Group's operations are compliant in this area. The Economic Sanctions and Export Control division is a center of excellence serving the Group's operational entities. Its role includes legislative and regulatory monitoring, analyzing all of the Group's strategic transactions and projects in relation to sanctioned countries and ensuring that they comply with EU and US regulations on international sanctions and export control.

A Group policy aimed at ensuring compliance with, and preventing infringement of, **competition law** has been in place since 2014 and is a follow-up to the various measures previously implemented by the business segments. Its deployment is based, in particular, on management and staff involvement, training courses that include an e-learning module, and an appropriate organization.

Regarding the prevention of **conflicts of interest**, each of the Group's senior executives completes an annual statement of the absence of conflicts of interest (or, if applicable, declaring any conflicts of interest to which they may be subject). By completing this declaration, each senior executive also agrees to report to his or her supervisor any conflict

of interest that he or she has had, or of which he or she is aware in performing his or her duties. The "Conflicts of Interest" internal rule also reminds all employees of their obligation to report to their supervisor any situation that might give rise to a conflict of interest.

In order to prevent **market abuse** linked to trading on the financial markets, the Group applies a policy based in particular on internal ethics rules that are regularly updated and distributed. In addition, the Group's senior executives and certain categories of employee, in light of the positions they hold, are asked to refrain from carrying out any transactions, including hedging transactions, on TOTAL shares or ADRs and in collective investment plans (FCPE) invested primarily in Total shares (as well as derivatives related to such shares) on the day on which the Company discloses its periodic result publications (quarterly, interim and annual), as well as during the 30 calendar-day period preceding such date. An annual campaign specifies the blackout periods and rules applicable to those affected.

To mitigate the risks of third parties infringing its **intellectual property rights** and the leak of know-how, TOTAL protects its rights under research partnership agreements negotiated by the Group's intellectual property specialists, the terms and conditions of which are consistent with the Group's industrial and commercial strategy. The Group has a policy of filing and maintaining patents, monitors technological developments in terms of freedom of use, and takes, when necessary, all appropriate measures to ensure the protection of its rights.

In addition, since some of its employees have access to confidential documents while performing their duties, TOTAL has adopted internal rules concerning the management of confidential information. The Group's intellectual property specialists also carry out awareness-raising activities with Group employees, so that they are better informed about restrictions that may apply to the use of information and data.

Regarding risks relating to partnerships management

The procedures for selecting the Group's partners (joint-ventures and suppliers) and managing the different stages in the life cycle of each partnership are governed by structured internal frameworks, applied by all TOTAL entities.

In order to ensure that the process of selecting future partners for the creation of a joint company and/or the performance of a joint project is robust, the Group's framework includes the conduct of due diligence relating to the partner's HSE, technical, legal and financial activities and operating methods. A corruption risk analysis is also carried out.

The agreements signed with these third parties are mainly drafted by multi-disciplinary negotiation teams. Training programs, at Group and business segment level, ensure that the necessary knowledge and skills are transferred to ensure that contracts are correctly prepared, activities are monitored and the Group's interests are represented within the partnership.

The relevant operational entity puts in place the structure required to monitor and manage the partnership.

Partnerships signed with third party suppliers are managed under the Group's dedicated procurement system (structure, rules and tools). This system includes a supplier evaluation and qualification process, and the monitoring and coordination of contract performance (refer to point 5.10 of chapter 5).

Finally, regular audits specified in the partnership agreements (joint-ventures and suppliers) complete the system.

3.3.4 Main characteristics of the internal control and risk management procedures relating to the preparation and processing of accounting and financial information

Accounting and financial internal control covers the processes that produce accounting and financial data, and mainly the financial statements processes and the processes to produce and publish accounting and financial information. The internal control system aims to:

- conserve the Group's assets;
- comply with accounting regulations, and properly apply standards and methods to the production of financial information; and
- guarantee the reliability of accounting and financial information by controlling the production of accounting and financial information and its consistency with the information used to produce the control panels at every appropriate level of the organization.

At Group level, the Finance Division, which includes the Accounting Division, the Budget & Financial Control Division and the Tax Division, is responsible for the production and processing of accounting and financial information. The scope of the internal control procedures relating to the production and processing of financial and accounting information includes the parent company (TOTAL S.A.), and all fully consolidated entities or entities whose assets are under joint control.

Refer to point 4.1.2.3 of chapter 4 for a description of the role and the missions of the Audit Committee. These missions are defined by Directive 2014/56/EU and regulation (EU) No. 537/2014 regarding statutory audits.

3.3.4.1 Production of accounting and financial information

Organization of the Financial function

Dedicated teams implement the accounting and financial processes in the areas of consolidation, tax, budget and management control, financing, cash positions and information systems. The entities, business segments and General Management are respectively responsible for accounting activities.

The Accounting Division, which is part of the Finance Division, is responsible for drawing up the Consolidated Financial Statements and manages the Group's network of accounting teams.

The tax function made up of a network of tax experts in the Holding, the business segments and the entities, monitors changes in local and international rules. It oversees the implementation of the Group's tax policy.

Management control contributes to the reinforcement of the internal control system at every level of the organization. The network of management controllers in the entities and the business segments is supervised by the Budget & Financial Control Division. This department also produces the monthly control panel, the budget and the long-term plan for the Group.

The Treasury Division implements the financial policy, and in particular the processing and centralization of cash flows, the debt and liquidity investment policy and the coverage of currency exposure and interest rate risks.

The Information Systems Division makes decisions on the choice of software suited to the Group's accounting and financial requirements. These information systems are subject to developments to reinforce the task separation system and to improve the control of access rights. Tools are available to make sure that access rights comply with the Group's rules in this area.

Consolidated Financial Statements process

The Accounting Division, which reports to the Finance Division, prepares the Group's quarterly Consolidated Financial Statements according to IFRS standards, on the basis of the consolidated reporting packages prepared by the entities concerned. The Consolidated Financial Statements are examined by the Audit Committee, then approved by the Board of Directors.

The main factors in the preparation of the Consolidated Financial Statements are as follows:

- the processes feeding the individual accounts used to prepare the reporting packages for consolidation purposes are subject to validation, authorization and booking rules;
- the consistency and reliability of the accounting and control data are validated for each consolidated entity and at each appropriate level of the organization;
- a consolidation tool, supervised by the Accounting Division, is used by each consolidated entity and the Group. It guarantees the consistency and reliability of the data at each appropriate level of the organization;
- a consolidation reporting package from each entity concerned is sent directly to the Accounting Division. It is used to optimize the transmission and the completeness of the information;
- a corpus of accounting rules and methods is formally defined. Its application is compulsory for all the consolidated entities in order to provide uniform and reliable financial information. This framework is built according to IFRS accounting standards. The Accounting Division centrally distributes this framework through regular and formal communication with the business segment managers, formal procedures and a Financial Reporting Manual that is regularly updated. In particular, it specifies the procedures for the booking, identification and valuation of off-balance sheet commitments;
- new accounting standards under preparation and changes to the existing framework are monitored in order to assess and anticipate their impacts on the Consolidated Financial Statements;
- an accounts plan used by all the consolidated entities is formally set forth in the Financial Reporting Manual, specifying the content of each account and the procedures for the preparation of the reporting packages for consolidation purposes;
- the account closing process is supervised and is based mainly on the formalization of economic assumptions, judgments and estimates, treatment of complex accounting transactions and compliance with established timetables announced through Group instructions disclosed to each entity;
- in particular, the processes applicable to the preparation of the accounts of the acquired entities are reviewed and, where appropriate, amended to integrate them into those applicable to the preparation of the Consolidated Financial Statements. Furthermore, the booking in the accounts of the purchase price allocation of each of these entities is based on assumptions, estimates and judgments in line with the Group's business model;
- off-balance sheet commitments, which are valued according to the Financial Reporting Manual, are reported on a quarterly basis to the Audit Committee.

Processing of accounting and financial information

Internal control of accounting information is mainly focused around the following areas:

- a monthly financial report is formalized by Group and business segment control panels. This report and the Consolidated Financial Statements use the same framework and standards. In addition, the quarterly closing schedule is the same for preparing the Consolidated Financial Statements and financial reporting;
- a detailed analysis of differences as part of the quarterly reconciliation between the Consolidated Financial Statements and financial reporting is supervised by the Accounting and Budget & Financial Control Divisions, which are part of the Finance Division;
- a detailed analysis of differences between actual amounts and the yearly budget established on a monthly basis is conducted at each level of the organization. The various monthly indicators are used to continually and uniformly monitor the performance of each of the entities, the business segments and the Group, and to make sure that they are in keeping with the objectives;
- an annual reconciliation between the parent company financial statements and the financial statements based on IFRS standards is performed by entity;
- periodic controls are designed to ensure the reliability of accounting information and mainly concern the processes for preparing aggregated financial items;
- a regular process for the signature of representation letters is deployed at each level of the organization;
- an annual control system of the accounts of equity affiliates based on a questionnaire completed by each entity concerned. This system is integrated into the Group's internal control framework; and
- the Disclosure Committee ensures the respect of the procedures in place.

Other significant financial information is produced according to strict internal control procedures.

Proved oil and gas reserves are evaluated annually by the relevant entities. They are reviewed by the Reserves Committees, approved by Exploration & Production's general management and then validated by the Group's General Management. They are also presented to the Audit Committee each year.

The internal control process related to estimating reserves is formalized in a special procedure described in detail in point 2.1.1 of chapter 2. The reserve evaluation and the related internal control processes are audited periodically.

The strategic outlook published by the Group is prepared, in particular, according to the long-term plans drawn up at the business segment and Group levels, and on the work carried out at each relevant level of the organization. The Board of Directors reviews the strategic outlook each year.

3.3.4.2 Publication of accounting and financial information

Significant information about the Group is published externally according to formal internal procedures. These procedures aim to guarantee the quality and fair presentation of the information intended for the financial markets, and its timely publication.

The Disclosure Committee, chaired by the Chief Financial Officer, ensures, in particular, that these procedures are respected. It meets before TOTAL's financial results press releases, strategic presentations and annual reports are submitted to the Audit Committee and the Board of Directors.

A calendar of the publication of financial information is published and made available to investors on the Group's web site. With the help of the Legal Division, Investor Relations ensures that all publications are made on time and in accordance with the principle of equal access to information between shareholders.

Assessment of the system for the internal control of accounting and financial information

The Group's General Management is responsible for implementing and assessing the internal control system for financial and accounting disclosure. In this context, the implementation of the Group's internal control framework, based on the various components of the COSO framework, is assessed internally at regular intervals within the Group's main entities.

Pursuant to the requirements introduced by Section 302 of the Sarbanes-Oxley Act, the Chairman and Chief Executive Officer and the Chief Financial Officer of the Company have conducted, with the assistance of members of certain divisions of the Group (in particular Legal, Audit & Internal Control and Corporate Communications), an evaluation of the effectiveness of the internal disclosure controls and procedures, over the period covered by the annual report on Form 20-F. For fiscal year 2019, the Chairman and Chief Executive Officer and the Chief Financial Officer concluded that the disclosure controls and procedures were effective.

In addition, a specific process is in place for reporting any information related to the Group's accounting procedures, internal control and auditing. This process is available to any shareholder, employee or third party.

Finally, the Consolidated Financial Statements undergo a limited examination during quarterly closing, and an audit during annual closing. Almost all the audit missions in the countries are fulfilled by the members of the networks of the two statutory auditors, who, after having jointly examined all the accounts and the procedures used to produce them, proceed with the annual certification of the Group's Consolidated Financial Statements. They are informed in advance of the process for the preparation of the accounts and present a summary of their work to the Group accounting and financial managers and to the Audit Committee during the quarterly reviews and annual closing. The statutory auditors also perform those internal control audits that they deem necessary as part of their mission to certify the Financial Statements.

3.4 Insurance and risk management

3.4.1 Organization

TOTAL has its own reinsurance company, Omnium Reinsurance Company (ORC). ORC is integrated within the Group's insurance management and is used as a centralized global operations tool for covering the Group companies' insurable risks. It allows the Group's worldwide insurance program to be implemented in compliance with the specific requirements of local regulations applicable in the countries where the Group operates.

Some countries may require the purchase of insurance from a local insurance company. If the local insurer agrees to cover the subsidiary of the Group in compliance with its worldwide insurance program, ORC negotiates a retrocession of the covered risks from the local insurer. As a result, ORC enters into reinsurance contracts with the subsidiaries' local insurance companies, which transfer most of the risk to ORC.

At the same time, ORC negotiates a reinsurance program at the Group level with oil industry mutual insurance companies and commercial reinsurance markets. ORC allows the Group to better manage price variations in the insurance market by taking on a greater or lesser amount of risk corresponding to the price trends in the insurance market.

In 2019, the net amount of risk retained by ORC after reinsurance was, on the one hand, a maximum of \$100 million per onshore or offshore third-party liability insurance claim and, on the other hand, \$125 million per property damage and/or business interruption insurance claim. Accordingly, in the event of any loss giving rise to an aggregate insurance claim, the amount of risk retained by the Group would be limited to \$225 million per occurrence.

3.4.2 Risk and insurance management policy

In this context, the Group risk and insurance management policy is to work with the relevant internal department of each subsidiary to:

- Define scenarios of major disaster risks (estimated maximum loss);
- Assess the potential financial impact on the Group should a catastrophic event occur;

- Help implement measures to limit the probability that a catastrophic event occurs and the financial consequences if such event should occur; and
- Manage the level of financial risk from such events to be either covered internally by the Group or transferred to the insurance market.

3.4.3 Insurance policy

The Group has worldwide property insurance and third-party liability coverage for all its subsidiaries. These programs are contracted with first-class insurers (or reinsurers and oil and gas industry mutual insurance companies through ORC).

The amounts insured depend on the financial risks defined in the disaster scenarios and the coverage terms offered by the market (available capacities and price conditions).

More specifically for:

- Third-party liability: because the maximum financial risk cannot be evaluated by a systematic approach, the amounts insured are based on market conditions and oil and gas industry practice. In 2019, the Group's third-party liability insurance for any third-party liability (including potential accidental environmental liabilities) was capped at \$900 million (onshore) and \$850 million (offshore). In addition, the Group adopts, where appropriate, the necessary means to manage the compensation of victims in the event of an industrial accident for which it is liable; and
- Property damage and business interruption: the amounts insured vary depending on the sector and on the site and are based on the estimated cost and scenarios of reconstruction under maximum loss situations and on insurance market conditions. The Group purchased business interruption coverage in 2019 for its main refining and petrochemical sites.

For example, for the Group's highest risks (its North Sea platforms and main refineries or petrochemical plants), in 2019 the insurance limit for the Group's share of the installations was approximately \$2.2 billion for the Refining & Chemicals segment and approximately \$2.15 billion for the Exploration & Production segment.

Deductibles for property damage and third-party liability fluctuate between €0.1 and €10 million depending on the level of risk and liability, and are borne by the relevant subsidiaries. For business interruption, coverage is triggered 60 days after the occurrence of the event giving rise to the interruption. In addition, the main refineries and petrochemical plants bear a combined retention for property damage and business interruption of \$75 million per insurance claim.

Other insurance contracts are bought by the Group in addition to property damage and third-party liability coverage, mainly in connection with car fleets, credit insurance and employee benefits. These risks are mostly underwritten by outside insurance companies.

The above-described policy is provided as an example of a situation as of a given date and cannot be considered as representative of future conditions. The Group's insurance policy may be changed at any time depending on market conditions, specific circumstances and General Management's assessment of the risks incurred and the adequacy of their coverage.

TOTAL believes that its insurance coverage is in line with industry practice and sufficient to cover normal risks in its operations. However, the Group is not insured against all potential risks. In the event of a major environmental disaster, for example, TOTAL's liability may exceed the maximum coverage provided by its third-party liability insurance. The Group cannot guarantee that it will not suffer any uninsured loss, and there can be no guarantee, particularly in the event of a major environmental disaster or industrial accident, that such loss would not have a material adverse effect on the Group.

3.5 Legal and arbitration proceedings

There are no governmental, legal or arbitration proceedings, including any proceeding of which the Company is aware that are pending or threatened against the Company, that could have, or could have had during the last 12 months, a material impact on the Group's financial situation or profitability.

Described below are the main administrative, legal and arbitration proceedings in which the Company and the other entities of the Group are involved.

Alitalia

In the Marketing & Services segment, a civil proceeding was initiated in Italy, in 2013, against TOTAL S.A. and its subsidiary Total Aviazione Italia Srl before the competent Italian civil court. The plaintiff claimed against TOTAL S.A., its subsidiary and other third parties, damages that it estimated to be nearly €908 million. This proceeding followed practices that had been condemned by the Italian competition authority in 2006. A global settlement agreement executed on June 17, 2019 by all the relevant parties terminated this proceeding.

FERC

The Office of Enforcement of the U.S. Federal Energy Regulatory Commission (FERC) began in 2015 an investigation in connection with the natural gas trading activities in the United States of Total Gas & Power North America, Inc. (TGPNA), a U.S. subsidiary of the Group. The investigation covered transactions made by TGPNA between June 2009 and June 2012 on the natural gas market. TGPNA received a Notice of Alleged Violations from FERC on September 21, 2015. On April 28, 2016, FERC issued an order to show cause to TGPNA and two of its former employees, and to TOTAL S.A. and Total Gas & Power Ltd., regarding the same facts. TGPNA contests the claims brought against it.

A class action, launched to seek damages from these three companies, was dismissed by a judgment of the U.S. District court of New York issued on March 15, 2017. The Court of Appeal upheld this judgment on May 4, 2018. In September 2019, a Californian city initiated another class action against the same parties based on the same legal ground.

Grande Paroisse

On September 21, 2001, an explosion occurred at the industrial site of Grande Paroisse (a former subsidiary of Atofina which became a subsidiary of Elf Aquitaine Fertilisants on December 31, 2004). The explosion caused the death of 31 people, including 21 workers at the site, injured many others and caused significant damage on the site and to property in the city of Toulouse.

After many years, the investigating magistrate brought charges against Grande Paroisse and the former Plant Manager before the Toulouse Criminal Court. On November 19, 2009, this tribunal acquitted both the former Plant Manager and Grande Paroisse due to the lack of reliable evidence for the explosion. The Court declared Grande Paroisse civilly liable for the damages caused by the explosion to the victims in its capacity as custodian and operator of the plant.

On September 24, 2012, the Court of Appeal of Toulouse convicted Grande Paroisse and the former Plant Manager.

On January 13, 2015, the French Supreme Court (Cour de cassation) fully quashed the decision of September 24, 2012. The case was referred back to the Court of Appeal of Paris, which, on October 31, 2017, convicted Grande Paroisse and the former Plant Manager. Both have decided to appeal this decision, which was dismissed on December 17, 2019, by a decision of the French Supreme Court (Cour de cassation).

A compensation mechanism for victims was set up immediately following the explosion. € 2.3 billion was paid for the compensation of claims and related expenses amounts. A € 10 million reserve remains booked in the Group's Consolidated Financial Statements as of December 31, 2019.

Italy

As part of an investigation led by the Public Prosecutor of the Potenza Court in 2007, Total Italia and also certain Group employees were the subjects of an investigation related to alleged irregularities in connection with the purchase of lands and the award of calls for tenders in relation to the preparation and development of an oil field located in the south of Italy.

Pursuant to a judgment issued on April 4, 2016, the Potenza Criminal Court found four employees to be guilty of corruption, with two of these employees also being found guilty of misappropriation in connection with the purchase of land. The procedure with respect to Total Italia was sent back to the public prosecutor due to the imprecision of the terms of prosecution. The four employees decided to challenge the judgment before the Court of Appeal.

Pursuant to a definitive judgment issued on February 20, 2018 the Court of Appeal of Potenza recorded the termination of the proceedings directed towards the four employees prosecuted for corruption because of the expiration of the statute of limitation.

Pursuant to a judgment issued on July 17, 2018, the Court of Appeal of Potenza acquitted two of the Group's employees prosecuted for misappropriation. On May 28, 2019, the Italian Supreme Court quashed this judgment and the case has been referred to the Court of Appeal of Salerno.

Dispute relating to Climate

In France, TOTAL S.A. was assigned in January 2020 before Nanterre's Court of Justice by certain associations and local communities in order to have the Company completing its Vigilance Plan, by identifying in details risks relating to a global warming above 1.5°C, as well as indicating the expected amount of future greenhouse gas emissions related to the Group's activities and its product utilization via third parties. TOTAL estimates that it has fulfilled its obligations regarding vigilance duty.

In the United States, two subsidiaries of the Group have been assigned by certain communities and associations for their liability in climate change before a Californian Court. These two subsidiaries, as well as the 34 other companies and professional associations, are contesting the State Court's reasoning to rule this request.

3.6 Vigilance Plan

3.6.1 Introduction

3.6.1.1 Regulatory framework

In accordance with Article L. 225-102-4 of the French Commercial Code, the vigilance plan (hereinafter referred to as the “Vigilance Plan”) aims to set out the reasonable measures of vigilance put in place within the Group to identify risks of and prevent severe impacts on human rights, fundamental freedoms, human health and safety and the environment resulting from the activities of the Company and those of the companies it controls as defined in point II of Article L. 233-16 of the French Commercial Code, directly or indirectly, as well as the activities of subcontractors or suppliers with which it has an established commercial relationship, where such activities are linked to this relationship.

The Vigilance Plan covers the activities (hereafter referred to as the “Activities”) of TOTAL S.A. and its fully consolidated subsidiaries as defined in II of Article L. 233-16 of the French Commercial Code (hereinafter referred to as the “Subsidiaries”)⁽¹⁾. It also covers the activities of suppliers of goods and services with which TOTAL S.A. and its Subsidiaries have an established commercial relationship, where such activities are associated with that relationship (hereinafter referred to as the “Suppliers”)⁽²⁾.

TOTAL operates in over 130 countries in a variety of complex economic and socio- cultural contexts and in business areas that are likely to present risks that fall within the scope of the Vigilance Plan.

The reasonable measures of vigilance set out in this Vigilance Plan take into account the diversity and the geographic reach of the Group’s Activities. As part of its reporting of the implementation of the Vigilance Plan, TOTAL has chosen to illustrate its actions by referring to situations upon which the Group was specifically questioned in 2019.

3.6.1.2 Methodology and preparation of the Vigilance Plan

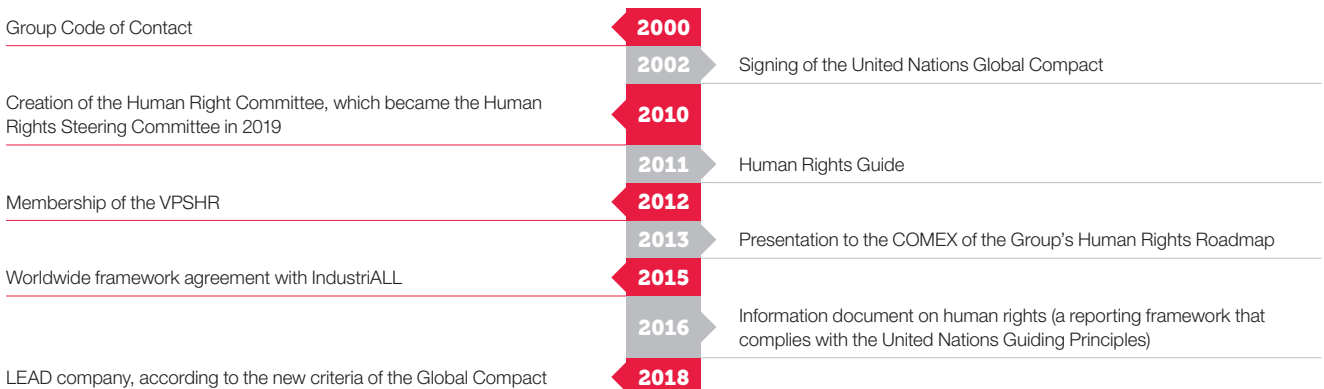
TOTAL’s corporate culture has, for many years, been mindful of the impact of TOTAL’s Activities on health, safety, the environment and human rights.

In formulating its Vigilance Plan, TOTAL was able to rely on a solid foundation of procedures, management and reporting tools, including with respect to HSE and human rights. Experience acquired has contributed to develop further the Vigilance Plan.

Health, safety and the environment (HSE) have long been the object of specific attention at Group level. Given their nature, the Activities give rise to health and safety risks for the Group’s employees, the personnel of external contractors, and residents in the vicinity of industrial sites.

In 2016, the Group set up a Group HSE Committee, which includes members of the Executive Committee and is chaired by the Chairman and Chief Executive Officer. The Committee’s role is to generate momentum at top management level to ensure that safety is a value shared by all. Also in 2016, TOTAL made changes to its internal organization to bring together in a single HSE division, all HSE activities at headquarters and in the business segments. This unified organization is designed to pool existing strengths and expertise and harmonise good practices. In 2018, TOTAL created a unified reference framework, applicable to all business segments: “One MAESTRO”⁽³⁾. In practice, TOTAL takes a continuous improvement approach to HSE at every level of the Group. HSE objectives are presented to the Executive Committee every year. One MAESTRO standards, defined at Group level, are implemented by the Subsidiaries through their own HSE management systems.

Human rights and fundamental freedoms are, and have been for many years, at the heart of the Group’s operations. Since 2000, TOTAL has adopted a Group Code of conduct. In 2002, TOTAL joined the United Nations Global Compact. In 2010, the Group created a Human Rights Coordination Committee. Following this trend, in 2011 TOTAL notably published a practical human rights guide. In 2013, the Executive Committee examined and validated the Group human rights roadmap, and in 2016, its first human rights briefing paper.



(1) Certain companies, such as Hutchinson, Saft Groupe and SunPower, have set up risk management and severe impact prevention measures specific to their organizations. In addition, for newly acquired companies, reasonable vigilance measures are intended to be implemented progressively during the integration phase of these companies into the Group systems. They do not therefore fall within the scope of the Vigilance Plan for 2019.
 (2) In accordance with regulatory provisions, suppliers with which the Group does not have an established commercial relationship do not fall within the scope of this Plan. This Plan reflects the sustainable procurement principles applicable to relationships with Suppliers, but is not aimed at replacing the measures in place at those Suppliers.
 (3) MAESTRO stands for Management and Expectations Standards Toward Robust Operations.

The elaboration of the Vigilance Plan is part of a broader set of work to identify and analyse risks within the Group, including a new Group risk map, drawn up in November 2019. The combined knowledge of the various functions (HSE, human rights, procurement, human resources, societal, security and legal) was drawn upon to ensure an integrated approach.

At the meetings of the **European Operational Committee** – the operational instance of the European Works Council – in 2018, Committee members were provided with information on the law on the duty of vigilance and the methods used to prepare the Vigilance Plan, and were given an opportunity to comment.

The Board of Directors reviews the Vigilance Plan and its annual implementation report.

3.6.1.3 Dialogue with stakeholders

TOTAL engages in dialogue with stakeholders at every level of the organization. In accordance with the Group's framework documents on societal matters, stakeholders are identified, mapped out and organized by level of priority according to their expectations and degree of involvement, using internal **Stakeholder Relationship Management (SRM+)** methodology. This includes the following steps: list the main stakeholders for each Subsidiary and site (depots, refineries, etc.), categorize them and schedule consultation meetings to better understand expectations, concerns and opinions. The outcome of this process is the definition of action plans to manage the impacts of activities and consider local development needs, in order to build a long-term relationship based on trust. This tool allows the Subsidiary to explain its activities to communities and other stakeholders, and to single out potentially vulnerable local populations. It has been deployed in almost all Subsidiaries.

A number of Subsidiaries within the Exploration & Production segment also have in place a network of mediators with **local communities**, with a view to maintaining a constructive dialogue with neighboring communities. These mediators act as **Community Liaison Officers (CLO)** and are tasked with establishing an ongoing dialogue with stakeholders on the ground (*Stakeholder Engagement*), including local authorities and communities and, more broadly, local players in civil society. CLOs are employed by TOTAL, sometimes come from the local communities, speak the local languages and understand the local way of life. They play a decisive role in establishing good relations between TOTAL and its stakeholders and pay close attention to the most vulnerable populations.

A structured dialogue with stakeholders is established and maintained, primarily at local level. Subsidiaries manage local relations with civil society and are encouraged to enter into dialogue with NGOs. The Group also cooperates with external experts specialized in preventing and managing conflict between businesses and local communities. Centrally, relevant divisions of the Holding ensure a continuous dialogue with Group stakeholders. The Civil Society Engagement division manages relations between the Group and civil society, represented notably by

non-governmental organizations (NGOs), as well as large institutions and multilateral agencies (e.g. Global Compact). TOTAL maintains ongoing exchanges with Group employees and their representatives – whose role and position allows for privileged interactions, particularly with management. Social dialogue is a key component of the Group's corporate vision. It includes all types of negotiations, consultations or exchanges of information between the Group entities, the employees and their representatives about economic and social issues related to the life of the company. Topics discussed may vary according to each entity, however shared concerns include health and safety, hours worked, compensation, training and equal opportunity. The Group strives to maintain this dialogue at both local and head office levels or centrally. It also takes the form of membership in organizations and the signing of agreements.

In countries where employee representation is not required by law (e.g. Myanmar and Brunei), Subsidiaries strive to set up such representation. A majority of Subsidiaries therefore have employee representatives, most of whom are elected.

At the European level, a European Works Council allows the sharing of information and exchanges on the Group's strategy and social, economic and financial situation, as well as on sustainable development, environmental and societal responsibility, and safety matters. It examines any significant proposed organizational change impacting at least two companies in two European countries and expresses its opinion on this in addition to the procedures initiated before the national representative bodies. An agreement was signed in July 2017. It contains innovative measures to improve dialogue with members of the European Works Council (field safety visits and learning expeditions to discuss the Group's strategy directly on site).

The signature of international agreements also reflect the Group's commitment, including at top management level, to foster dialogue with employee representatives. In 2015, the Group signed a four-year global agreement with **IndustriALL Global Union**⁽¹⁾ on the promotion of human rights at work, diversity, the dialogue with employees and their representatives and the recognition of health and safety at work. Discussions are ongoing with a view to renewing this agreement in 2020.

In December 2017, TOTAL joined the Global Deal initiative, a multi-stakeholder worldwide partnership whose goal is to encourage governments, companies, unions and other organizations to make concrete commitments to improve dialogue with employees. The Global Deal promotes the idea that effective dialogue with employees can contribute to more decent work and quality jobs and, as a result, to more equality and inclusive growth from which workers, companies and civil society will benefit. In 2019, Global Deal members were invited by the French Minister for Labor, in the context notably of the G7 Social summit, to take part in two working groups: on universal access to benefits adapted to changing needs and risks, and on equal treatment of women and men at work. By sharing its practices with Global Deal companies, TOTAL contributed to the creation of a report titled, *Les membres du Global Deal s'engagent pour le G7 social* ("Global Deal members commit to the G7 Social").

(1) International trade union representing over 50 million employees of the energy, mining, manufacturing and industrial sectors in 140 countries.

3.6.2 Severe impact risk mapping

The mapping work presented below, which includes risks for third parties and the environment, was carried out using the Group's risk management tools.

3.6.2.1 Safety, health and the environment

The Group defines the risk of a severe impact on safety, health or the environment as the probability of TOTAL's Activities having a direct and significant impact on the health or safety of **employees of Group companies, employees of external contractors⁽¹⁾ and third parties, or on the environment** following a large scale pollution or a pollution impacting a sensitive natural environments⁽²⁾.

TOTAL has developed regular safety, health and environment risk assessment procedures and tools applicable to operate its Activities at various levels (Group, activities and/or industrial sites):

- prior to investment decisions in industrial projects of the Group, acquisition and divestment decisions;
- during operations;
- prior to releasing new substances on the market.

With respect to potential major industrial accidents, analyses are based notably on incident scenarios at the site level, for each of which the probability of occurrence and potential consequences (in terms of severity) are assessed. Based on these parameters, a prioritization matrix is used to determine whether further measures are needed. These mainly include preventive measures but can also include mitigation measures that may be technical or organizational in nature. Each business segment produces, on a yearly basis, an inventory of its identified major industrial accident risks, which is submitted to management/committees in each segment and to an HSE Group Committee once a year, providing a global overview of identified risks and a progress report of action plans launched by the Subsidiaries operating the sites.

This work allowed the Group to identify, analyze and prioritize the risks of severe impacts. These analyses have highlighted the following risks of severe impacts:

- risks to the safety of people and to the environment resulting from a major industrial accident on an *offshore* or *onshore* site. This accident could be an explosion, a fire or a leak resulting in fatalities or bodily harm, and/or accidental pollution on a large scale or on a sensitive natural site, for example well blowout;
- risks to the safety of people and to the environment related to the overall life cycle of the products manufactured, and to the substances and raw materials used;
- risks associated with transportation, for which the likelihood of an operational accident depends on the hazardous nature of the products handled, as well as on volumes, length of the journey and sensitivity of the regions through which products are transported (quality of infrastructure, population density, environment).

Climate change is a global risk for the planet and results from various human actions such as energy consumption. As an energy producer, TOTAL seeks to reduce direct greenhouse gas emissions resulting from its operated Activities. In 2019, worldwide greenhouse gas emissions (GHG) from the oil and gas facilities operated by TOTAL amounted to 41.5 million tons of CO₂e, which is less than 0.1% of the total worldwide emissions of more than 55 billion tons per year⁽³⁾. In addition, TOTAL implements a strategy to tackle climate change challenges and reports on this in detail, notably in its statement of non-financial performance (refer to point 5.6 of chapter 5), in accordance with Article L. 225-102-1 of the French Commercial Code.

3.6.2.2 Human rights and fundamental freedoms

The risks of severe impacts on human rights and fundamental freedoms for **TOTAL personnel and third parties** were identified according to the criteria defined in a well-established reference document for the mapping of human rights risks, the *United Nations Guiding Principles Reporting Framework*:

- severity: the scale of the impact on human rights; and/or
- scope: the number of persons affected or who could be affected; and/or
- the remediable nature of the impact: the ease with which the corresponding rights of the impacted persons can be restored.

TOTAL applied the *United Nations Guiding Principles Reporting Framework* which defines the following process:

- identify all human rights at risk of being negatively impacted by a company's activities or business relations, by taking into account all relevant business activities and entities in the company and the point of view of the persons exposed to a negative impact;
- prioritize potential negative impacts based on their potential gravity (severity and potential extent of the impact and the required remediation efforts) and their probability (while paying particular attention to very severe but unlikely impacts);
- explain the conclusions to internal and external stakeholders and check that factors have not been omitted.

This risk mapping work was carried out by TOTAL in 2016 in consultation with internal and external stakeholders. It included workshops with representatives of key business activities of the Group (human resources, procurement, security, HSE, Ethics Committee, Human Rights Steering Committee) and of Subsidiaries operating in difficult environments or particularly exposed to risks to human rights and fundamental freedoms. A series of interviews was held with independent third parties (Good Corporation, International Alert, Collaborative Learning Project). The participants were able to share return on experience on the ground (dilemmas and controversies faced, proposals for improvements on issues related to human rights and HSE resulting Subsidiary assessments). The questions raised at the Business Ethics Day were also taken into consideration. The results of the local and Groupwide Total Survey – an internal opinion poll of employees (Total Survey) regarding their professional situation and perception of the company conducted at local and Group level, were also taken into account. This risk mapping is periodically updated, in accordance with the *United Nations Guiding Principles Reporting Framework*.

This work allowed TOTAL to identify and analyze human rights issues related to its Activities and to prioritize them according to their saliency i.e. those which were most likely to be negatively impacted by Activities.

The salient risks are thus identified by comparing indicators and information provided by external stakeholders and internal return on experience.

This risk mapping is supplemented by operational mappings such as the CSR risk mapping **for procurement** by the Group for each category of goods and services. Risk mapping by the **security** division also takes into account human rights and the VPSHR.

(1) Personnel of companies working on a site operated by a Subsidiary.

(2) Sensitive natural environments include, in particular, remarkable or highly vulnerable natural areas, such as the Arctic, as well as areas covered by significant regulatory protection such as Protected Area Categories I to IV as defined by the International Union for Conservation of Nature (IUCN) or natural sites listed on the UNESCO World Heritage List on December 31, 2018.

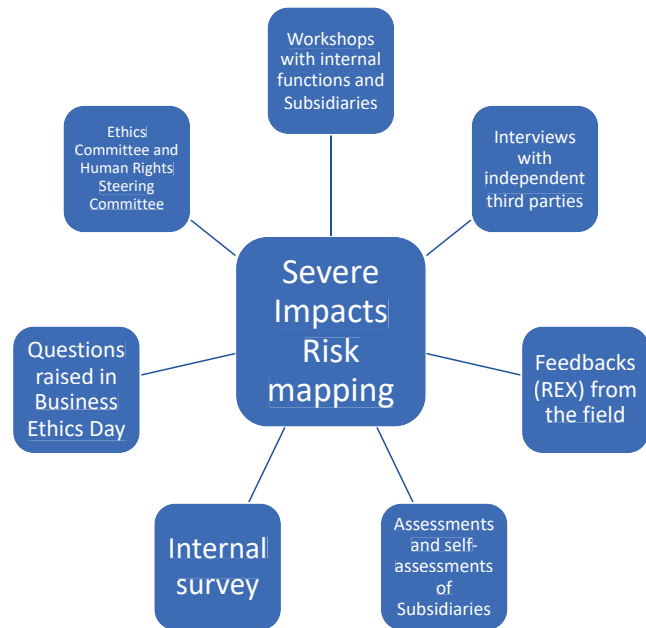
(3) UN Environment, Emissions Gap Report 2019

As a result, the following risks of severe negative impacts on human rights and fundamental freedoms were identified:

- risk of forced labor, which corresponds to any work or service which people are forced to do against their will, under threat of punishment; as well as child labor, which is prohibited for any person aged under 15, or under 18 for all types of work deemed hazardous in accordance with International Labor Organization standards;
- risk of discrimination, characterized by unfair or unfavorable treatment of people, particularly due to their origin, sex, age, disability, sexual and gender orientation, or membership of a political or religious group, trade union or minority;
- risk of non-compliance with fair and safe working conditions, such as for example the absence of employment contracts, excessive working hours or lack of decent compensation;
- risks related to the resettlement of neighboring local communities, resulting from the Group requiring, for some of its projects, temporary or permanent access to land that might result in the physical displacement and relocation of these groups and/or limitation of access to their means of subsistence;
- risk of impacts to the right to health of local communities, such as emissions into the air or water, and other impacts generated by the Activities that might have consequences for the health of local communities, their means of subsistence and their access to vital services such as fresh water;
- risk of disproportionate use of force, when intervention by government security forces or private security companies is necessary to protect the Group's staff and facilities.

Dialogue with **local stakeholders** and feedback from the field described above also contribute to the identification of risks of severe impacts on human rights (refer to point 3.6.1.3 in this chapter).

In 2019, TOTAL updated its procedures to analyze risks of severe impacts on human rights and fundamental freedoms (which takes into account the country, activities and types of raw materials or purchased products and services). This work was done with a specialized consultant, and included workshops with internal and external stakeholders. It took into account international country risk indicators established by a third party consultant. The resulting new procedure will be deployed in 2020. The goal is to update potential risks of severe impacts on human rights, continuously improve the management framework of said risks, and define priority action plans at a local level. The procedure will offer a support to Subsidiaries located in geographic areas at higher risk of severe impacts on human rights.



3.6.3 Action principles and organization

The Group has defined in its referential framework principles which reflect the Group's values, and aim at preventing severe impacts on human rights and fundamental freedoms, health, safety and the environment (the "Action Principles"). When the legal provisions applicable to Activities provide less protection than the Group's Action Principles, TOTAL strives under all circumstances to give precedence to the latter, within the constraints of applicable regulations.

3.6.3.1 Organization

The Group has a three-tier organization: Corporate, business segments and operational entities. Each tier is involved in and accountable for identifying and implementing measures in the Vigilance Plan deemed appropriate within the scope of the entity in question.

The Action Principles are driven by the Executive Committee.

The Ethics Committee is the guarantor of the implementation of the Code of Conduct. Its chairman, who reports to the Chairman and Chief Executive Officer of TOTAL, presents an annual ethics report to the Governance and Ethics Committee.

The People & Social Responsibility divisions coordinate action in relation to Social Responsibility at Group level and respond to the concerns of internal and external stakeholders. They include:

- The **HSE division** includes the industrial health, safety, environmental and operational societal activities of the Group. Within the division, the HSE Departments of the Exploration & Production, Integrated Gas, Renewables & Power, Refining & Chemicals and Marketing & Services segments are notably responsible for supporting the implementation of the Group's HSE policy. Specific expert teams deal with the following areas: major risks, human and organizational factors, environmental and societal issues, transportation and storage, crisis management and pollution prevention, standards and legislation, audits and return on experience. The Group has set up an HSE Committee chaired by the Chairman and Chief Executive Officer and made up notably of members of the Executive Committee and HSE Directors. Its mission is to ensure that safety is a shared value.
- The **Civil Society Engagement division** is tasked with developing relations with civil society and driving the Group's initiatives for societal progress. In this division, the Human Rights Department supports the Group's operational personnel with its expertise in implementing the Action Principles relating to human rights and fundamental freedoms. This division also forms the link between the Group and civil society and is in charge of relations with non-governmental organizations (NGOs), major institutions or multi-lateral agencies at Group level.

- **The Group Human Resources division** has, in particular, the role of defining the human resources strategy and policies of the Group in accordance with the business challenges and the *One Total* company project. In line with the multiple situations encountered in the field, it coordinates the diffusion and roll-out of the new policies to support the various human resources departments in the Group's business segments. It is also tasked with coordinating the Group's social relations policy, chairing the European and worldwide committees and negotiating within this scope.
- **The Security division** is responsible for the protection of people, facilities and information, and pays particularly close attention to the protection of people and property, by conducting analyses and offering advice.
- A dedicated cross-functional Subsidiary, **Total Global Procurement**, coordinates management of supplier relationships and provides in particular purchasing services of Group's goods and services, whether for categories of products or services specific to one business activity or categories shared between several business activities⁽¹⁾.

The Strategy and Climate division supports the Group's governing bodies and in particular is in charge of integrating climate into the Group's strategy. It structures the implementation of the Group's action with respect to climate change, while working with the operational divisions of the Group's business segments.

This corporate organization acts in support of the business segments and Subsidiaries in the operational implementation of the Action Principles.

Within the business segments services and advice are offered to Subsidiaries to assist them in the operational implementation of Group requirements.

Depending on their size, type of activities and the risks to which they may be exposed, the Subsidiaries may have dedicated personnel for HSE, societal, human resources, ethical, security and procurement issues.

3.6.3.2 Code of Conduct – Human rights

TOTAL's Vigilance Plan is based primarily on the Group's Code of Conduct⁽²⁾, which defines the Group's values, including safety and respect for others, and their application to human rights, the environment, health and safety.

It is regularly updated, – the last update dates back to 2018.

The Code particularly sets forth the Group's compliance with the following international standards:

- the principles of the Universal Declaration of Human Rights;
- the United Nations Guiding Principles on Business & Human Rights;
- the principles set out in the International Labor Organization's fundamental conventions;
- the principles of the United Nations Global Compact;
- the OECD Guidelines for Multinational Enterprises;
- the Voluntary Principles on Security and Human Rights, or VPSHR.

The Code of Conduct, which can be accessed on the Group's website, is aimed at all employees and external stakeholders (host countries, local communities, customers, suppliers, industrial and commercial partners and shareholders).

The provisions of the Code of conduct pertaining to **human rights** are specified in the procedures of the relevant functions concerned. The requirements relating to the implementation of VPSHR in the conduct of **security** operations are thus detailed with regards to risk assessment, preliminary verifications, formalization of the relationship with security providers, training and management of possible incidents. Likewise, for **procurement**, the process of qualification and assessment of Suppliers is detailed in terms of risk analysis, evaluation criteria, audits and monitoring of the relationship with Suppliers. The **societal** requirements applicable to the Subsidiaries are also detailed, specifically with respect to the evaluation of the societal context, the regular dialogue with the stakeholders, the management of potential impacts, and the management of complaints.

3.6.3.3 Safety, health and the environment

TOTAL conducts its operations on the basis of its **Safety Health Environment Quality Charter** (available at total.com). It forms the common foundation for the Group's management frameworks, and sets out the basic principles applicable to safety, security, health, the environment, quality and societal commitment. This Charter is implemented at several levels (head office and Subsidiaries). Group directives and rules define the minimum requirements expected. General specifications, guides and manuals are available as a tool to implement these directives and rules. The Subsidiaries incorporate these requirements into their own management systems, whilst taking into account local specificities and regulatory requirements. The Group's framework is available to all employees.

Since 2018, an HSE reference framework common to all the business segments has progressively been rolled out in order to give greater overall consistency to the Group's operations, while taking into account the specificities of each business segment. This **reference framework**, which is named **One MAESTRO (Management and Expectations Standards Toward Robust Operations)**, applies to all the Group's operated sites as defined in point 5.11 of chapter 5 (scope of One MAESTRO).

One MAESTRO is structured around ten fundamental principles : (1) leadership and management commitment, (2) compliance with laws, regulations and Group requirements, (3) risk management, (4) operational accountability, (5) contractors and suppliers, (6) expertise and training, (7) emergency preparedness, (8) learning from events, (9) monitoring, audit and inspection, (10) performance improvement.

In 2010, the Group also introduced the **TOTAL Golden Rules** of safety at work. This has been widely circulated within the Group and outlines the fundamental rules which must be scrupulously observed by all personnel, whether employees or the staff of external contractors, in all countries and business segments in which the Group is active. The aim of the Golden Rules is to define simple, easy-to-remember rules based on situations reflecting a number of occupational accidents. These rules cover the following subjects:

(1) Present in more than 130 countries, the Group currently works with a network of more than 100,000 suppliers.
 (2) SunPower has its own code of conduct and ethics.

TOTAL Golden Rules

- | | |
|-----------------------------------|--|
| 1 High-Risk Situations | 7 Powered Systems |
| 2 Traffic | 8 Confined Spaces |
| 3 Body Mechanics and Tools | 9 Excavation Work |
| 4 Protective Equipment | 10 Work at Height |
| 5 Work Permits | 11 Change Management |
| 6 Lifting Operations | 12 Simultaneous Operations or Co-Activities |

In addition, everyone, irrespective of their level in the organization, is authorized to interrupt work in progress, if they notice a high-risk situation, by using their **Stop Card**.

3.6.3.4 Fundamental principles of procurement

The relationship between the Group and its Suppliers is based on adherence to the Fundamental Principles of Purchasing⁽¹⁾ that are consistent with the principles laid down in the Code of Conduct.

The Fundamental Principles of Purchasing lay out the commitments that TOTAL expects from its suppliers in the following areas: respect for human rights at work, protection of health, safety and security, preservation of the environment, prevention of corruption, conflicts of interest and fraud, respect for competition law, as well as the promotion of economic and social development.

The requirements specified in this document must be communicated to Suppliers and included in or transposed in all procurement contracts. These principles are accessible to all suppliers in French and English on TOTAL's website.

3.6.4 Assessment procedures

The Group has defined procedures to assess its Subsidiaries and Suppliers, including in collaboration with independent bodies, which help identify and prevent risks of severe impacts on human rights and fundamental freedoms, health, safety and the environment. **Staff training, particularly of managers**, is the **necessary** complement to assist the Subsidiaries in the implementation of the TOTAL Action Principles (refer to 3.6.5 in this chapter).

3.6.4.1 Procedures for assessing subsidiaries

HSE assessments

Assessment of the implementation of the HSE framework involves self-assessment by the Subsidiary and HSE audits by experts from the Group HSE division.

Subsidiaries must undertake a self-assessment at least every two years.

The Audit unit of the HSE division conducts an HSE audit on operated sites at least every five years, according to an audit protocol. These audits deal with a set of activities and facilities governed by a single HSE management system. They address notably: management involvement,

Example: Use of the Stop Card

The Stop Card is a plastic-coated card, signed by the manager of the entity or site. It grants its holder the authority to intervene and stop work in progress, if he/she notices high-risk actions or situations, or situations that may lead to an accident, with a assurance that no disciplinary action will be taken as a result, even in the intervention turns out to have been unnecessary.

If an action or situation seems hazardous for one or more people, a facility or the environment, the Stop Card provides means of intervening. Uses of the Stop Card can range from a simple question to check that no risks are present, to interrupting the work in progress.

This interruption offers an opportunity to exchange with the colleagues involved (members of staff and their supervisor) with a view of finding a solution to the perceived problem. If necessary, changes are made to the way of working before resuming the work in progress.

If the problem cannot be solved immediately, the work is suspended, pending the implementation of suitable measures.

3.6.3.5 Internal control framework

The Group consistently ensures that an internal control framework, based on the referential of the Committee of Sponsoring Organizations of the Treadway Commission (COSO) is in place.

TOTAL has a Group reference framework that is supplemented by a series of practical recommendations and return on experience. Like the Group's organization, this framework has a three-tier structure: at Group level, the REFLEX Group framework (including One MAESTRO) and the technical framework set out by the Group Technology Committee, frameworks for each business segment, and for each significant operational entity.

compliance with applicable rules, risk management, individual involvement at every level, relationships with suppliers present on the Subsidiary's site, skills, preparations for emergency situations, return on experience, self-assessment by the Subsidiary and the continual improvement process. The Group's HSE audit protocol is based on the One MAESTRO framework and includes the requirements of the international standards ISO 14001:2015 (environmental management) and ISO 45001:2018 (occupational health and safety). The audit protocol is applied in full during self-assessments and according to a risk-based approach during audits. The goal is to identify potential gaps in the implementation of the rules by the Subsidiaries and to enable them to define and implement improvement actions. The progress of improvement actions is reported to management at the appropriate level in the management chain. The status of actions taken following audit observations beyond a defined severity level is reported to the business segment and HSE divisions every semester.

The HSE division defines the rule and reporting guide and ensures the implementation of the standards for the consolidation of data, provided by the Subsidiaries, related to the Group greenhouse gas (GHG) emissions.

(1) Saft Groupe and SunPower have defined Fundamental principles of procurement specific to their activities (for example, SunPower Supplier Sustainability Guidelines).

Assessments regarding human rights and fundamental freedoms

The Group appoints a service provider specialized in **ethics and human rights assessments** to check the proper application in the **Subsidiaries** of the principles included in the Code of Conduct. These assessments include criteria relating to human rights and fundamental freedoms. As part of the process, a panel of employees and external stakeholders of the Subsidiary is questioned to understand how its Activities are perceived locally. The content of the assessment is adapted to each Subsidiary and may address issues such as the involvement of Subsidiary management, employee awareness of the Code of Conduct, employee working conditions, supplier selection procedures, security measures taken or proactive collaboration with local stakeholders. Following the assessment, the Subsidiary defines and implements an action plan, and a monitoring procedure is put in place.

At a project level, TOTAL conducts **assessments of the impacts on human rights** and fundamental freedoms of the Group's activities in sensitive situations (including according to criteria relating to human rights risks in the relevant country) with independent organizations specialized in human rights and fundamental freedoms, or in the prevention and management of conflicts between corporations and local communities. These assessments take account of the salient issues identified by the Group (refer to point 3.6.2.1 in this chapter).

Security, which is identified as a potential salient risk in the map of the risks of severe impacts on human rights, is subject to **risk assessment processes** at an entity and project level. The Security division is notably tasked with ensuring the implementation of TOTAL's commitments to enforce the Voluntary Principles on Security and Human Rights (VPSHR, a multi-stakeholder initiative that TOTAL joined in 2012, involving governments, companies and associations, that addresses relations with government or private security forces). As part of this process, the Subsidiary undertakes an assessment of risks in relation to both security and human rights. In addition, a VPSHR self-diagnostic tool has been developed to enable Subsidiaries to assess their own implementation of the VPSHR and to identify areas of improvement. This tool measures the Subsidiary's commitment to VPSHR, personnel training and relations with government security forces and private security companies.

Finally, an **annual self-assessment questionnaire** enables measurement and evaluation of the level of implementation of their **societal initiative** on the ground. Actions involving dialogue, impact management and the contribution to socioeconomic and cultural development are recorded and analyzed.

3.6.4.2 Procedures for assessing suppliers

With respect to Suppliers, a **risk mapping related to procurement**, by category of goods and services, was established in 2012 on the basis of questionnaires completed by the managers of each procurement category. This risk mapping is periodically reviewed.

Qualification procedures for Suppliers of goods and services have been harmonized at Group level. A new internal framework was published in 2018. The qualification process includes a review of human rights at work, environment and health and safety. A risk analysis is carried out for each Supplier, followed where deemed necessary by a detailed assessment. The detailed assessment includes questionnaires on each of the aforementioned issues and, if needed, results in an action plan, a technical inspection of the site by employees or an audit of working conditions carried out by a consultant. A new qualification software was developed in 2019 and will gradually be rolled out in over 100 countries.

The Group put in place a **Supplier assessment** procedure with a view to identifying and preventing risks of severe impacts on human rights and fundamental freedoms, health and safety. The Group periodically audits Suppliers to assess working conditions during the life of the contract. A targeted annual audit plan is defined every year, which includes Suppliers put forward for audit by Subsidiaries based in countries that have been identified as having a high risk of human rights violations.

Crude oil and petroleum product purchasing by Trading & Shipping, gas and electricity purchasing by the Subsidiary Total Gas & Power Ltd, and the purchases made by the Subsidiaries of Hutchinson, Saft Groupe and SunPower are subject to supplier qualification processes specific to their organizations.

At the Subsidiary level, this qualification process may be complemented by specific **verifications of compliance** of a Supplier with the VPSHR. When **private security companies** are used to protect a Subsidiary, preliminary checks are made. They include a review of the recruitment process, technical and professional training (notably on the local context, the use of force and the respect for the rights of individuals), working conditions and the company's reputation. In addition, the proposed Supplier's employees are screened for previous conviction or implication in human rights violations.

Where deemed necessary in certain contexts (notably palm oil, vetting), dedicated teams may be set up to conduct the qualification process.

Palm oil Suppliers are screened to ensure that the palm oil supplied is certified as sustainable according European Union criteria (EU ISCC certification). These criteria include a review of carbon footprint, the preservation of forests, good use of land and respect for human rights. In addition to this mandatory certification, Suppliers must have signed the Fundamental Principles of Purchasing and be members of the Roundtable on Sustainable Palm Oil (RSPO).

The **Vetting department of Trading & Shipping** defines and applies the selection criteria for the tankers and barges used to transport the Group's liquid petroleum or chemical and gas products. This review aims notably at ascertaining the proposed Supplier's technical qualities relative to internationally recognized industry practices, the crews' experience, and the quality of the shipowners' technical management. A green light from the Vetting department, granted strictly on the basis of technical data and independently of business considerations, is required for all ships and barges chartered by a Subsidiary, third parties transporting cargo belonging to the Group, or ships and barges which stopover at a terminal operated by a Subsidiary. Audits of shipowners also allows the Group to assess the quality of the technical management systems implemented by operators, crew selection and training, as well as the support provided to vessels.

TOTAL is actively involved in the Ship Inspection Report Program (SIRE) which was set up by the Oil Companies International Marine Forum (OCIMF) to allow the sharing of inspection reports amongst international oil and gas companies, thus contributing to the continuous improvement of safety in oil and gas shipping.

3.6.5 Actions to mitigate risks and prevent severe impacts

Specific actions are taken to mitigate risks and prevent severe impacts, drawing mainly on the Action Principles and assessments described above.

They are also based on return on experience from HSE incidents and include training of Group employees, programs to raise the awareness of Suppliers, the provision of information on product risks, as well as measures to manage emergency and crisis situations.

With respect to climate, which is a global risk for the planet resulting from all human activities, the Group has structured its approach in order to integrate climate challenges into its strategy and has defined specific objectives within different timeframes, in order to control and reduce the GHG emissions resulting from its Activities (Scope 1 and 2). These are reported in section 3.6.8.4 of this chapter.

3.6.5.1 Return on experience

The Group implements a process for the analysis of accidents, irrespective of their nature, with the method used and the level of detail involved depending on the actual or potential level of severity of the event.

A return on experience may include an analysis of the incident including of its severity and result in communications to the relevant stakeholders or a wider population within the Group. The purpose of sharing return on experience is to ensure that Subsidiaries are informed and share lessons learned from the incident.

By way of example, a near-miss with a high severity potential undergoes an analysis similar to that of a severe accident. This analysis is considered an essential factor of progress. Depending on its relevance to the other Group entities, it may trigger a safety alert and the communication of a formal return on experience.

The Group's corporate culture encourages, more generally, formal and informal return on experience on all matters relevant to of the Vigilance Plan.

3.6.5.2 Awareness and training of Group employees

The Group has a variety of communication and information channels in place, enabling all employees of TOTAL S.A. and its Subsidiaries to have access to the Action Principles defined by the Group in relation to human rights, fundamental freedoms, health, safety and the environment.

HSE training courses, incorporating on-line educational programs as well as technical training tailored to the various Activities, are offered to all Group employees. Dedicated programs in the fields of health, safety and the environment – which may be general or specific to a type of activity or subject area – have been deployed within the Group. Depending on a person's level of responsibility and experience in the Group, he/she will for example attend: HSE Leadership for Group senior executives, HSE training for managers, and training for new recruits.

These training courses will include from 2020 training actions related to climate challenges dedicated to all Group employees. A specific module will also be set up for Group senior executives and managers.

In the Subsidiaries as well as head office, teams **regularly engage in crisis management exercises**, the scenarios of which are based on potential incidents identified in the risk analysis. Dedicated training (initial and refresher training) also contributes to preparing employees for potential crises including in relation to the various roles played by members of the crisis team (for example crisis team leader, liaison with operations, experts and communicators etc.).

Dedicated human rights and fundamental freedoms training programs have been set up for senior executives, site directors and those employees most exposed to these issues. Awareness-raising sessions are organized regularly for employees, for example as part of an ethical assessment of a Subsidiary. Specific training modules explaining the Group's ethical commitments and the Fundamental Principles of Purchasing have also been developed for the Group's procurement teams.

Every year, the Security division organizes a **training session on the VPSHR** for security managers in the Subsidiaries. Local visits are also organized to deliver in-person training in the Subsidiaries.

Each employee receives a copy of the **Code of Conduct** to raise awareness of the Group's values, including safety and respect for others, which is respect for human rights. The Code of Conduct is also available on the Group's website in fifteen languages. Every new employee is required to read the Code of Conduct (and must certify to having done so) and the TOTAL induction day includes an initiation to ethics and human rights.

Internal channels of communication, such as **intranet** websites accessible to most employees, are also used to **raise employee awareness** of matters pertaining to human rights. Dedicated webpages on ethics and the respect for human rights present the priority areas identified by the Group. These webpages have several goals: explain the Action Principles, present how the Group implements these principles and to help employees implement the ethical conduct expected of them in their everyday work.

Events such as the annual **Business Ethics Day** are used to raise awareness among employees of TOTAL S.A. and its Subsidiaries.

A **guide to Human rights** is also made available to employees and stakeholders. Its goal is to raise employees' awareness on issues relating to human rights in the oil and gas industry (at work, with local communities and in relation to security) and it provides guidance as to the appropriate behavior to adopt in their activities and relationships with stakeholders. It includes case studies, specifically on Myanmar, Uganda and the Democratic Republic of Congo. This guide serves as a reminder of the Group's commitments in relation to human rights. It offers proposed answers to common questions and concerns about human rights, notably child labor, forced labor, discriminatory practices and collective negotiations.

The **Practical guide to dealing with religious questions**, published in 2017, aims to provide practical solutions to issues raised by Group employees and managers worldwide. It draws on the experiences of the business segments in various countries and encourages listening, dialogue and respect to find solutions suited to the local context. A number of internal and external experts contributed to this document, including representatives of various religious communities. This guide has been translated into ten languages. It is available on the intranet and is also distributed at training courses and on the Business Ethics Day.

The HSE Division organizes the Group's **World Safety Day** and **World Environment Day**, which aim to bring teams on board and raise awareness of ways implement the Action Principles. In addition, periodic HSE communications are published throughout the year. Safety culture is reinforced on a day-to-day basis through safety moments at the beginning of meetings or before hazardous operations, consisting of a short discussion to reiterate the key safety messages and align participants with mutual commitments.

3.6.5.3 Awareness and training of Suppliers

The **Fundamental principles of purchasing** constitute a contractual commitment by Suppliers and are a means to raise awareness amongst Suppliers on HSE and human rights issues. They are communicated to Suppliers at the time of their integration in the Group's Supplier database. A brochure explaining these principles in detail is also handed out to Suppliers at annual meetings or events such as the Suppliers Day. The Fundamental Principles of Purchasing are also available on the TOTAL website.

Training efforts are also made towards Suppliers, such as **a training on responsible security and the VPSHR** is given to employees of security service providers. Contracts with these service providers mention compliance with the VPSHR and the need to train their personnel about the VPSHR. Additionally, the Security division may deliver this training directly to security service providers.

Suppliers working on Subsidiary sites are made aware of the risks to health, safety and the environment of the activities of the site. They receive support in the management of risks related to their activities, those of the site and any potential interactions, such as in the work permit process or during site safety inspections.

3.6.5.4 Information on product risks

The Group is careful to comply with regulatory requirements in order to minimize risks associated with petroleum or chemical products marketed by TOTAL throughout their life cycle.

The Group has also defined minimum requirements that apply to the marketing of its petroleum or chemical products worldwide in order to reduce potential risks to consumer health and to the environment. These requirements include the identification and assessment of risks inherent to a product and its usages, as well as the provision of information to consumers. The material safety data sheets (MSDS) that come with

3.6.6 Whistle-blowing mechanisms

The Group has several whistle-blowing mechanisms that are open to **employees, Suppliers and third parties**.

To support employees on a day-to-day basis, the Group encourages a climate of dialogue and trust enabling individuals to express their opinions and concerns. Employees can turn to their line manager, an HR or other manager, their Compliance Officer or their Ethics Officer.

The Group's employees and Suppliers, as well as any other external stakeholder, can contact the **Ethics Committee** to ask questions or report any incident involving a risk of non-compliance with the Code of Conduct by using a generic email address (ethics@total.com). This system was set up in 2008, in cooperation with the Group's trade unions organizations on a European level. The **Ethics Committee** is a central structure, in which all business segments are represented. All its members are Group employees with a good knowledge of its Activities and have demonstrated the independence and impartiality necessary for the performance of their duties. The

petroleum or chemical products marketed by the Group (available in at least one of the languages used in the country) and product labels are two key sources of information.

The implementation of these requirements is monitored by teams of specialist in the Refining & Chemicals and Marketing & Services segments of the Group. These teams review the safety documentation produced for marketed petroleum or chemical products in order to ensure that they correspond to the usages for which they are intended and comply with applicable regulations. They draft the material safety data sheets, compliance certificates (contact with food, toys, pharmaceutical packaging, etc.), and manage REACH registration where necessary. They also monitor scientific and regulatory developments and keep track of the timely implementation of new sheets (and updates to existing ones) within the Group.

Governance of the process is completed within Subsidiaries of Refining & Chemicals and Marketing & Services segments by the designation of a product officer to monitor compliance of the market release of his/her entity's products. The networks of product officers are coordinated by the Group's specialist units either directly or via an intermediate regional level in the case of the Marketing & Services segment.

The safety data sheets for oil and gas produced by the Exploration & Production and of Integrated Gas, Renewables & Power Subsidiaries are produced by the Marketing & Services expertise center. The conformity of the marketing process of these products is ensured by the Subsidiary.

Finally, the Group has set up an inter-segment working group to further the harmonization of practices and classifications for products common to the different segments, as well as the development of good practices.

3.6.5.5 Responses to emergency or crisis situations

Crisis management is organized to ensure sufficient preparedness and an efficient response to a crisis or emergency event. The Group has implemented a global crisis management system, based notably on a 24/7 on-call system, a set of unified procedures deployed in the Subsidiaries and on a dedicated crisis management center that makes it possible to manage two simultaneous crises from head office. The framework requires Subsidiaries to have in place plans and procedures for interventions in the event of leaks, fires or explosions and to test them at regular intervals.

Ethics Committee assures compliance with the Code of Conduct and ensures its proper implementation. It is assisted in its work by the relevant departments, as well as by a network of local Ethics Officers. The Chairperson of the Ethics Committee reports to the Chairman and Chief Executive Officer of TOTAL. The Chairperson submits an annual report to the *Executive Committee* and the *Governance and Ethics Committee* which reports to the Board of Directors. The members of the Ethics Committee are subject to a confidentiality obligation. The Committee ensures the confidentiality of the complaints, which can only be lifted with the agreement of the complainant. The system is supplemented by specific whistle-blowing mechanisms implemented at certain Subsidiaries (SunPower, Hutchinson).

Suppliers can also contact the **internal supplier mediator** using a generic email address (mediation.fournisseurs@total.com). Available to Suppliers and the Group's procurement teams, the mediator's role is to restore dialogue and help find solutions.

The One MAESTRO framework requires the Group's operational entities to deploy **procedures to manage stakeholder grievances** related to the Subsidiary's activities (excluding business claims). This provides residents and local communities with a preferential channel to voice their concerns and grievances. Handling these grievances locally makes it possible to offer a response to anyone who feels that they have been negatively affected by the Activities and to improve internal processes in order to reduce impacts that may be caused by the Activities. Managing grievances consists of:

- Informing the stakeholders of this free process;
- Receiving and registering grievances;
- Acknowledging receipt of the grievances and informing the stakeholders about the follow-up actions;

3.6.7 Monitoring procedures

Multi-disciplinary committees review the implementation of measures within their purview. Indicators are used to measure the effectiveness of the measures, progress made and to identify ways of improvement.

Committees

The **Ethics Committee** is closely involved in monitoring compliance with the Code of Conduct and can be called upon for advice on its implementation.

The **Human Rights Steering Committee** is made up of representatives from different departments (including security, procurement and societal) and business segments. It is chaired by the Group's head of *Civil Society Engagement*. It meets four times a year to coordinate the actions on human rights and fundamental freedoms taken by the business segments and the Subsidiaries, as part of the implementation of the human rights roadmap submitted to the Executive Committee. All **country chairs** contribute to this monitoring process, notably by acting as the local point of contact for the Security division with respect to compliance with the VPSHR.

Representatives of the Management Committee of Total Global Procurement and of the Civil Society Engagement, HSE and Legal divisions as well as of the Ethics Committee are invited at least once a year to participate to the **Responsible Procurement Committee** which monitors the implementation of the Group's Responsible Procurement roadmap. The roadmap defines TOTAL's guidelines for

3.6.8 Implementation report⁽¹⁾

3.6.8.1 Human rights

This section is primarily intended to present implementation of measures with respect to Subsidiaries, while the implementation of measures specific to Suppliers is described at point 3.6.8.5 of this chapter.

Mapping

As part of the assessment of the local societal context of Subsidiaries, which is based on dialogue with stakeholders (authorities, neighbouring communities, local business players or civil society), the internal Stakeholder Relationship Management methodology (SRM+) is deployed in most Subsidiaries and is being gradually rolled out in recently incorporated or acquired subsidiaries.

Subsidiary assessments

TOTAL carries out different types of assessments:

- Human rights and ethics assessment of Subsidiaries, in particular regarding the working conditions of TOTAL employees,

- After any necessary internal research, proposing a means of settling the grievances in collaboration with the stakeholders;
- Monitoring the handling of the grievance and analyzing it to see where improvements can be made.

These mechanisms can also be used to implement the **VPSHR**. In addition, **in the event of an incident, a reporting process** requires the Security division to be informed, that an internal analysis be performed to establish the facts resulting in a report. This allows the Subsidiary to re-assess its VPSHR process and to take measures to reduce the risk of incidents.

2019-2023 in terms of respecting human rights throughout the supply chain, environment and economic development.

The **HSE division** has set up cross-functional committees of experts, including in the fields of safety, the environment and crisis management, and monitors the ongoing coordination of HSE issues (see point 3.6.8.2 in this chapter).

Reporting

Internal reporting and indicators for monitoring implementation of the actions undertaken in the Group in the areas of human rights, safety, health and the environment is based:

- for social indicators (including health), on a guide entitled the *"Corporate Social Reporting Protocol and Methodology"*;
- for safety indicators, on a Group rule regarding HSE event and statistical reporting; a return on experience analysis process identifies, notably, events for which a formalized analysis report is required in order to draw lessons in terms of design and operation; and
- for environmental indicators, on a Group reporting procedure, together with activity-specific instructions.

Consolidated objectives are defined for each key indicator and reviewed annually. The business segments apply these indicators as appropriate to their area of responsibility, analyze the results and set out a plan of action.

- Impact assessments to analyze the issues and societal context of industrial projects,
- Specific Human Rights assessments,
- Subsidiary self-assessments.

In 2019, **human rights and ethics assessments** were conducted in seven Subsidiaries representing 2,700 employees (Egypt, Brazil, South Korea, Russia, Nigeria, Cameroon). These entities were identified, in particular, on the basis of criteria related to each country's human rights risks. Entities were identified according to several criteria, including indicators of levels of risk of human rights violation in each country, the date of the previous assessment of the Subsidiary and the number of alerts received the previous year. These assessments were conducted by Good Corporation⁽²⁾. They help identify Subsidiaries' best practices, allow them to be shared within the Group and identify areas for improvement. For example, recommendations covered supplier relations and support for projects. The Group uses these assessments as an opportunity to verify knowledge of Code of Conduct, to encourage its employees to voice any ethical concerns in a confidential manner

(1) In accordance with Article L.225-102-4 of the French Commercial Code, the report on the effective implementation of the Vigilance Plan is presented below. Since the identification of risks and the prevention of severe impacts on human rights, human health and safety and the environment overlap partially with certain risks covered in the non-financial performance statement (refer to chapter 5), TOTAL has chosen to report below on the implementation of its Vigilance Plan by incorporating certain aspects of its non-financial performance statement although the latter includes risks of varying degrees.

(2) An independent third party – This British company proposes assessment and advisory to its customers on ethical and compliance-related matters.

and report behavior potentially contrary to the Code of Conduct. These assessments confirmed that the Code of Conduct is known by Group employees. The implementation of the Subsidiaries' action plans is monitored. Following GoodCorporation's assessment in Brazil in 2019, anti-discrimination training helped raise the awareness of more than 200 Group employees.

When a new **industrial project** is developed, an **initial impact assessment** is conducted in advance to identify potentially affected stakeholders and to describe and assess the main socio-economic and cultural issues in the impacted area. It is complemented by societal impact assessments that measure and analyze –actual and potential impacts, positive and negative, direct and indirect, in the short, medium and long term– of the project. In 2019, eight assessments were conducted, seven by Exploration & Production and one by Integrated Gas Renewables and Power (Benin).

Example: Tilenga and EACOP projects, Uganda and Tanzania

The development of the Tilenga project (oil development project in Uganda: crude oil treatment plant, underground pipelines and infrastructures) and the EACOP project (an oil pipeline across Uganda and Tanzania carrying oil to the port of Tanga) involved the purchase of land to build infrastructure. These projects were designed to minimize relocation and ensure that people concerned were informed and involved in the implementation of the projects, and ultimately were able to enjoy satisfactory living and working conditions. These plans are regularly monitored by the Group's project team.

Land acquisition in Uganda by the Ugandan government

The voluntary sale and resettlement process is conducted in line with accepted international standards, including of the IFC (International Finance Corporation – World Bank Group). Affected people are invited to declare their property (lands and crops) in order for an offer of compensation to be proposed by the Subsidiaries' contractor. Compensation covers both the land value and subsistence. The amount of compensation must be approved by the Ugandan government.

- The land value assessment is based on compensation rates established by an independent entity appointed by the Ugandan authorities. Several market studies carried out by the Subsidiary and an independent committee are used.
- The crop value assessment is based on compensation rates proposed to an independent entity appointed by the Ugandan government, by the committees of representatives of the District's residents, and on market studies carried out by the Subsidiary and an independent committee.

Affected persons may choose between monetary compensation or compensation in kind. For compensation in kind, special attention is paid to the choice of alternative land to ensure that access to infrastructure (main roads, schools, water networks, medical centers) is maintained or improved.

Questions were raised in relation to the "cut off" date, as part of the land acquisition process, and the proper understanding of this date by the affected population. Indeed, in line with certain international standards⁽¹⁾, a cut-off date for eligibility was established. After that date, no further improvements to land can be taken into account in calculating compensation. However, even after this date, people concerned are encouraged to continue to cultivate their land until receipt of a notice to vacate. Different means were used to give details on the effects of this date (notice boards, radio announcements and local newspapers advertisements). However, following feedback that the "cut-off" date may have been misunderstood, during the summer 2019, the Subsidiary took additional measures.

In addition to these societal impact assessments, **assessments of human rights impacts** may also be carried out in higher-risk areas or conflict zones with the support of independent experts, including the Danish Institute for Human Rights, a Danish public non-profit organization. These assessments identify stakeholders, people and communities that may be affected by the project, and particularly those that are vulnerable to human rights impacts, measure the potential positive and negative impacts, propose measures to mitigate negative impacts and measures to maximize the positive impacts. These factors can then be taken into consideration in the definition of the project or the execution of the operations.

As an example in 2019, the Group responded to specific questions raised by external stakeholders in relation to two projects: the Tilenga and EACOP in Uganda and Tanzania, and the acquisition of assets in Mozambique.

Several relocation plans were made in accordance with the progress of the project.

A total of 622 persons, including owners and occupants, were affected by the **first relocation plan** for Tilenga. Thirty-one opted for compensation in kind: one owner of land without a house and 30 homeowners, who will be rehoused under similar or better conditions. 582 persons opted for financial compensation, the amount of which was determined on the basis of studies by independent experts and approved by the relevant authorities.

Other measures have been implemented to support local communities, and more are planned. A support program ("livelihood restoration") has been implemented. This is an ongoing initiative to support people concerned, by proposing training and activities linked to agriculture, supporting families in managing their budget, contributing to the improvement of their quality of life through access to education, health, and water, helping to diversify household income sources by helping individuals acquire skills to pursue opportunities in the oil and tourism industries, etc.

Impact assessments

Environmental and societal impact assessments (ESIA) of the Tilenga and EACOP in **Uganda-Tanzania** were conducted with external experts. These were widely communicated and made available to stakeholders. These assessments were conducted in accordance with domestic and international standards, including those of the IFC (International Finance Corporation – World Bank Group) in particular. They entailed questioning almost 70,000 people in Uganda and Tanzania. The assessments covered environmental aspects, such as biodiversity, water, soil and landscapes, as well as societal aspects, and in particular, local life styles, land and the health and safety of local workers. The ESIA's were approved by the competent authorities.

Dialogue with local stakeholders – Community Liaison Officers (CLO) – Grievance mechanisms

In 2019 in Tanzania, a team of 30 CLOs conducted more than 2,800 meetings on the EACOP project and interviewed more than 50,000 people in 226 villages and 533 hamlets. In parallel, quarterly meets were held with the regional authorities concerned and a monthly information letter regularly informed the authorities of the status and activities of the project.

In Uganda, a team of 35 CLOs is in permanent contact with local communities.

A grievance mechanism has also been set up at the local level.

(1) Fifth standard of the International Finance Corporation (IFC), an institution of the World Bank Group focused on private sector, regarding land acquisition and involuntary resettlement.

Impact on heritage

A team of archaeologists from the University of Dar es Salam assisted the project teams during the geophysical and geotechnical acquisition, resulting in adjustments to the acquisition zones and unexpected discoveries of pottery shards and flint, which were promising for increasing knowledge of these areas.

Questions raised by NGOs

After being questioned by certain NGOs about the Group's projects in Uganda, in September 2019, TOTAL published its responses on its website, with documents explaining the socio-economic benefits of these projects for Uganda and Tanzania, the information provided to local population and the involvement of local players, the support for the local population and environmental conservation throughout the projects. In October 2019, TOTAL S.A. received a summons to appear before the *Tribunal judiciaire* of Nanterre (local French civil court), at the behest of two French NGOs and four Ugandan NGOs, regarding the content and the implementation of the Vigilance Plan. On 30 January 2020, the *Tribunal judiciaire* declared itself incompetent in favor of the *Tribunal de commerce* (local French commercial court), as requested by TOTAL S.A.

Continuous improvement of internal processes

As part of its approach to continually improve its internal processes, verifications were carried out by TOTAL teams and an independent analysis was conducted in November 2019 at TOTAL's request. These revealed that the Subsidiary had followed procedures to mitigate the risks related to access to the land required to build the infrastructures for the Tilenga project.

Example: Mozambique LNG Project

TOTAL finalized the acquisition of a 26.5%⁽¹⁾ interest, previously held by Anadarko, in the Mozambique LNG project in September 2019. A Subsidiary of the Group is the new operator of the Mozambique LNG Project.

Mozambique LNG is the first onshore development of a liquefied natural gas (LNG) plant in the country.

The Subsidiary is working on the basis of work done by the previous operator and its partners, with the aim of implementing this project in the best interest of all actors concerned, including the government and population of Mozambique.

Context

This project is part of a global plan for economic development and transformation of the region of Cabo Delgado and of Mozambique. It involves many stakeholders, including intergovernmental development agencies. Land acquisitions and the implementation of relocation and livelihood restoration programs for the Afungi peninsula's population are required.

Impact assessments

The societal and environmental impact assessment began in 2011 and was approved by the government of Mozambique in 2014, since then it has been periodically updated.

A first human rights impact assessment was carried out in 2015. A new human rights impact assessment is currently being conducted.

Societal and stakeholder engagement team

The local societal team is made up of more than 100 persons, engaged in the different neighboring communities, including a CLO network which has an excellent local relationship with residents. A grievance mechanism has been put in place. It is accessible and used by local communities.

The HSE division assists the local societal team. An on-site mission was conducted in November 2019, and others are planned in 2020.

Relocation and livelihood restoration plans

The relocation plan was approved by the government of Mozambique in 2014.

This project is monitored by third parties:

- The government set up a resettlement committee which monitors the project on an ongoing basis. The Mozambique Human Rights Commission is also involved in a monitoring process of the project;
- There is also a civil society platform coordinated under the coordination of Mecanismo de Apio a Sociedade Civilas (MASC), a Mozambican organization. This forum will conduct independent monitoring, through visits of the area and meetings with stakeholders, and will issue a monitoring report. The international standards set by the IFC (International Finance Corporation – World Bank Group) were presented to the platform, in order to support the capacity building of these organizations regarding large industrial projects.

The relocation plan is currently being implemented in accordance with the IFC international standards for the management of social and environmental risks.

A village and related facilities (water, electricity, education institutions and healthcare) for around 600 families are currently being built. Approximately 160 families have been resettled to date, and the process will continue in 2020.

In parallel, a livelihood restoration program is ongoing to support impacted households. This support is implemented in collaboration with specialized partners (fishing and farming professional training, other professional skills, etc.).

Access to agricultural land is also being provided to impacted households.

Working conditions

The Subsidiary monitors issues such as workers housing, working conditions, hiring processes and wages. In addition to the Subsidiary personnel, approximately 35 companies (national and international) work on the construction site of the LNG plant, which amounted, at the end of 2019, to about 6,500 workers, of which 90% are Mozambican and more than 1,000 come from neighboring communities. Some positions are offered in priority to local communities.



(1) TOTAL, operator, holds a share of 26.5 % in the Mozambique LNG project, and partners with ENH Rovuma Area Um. S.A. (15 %), Mitsui E&P Mozambique Area1 Ltd. (20 %), ONGC Videsh Ltd. (10 %), Beas Rovuma Energy Mozambique Limited (10 %), BPRL Ventures Mozambique B.V. (10 %), and PTTEP Mozambique Area 1 Limited (8.5 %).

An ONG report was published on 7 November 2019 raising a number of questions relation to the Balhaf (Yemen) site, operated by Yemen LNG. This company, in which TOTAL holds a 39.62% share, is not controlled by TOTAL, and therefore falls outside the Vigilance Plan. Nevertheless, given that this was reported by the press, TOTAL decided to provide the following clarifications in a press release dated 7 November 2019:

In addition to Subsidiary and industrial project assessments, two types of **subsidiary self-assessment** are used.

VPSHR self-assessment and risk analysis tools are deployed annually, in particular in the Subsidiaries located in countries identified as being at higher risk.

In the field of **societal governance**, a self-assessment questionnaire is used to measure the extent of deployment of societal governance in the field. These questionnaires are analyzed by the HSE division in order to adapt the support it provides to Subsidiaries (offers of training, assistance, etc.). In 2019, more than 90% of the Subsidiaries within the One MAESTRO perimeter had used the questionnaire.

Actions to mitigate risks and prevent serious impacts

TOTAL has numerous tools to **raise employee awareness** of issues related to human rights.

In 2019, the Group organized **training tailored to the challenges faced in the field** by employees who are particularly exposed to these issues:

- annual training in human rights for the Group's societal experts, including the Community Liaison Officers (CLOs), at their annual seminar;
- annual training for members of the Human Rights Steering Committee (HRSC) by the Danish Institute for Human Rights;
- annual training in ethics and human rights for newly appointed senior executives (32 participants in 2019);
- as of 2019, a dedicated module is integrated into the e-learning training for the Country Chairs for the Group's 112 representatives worldwide;
- two training courses in the United Kingdom on the 2015 UK Modern Slavery Act, in particular for in-house lawyers of that country's subsidiaries, in partnership with SHIFT (36 participants).

In response to the key issues related to the Group's activity, specific training courses on Human Rights at the workplace have been developed, such as the e-learning course on the Fundamental Conventions of the ILO, launched by a member of the Executive Committee on Business Ethics Day in 2019, the year of the ILO's 100th anniversary. This training is mandatory for all the Group's management personnel.

Specific training is given to managers and operational personnel in charge of societal matters, such as "The basics of societal engineering" (two sessions in 2019, with 30 participants), or advanced and specific training modules Exploration & Production operations (two sessions in 2019 in Nigeria with 20 trainees).

In certain situations, intervention by **government security forces or private security providers** might be necessary to protect Subsidiary staff and assets. In order to prevent any misuse of force, the Group's requirements include the training of employees and security staff.

When government security forces are deployed to ensure the protection of the Group's staff and assets, an ongoing **dialogue** is maintained with the representatives of national or regional authorities in order to raise their awareness on the need to respect the VPSHR and encourage them to sign memorandums of understanding that comply with these principles. The Group **promotes** the VPSHR requirements to the private security

companies it hires in connection with its activities. These companies incorporate them, for example, through the training they provide to security staff.

TOTAL organizes **training sessions and awareness-raising actions dedicated to the VPSHR** for its employees and stakeholders, and more particularly, on the risk of misuse of force. At the 2019 Business Ethics Day, the Security division organized presentations about the VPSHR to raise awareness amongst TOTAL's employees.

In 2019, the Security division gave a VPSHR seminar to 27 security employees worldwide.

In addition to this seminar, there were training courses at the Subsidiaries for private security companies (PSC) and awareness-raising activities for governmental security forces (GSF). These activities organized by each Subsidiary took place, for example, in the Democratic Republic of the Congo (people trained: 563 PSC and 189 GSF), in Uganda (people trained: 51 PSC), in Papua New Guinea (people trained: 13 PSC and 27 GSF), in Gabon (people trained: 110 PSC) and in Angola (people trained: 458 PSC). The Security division also helped the Subsidiaries develop training adapted to the local context. In addition, the subsidiaries may take additional local VPSHR initiatives. For example, a Subsidiary in Nigeria produced a VPSHR training video that has since been widely distributed to other Subsidiaries facing the same types of complex situations.

The annual **Business Ethics Day** is organized by the Subsidiaries all over the world. In 2019, the *Business Ethics Day* was held in December on International Human Rights Day. The theme of the event was "Speak Up", in an effort to combat all forms of discrimination in the workplace. 2,000 people logged into a specially organized chat session and more than one hundred questions were asked.

Whistle-blowing mechanisms

TOTAL has set up several levels of whistle-blowing mechanisms that cover the entire Group, or are specific to certain projects.

In 2019, the **Ethics Committee** handled almost 190 referrals (**internal, external, anonymous**) in relation to compliance with the Code of Conduct. 50% of these reports were about questions related to human resources. Approximately one third of the cases result in corrective measures. Irrespective of whether the referral is well founded, mediation may be necessary. When the Ethics Committee observes a breach of the Code of Conduct, management draws the necessary conclusions and sanctions may be imposed in keeping with the applicable law and the procedures negotiated locally with staff representatives (examples include verbal reminders, written warnings, suspension or dismissal). In parallel, a new tool to centralise statistics gathered by the network of ethics officers was launched in 2019. It covers referrals that are handled locally and is currently being deployed.

The Subsidiaries have also developed **mechanisms to manage grievances raised by external stakeholders**. Deployment is being rolled out throughout the Group.

- At Exploration & Production for example, the Bolivian subsidiary made changes to its grievance management system in 2019 as part of a continual improvement process. Strict deadlines were introduced to analyze the grievances, based on the average processing time: 30 days for simple cases, and 45 days for complex cases, which are handled by the grievance management committee. 27 complaints were registered in the year, of which five through this committee. All the registered complaints were processed and resolved in the course of the year. A plan to inform the stakeholders of the procedure was also drawn up, with a new, graphically styled brochure that illustrates the steps to be followed to access the mechanism.

- At Refining & Chemicals, grievance management systems are in place on all the ISO 14001-certified platforms, and local residents are involved in searching for solutions to control the impacts of activities.
- At Marketing & Services, a kit has been developed to help Subsidiaries set up dedicated grievance mechanisms that are separate from the business grievances circuit. In particular, it contains a recap of the useful internal documents, with the direct intranet links, an explanation of steps to be followed to set up a grievance management system in a Subsidiary, to identify the internal contributors, etc.

Incidents related to the implementation of the VPSHR are quickly reported to the Security division, and a report is compiled after internal analysis to assess the facts and to determine the measures to be taken to reduce the risk of future incidents.

Monitoring procedures

At regular intervals, a **human rights roadmap** is presented to the Executive Committee, highlighting the priority improvement areas. The 2019-2020 roadmap was presented to the Executive Committee in April 2019. The **Human Rights Steering Committee** is responsible for monitoring the implementation of this roadmap. For each specialty or business segment, the roadmap addresses questions of governance (for example, an internal procedure to be updated), new training to be developed, the prioritization of salient issues in a given specialty or segment, dialogue with stakeholders (for example, by appointing and training CLOs), risk assessment (for example, in the impact assessments of new projects), preventive and remediation actions, monitoring and communication. The Human Rights Department and the Ethics division rely on a **network of Ethics officers** (104 worldwide at the end of 2019) in charge of promoting the values set out in the Code of Conduct among employees working in Subsidiaries and ensuring that the Group's commitments are correctly implemented at the local level.

Regarding the **VPSHR**, TOTAL took part in **follow-up** meetings with the other members of the initiative as part of the process of continual improvement. In February 2019, TOTAL published its 2018 VPSHR report, which contains information on the implementation of VPSHR in Subsidiaries worldwide, and reviews progress made. The information set out in the report is based on annual reporting organized by the Security division that brings together the results of a VPSHR questionnaire, and of the risk and compliance analyses for each Subsidiary operating in a sensitive context. It contains examples of action taken to raise awareness and process incidents. The 2019 VPSHR report will be published in 2020. In April 2019, at the 13th forum on responsible mineral supply chains, organized by the OECD in Paris, TOTAL shared its experience of implementing the VPSHR.

3.6.8.2 Health and safety

This section is primarily intended to present implementation of measures with respect to Subsidiaries, while the implementation of measures specific to Suppliers is described in 3.6.8.5 of this chapter.

Subsidiary assessments

In addition to HSE self-assessments by Subsidiaries at least once every two years, the Group also audits sites operated by Subsidiaries at least once every five years. Based on an analysis of repeated findings, auditors pay specific attention to global risk management, how risks are taken into account in operations, and the involvement of management.

Actions to mitigate risks and prevent serious impacts

Prevention of major industrial accidents

For the Group's operated Activities, accident risk management systems are in place from the early stage of design and construction of facilities or any modifications to these, as well as during the conduct of activities. They also cover control of integrity of the installation over time as well as the effective and appropriate management of accidents if these do, nevertheless, occur.

As part of the risk prevention of major industrial accidents, with regard to the design and construction of facilities, the Group has defined technical standards which include applicable statutory requirements and refer to good industry practices.

In addition to applying these standards, the Group implements a policy for the management of the risk of major industrial accidents in order to minimize the potential impacts associated with its Activities. This policy provides for an analysis of the risks related to the Group's industrial operations at each operated site, based on incident scenarios for which the probability of occurrence and the severity of the consequences are assessed. Based on these parameters, a prioritization matrix is used to determine whether further measures are needed. These mainly include preventive measures but can also include mitigation measures and may be technical or organizational in nature.

The construction of the Group's facilities is entrusted to qualified contractors that undergo a demanding internal selection process and ongoing monitoring. In the event of a modification to a facility, the Group's rules define the management process to be adopted.

With regards to the management of operations and integrity of facilities, the Group has defined rules to prevent specific operating risks that have been identified either by means of risk analyses or by feedback from the Group and industry. For works in particular, the preliminary risk analysis may lead to the establishment of a permit to work, the process of which, from preparation to closure, is defined. The Group's rules also provide a process to manage the integrity of facilities, which includes preventive maintenance, facility inspections, identification of safety critical equipment for special monitoring, management of anomalies and downgraded situations, as well as regular audits. These rules are part of the Group's One MAESTRO reference framework. Operational teams receive periodic training with a view to controlling operations, in the form of companionship or in-person trainings.

In addition to support from the Major Risk division, the Group requests Subsidiaries' operating sites with the potential for a major industrial accident to identify an integrity function to manage this transverse process.

HSE training

Preventive actions in the field of health, safety and the environment require all employees to adhere to the Group's safety policies. To this end, the Group provides **training intended for various target groups** (new arrivals, managers, senior executives and directors) in order to establish a broad-based, consistent body of knowledge that is shared by all:

- **Safety Pass**: these safety induction courses were started on January 1st, 2018, for new arrivals within the Group. Various courses exist depending on the position and cover the Company's main HSE risks, the risks linked to specific activities on site as well as those linked to the workplace. The theoretical content is supplemented by practical "life-saving" training sessions;

- *HSE for Managers* is aimed at current or future operational or functional managers within one of the Group's entities. Sessions are offered on all continents where TOTAL operates. In 2019, seven sessions, including four held internationally, brought together more than 287 managers;
- *Safety Leadership for Executives* is intended for the Group's senior executives. Its objective is to give senior executives the tools to communicate and develop a safety culture within their organization. The updated version of this course was validated during pilot sessions held in 2019. Five sessions were attended by more than 85 senior executives in 2019. The target is for all senior executives to have taken the new training within three years.

In order to ensure and reinforce knowledge of HSE framework documents, a tool designed to evaluate HSE-related knowledge and containing over 3,000 multiple-choice questions was developed in 2018 for use by the Group's HSE managers. This tool makes it possible to assess their knowledge and decide on a suitable training plan, if necessary. In 2019, 125 managers took part in this knowledge assessment, which corresponds to about half of the target population. The goal is to have the entire population assessed within three years.

These trainings are complemented by local actions in the Subsidiaries, which take into account the specificities of their Activities.

In addition to the training measures, the Group HSE division is responsible for **regular communication and coordination of HSE-related topics**. Each month, central experts and specialists communicate on rules and good practices, both internal and external. In addition, 24 seminars, webinars or symposia involving the Group's Subsidiaries were led by the HSE division in 2019.

On April 26, 2019, TOTAL teams all over the world joined in the **World Safety Day**, on the theme of "Target: zero fatal accidents". The suppliers present on their sites were also involved in this event.

Furthermore, the Group extended its **training program on managing risks of major accidents in 2019**. The training of operational teams was stepped up. On-site training in the Subsidiaries was added to in-person training provided at head office. For example, in the Marketing & Services business segment, the course on *Understanding of Major Risks and Integrity* on major risks was attended by more than 500 participants at 44 Subsidiaries between mid-2018 and the end of 2019.

Training on crisis management was followed by 349 persons in 2019. The training was entirely revised in 2019. The new complete course will include a preliminary e-learning module, a two-day in-person training session, a subsequent mobile learning module, as well as a one-day refresher course to be completed later. In addition, a "60-minute flat" application was gradually deployed in 2019. It is available on mobile phones, including offline, and allows participants, by going through a training based on a "crisis scenario", to revise the essentials learned in the e-learning module and the initial training, in a fun and interactive way. The course ranks the trainees to encourage them to reach the highest possible score, ensuring essential learnings have been assimilated. This application won a prize at the 2019 Mobile Learning Awards, which reward the best mobile training content.

In addition, the Group started to roll out the Incident Management System (IMS) in the Exploration & Production Subsidiaries in 2019. The IMS is a harmonized system for the management of emergency situations. It is described in an IPIECA good practices guide. In 2019, seven Exploration & Production Subsidiaries received training and performed a large-scale exercise implementing the system. A total of 314 employees have been trained in the Subsidiaries and at head office.

Return on experience (feedback) on HSE incidents is regularly collected. A return on experience document describes the HSE incident or the corresponding accident, includes an analysis and recommendations applicable to similar situations. In 2019, 111 documents (return on experience, best practices, alerts) were distributed in the Group. Best practices were also shared externally to help disseminate the safety culture and contribute to the improvement of the energy business segment, for example at the CEFIC (the European Chemical Industry Council), the *Ecole Nationale des Mines* of Alès, the International Association of Oil & Gas Producers (IOGP) and at the Bahrain Global HSE conference.

In 2019, TOTAL contributed to the creation and the development of the content of a **"ToolBox" application**, available on computers, smartphones and tablets, developed with the Energy Institute and other industry actors. It provides users with lessons learned from different situations and information on safety. The content can be viewed by type of activity or risk.

Monitoring procedures

The Group keeps track of the following health and safety indicators:

- confinement losses,
- safety indicators, including the TRIR (Total Recordable Injury Rate),
- the number of serious road accidents,
- health indicators.

The Group reports the number of Tier 1 and Tier 2 **losses of confinement** as defined by the American Petroleum Institute (API) and the International Association of Oil & Gas Producers (IOGP)⁽¹⁾. The Group set itself the aim of having fewer than 100 Tier 1 and Tier 2 events in 2019.

This target was comfortably met in 2019. In addition to the 73 Tier 1 and Tier 2 operational events indicated in the table below, the Group recorded 2 Tier 2 events due to sabotage or theft in 2019.

Loss of primary containment ^(a)	2019	2018	2017 ^(b)
Loss of primary containment (Tier 1)	26	30	28
Loss of primary containment (Tier 2)	47	73	75
Loss of primary containment (Tier 1 and Tier 2)	73	103	103

(a) Tier 1 and Tier 2: indicator of the number of losses of primary containment with more or less significant consequences (fires, explosions, injuries, etc.), as defined by the API 754 (for downstream) and IOGP 456 (for upstream) standards. Excluding acts of sabotage and theft.

(b) Excluding TEP Barnett in 2017.

The Group's One MAESTRO framework covers three main areas with regards to personal safety: **the prevention of occupational accidents, the prevention of transport accidents**, and the prevention of major industrial accidents. It relates to all employees of Subsidiaries, employees of external contractors working on a site operated by one of these Subsidiaries, as well as employees of transport companies under long-term contracts. In all these areas, the safety results are monitored with the same attention for all.

Indicators measure the main results. In addition to its aim of zero fatalities in the exercise of its Activities, the Group has set itself the target of continuously reducing the TRIR⁽²⁾ and, for 2019, of keeping it below 0.85 for all personnel (Group and external contractors).

(1) Tier 1 and Tier 2: indicator of the number of loss of primary containment events, with more or less significant consequences, as defined by the API 754 (for downstream) and IOGP 456 (for upstream) standards.

(2) TRIR: Total Recordable Injury Rate.

Safety indicators	2019	2018	2017
TRIR ^(a) : number of recorded injuries per million hours worked – All Personnel	0.81	0.91	0.88
Group company employees	0.74	0.82	0.89
External contractors' employees ^(b)	0.88	1.01	0.88
LTIR ^(c) : number of lost time injuries per million hours worked – All Personnel	0.48	0.59	0.58
SIR ^(d) : average number of days lost per lost time injury	34	26	28 ^(e)
Number of occupational fatalities	4	4	1

- (a) TRIR: Total Recordable Injury Rate.
 (b) As defined in point 5.11 of this chapter.
 (c) LTIR: Lost Time Injury Rate.
 (d) SIR: Severity Injury Rate.
 (e) Excluding Saft Groupe.

The efforts with regard to safety made by the Group over a period of more than 10 years have made it possible to reduce the number of accidents by a factor of four between 2009 and 2019. Following a stabilization in performances observed in 2016 and 2017, the year 2019 saw a 11% reduction in the number of accidents compared to the results for the previous year. This improvement is due to the Group's constant efforts in the field of safety and in particular, to:

- the implementation of the HSE frameworks, which are regularly updated and audited,
- the prevention of specific risks that are particularly liable to lead to accidents, such as handling loads (ergonomics), road transport, foot traffic,
- training in and general familiarization with safety issues for all levels of management (world safety day, special training for managers),
- the HSE communication work, towards all Group personnel,
- the introduction of safety objectives into the compensation policy for Group employees (refer to point 5.3.1.2 in chapter 5).

The SIR raise between 2018 and 2019 is explained by an increase in accidents with a number of days off more than 30 days especially in the M&S segment and a decrease in the number of accidents with a number of days off less than 10 days especially in the Integrated Gas, Renewables & Power segment.

Despite these measures, four fatalities occurred in 2019 among the personnel of contractors, during construction work or maintenance operations in Belgium, France, the United States and South Korea. All were related directly or indirectly to work performed at height: fall from a mobile platform while working on a pipe (Belgium), fall from a work floor following the breakdown of a guardrail (France), fall from a stepladder while disassembling equipment (USA), fall from a roof ongoing repairs (South Korea).

These fatalities have led the Group to update the One MAESTRO rule concerning working at height, and to focus specifically on reaching a new milestone in the prevention of fatal accidents and on achieving "Zero fatal accidents" in the Group. As they are particularly affected, representatives of contractors took part in the corresponding discussions together with operational employees and Group safety experts. Three high-priority areas have been identified in which the Group intends to strengthen its efforts:

- the incorporation in the permit to work process of a ritual to be performed prior to undertaking work at the Group's operated sites (*Safety Green Light*);
- the conduct of joint on-site safety inspections together with the contractors;
- the intensification of checks on site in order to measure compliance with the safety rules.

The progressive implementation of these measures at the sites operated by Subsidiaries, accompanied by familiarization campaigns to draw attention to the most widespread risks of fatal injury, started in the final quarter of 2019.

In addition, following a fatal accident associated with the explosion of a reservoir in Egypt in October 2018, the Group rapidly decided to roll out a large-scale accident prevention program focusing on the presumed causes of the accident, in anticipation of the investigation conclusions. Following webinar awareness-raising sessions, special training in the risks associated with work at oil tanks was deployed with the involvement of approximately 3,500 participants from 90 countries. This program ended in mid-2019 with the distribution of a feedback document for immediate and mandatory application throughout the whole of the Group.

In the field of **occupational safety**, the Group also introduced, in 2010, the document *Safety at work: TOTAL's Twelve Golden Rules*. According to the Group's internal statistics, in more than 32% of severe incidents or near misses with high severity potential in the workplace, at least one of the Golden Rules had not been followed. The correct implementation of these rules, and more generally of all occupational safety procedures, is emphasized during trainings and verified through site visits and internal audits.

The involvement of each employee in identifying anomalies or dangerous situations is an indicator of the employees' involvement and vigilance in accident prevention and reflects the safety culture within the Group. The reporting of anomalies and near-misses is strongly encouraged and is monitored (approximately 700,000 per year).

In addition, in 2016, the HSE department created a unit bringing together specialists on high-risk operations (work at height, lifting, high-pressure cleaning, excavations, etc.) in order to consolidate in-house knowledge and relations with contractors. The Group HSE division also includes a unit aimed at providing support for sites to improve their safety culture upon their request.

In the field of road transport, the Group long since adopted a policy intended to reduce the number of accidents by applying standards that are, in some cases, more stringent than certain local regulations. This policy applies to the Group's personnel and contractors. For example, it comprises a ban on telephoning while driving, including with a hands-free set, a ban on using motorized two-wheeled vehicles for business travel, mandatory training for drivers, and the definition of strict technical specifications for vehicles. Additional requirements are defined depending on the level of road traffic risks in the country in question and the nature of the activity. Thus, in countries with high road traffic risks, vehicles are equipped with devices that record driving parameters and the conduct of drivers is monitored. Since 2012, a large-scale inspection program of transport contractors has also been rolled out by Marketing & Services. This calls on independent transport experts who inspect the practices and processes adopted by transport contractors with regard to the recruitment and training of drivers, vehicle inspections and maintenance, route management, and the HSE management system. Depending on the results of the inspection, the transport contractor may be included in or excluded from the list of transporters approved by the Group. This program is gradually being extended to the Group's other business segments as required. Furthermore, a training center exists since 2015 in Radès in Tunisia. It offers transport trainings to the personnel of Marketing & Services Subsidiaries and to transport contractors that are interested.

To measure the results of its policy, the Group has, for many years, been monitoring the number of severe accidents involving its employees and those of contractors. The 27% reduction in the number of serious injuries between 2016 and 2019 is a testimony to the efforts that have been made. In 2019, the number of serious road incidents increased compared to 2018. However, there were no road fatalities.



The projects launched in 2018 on the use of new technologies for the prevention of road accidents were continued in 2019. In Marketing & Services, a new action plan has been introduced covering the fields of the driver behavior, vehicles and preparation for emergency situations. In particular, the decision was taken to outfit more than 2,500 vehicles with fatigue detection systems following conclusive tests performed over a period of several months. In addition, the second part of the SafeDriver video campaign was launched in 2019. The subjects chosen for 2019 were blind spots, driver tiredness and driving in difficult situations.

Example: Improving road safety, positive influence on contractors

Accidents involving trucks transporting TOTAL products account for a significant percentage (14%) of serious high-potential accidents recorded by the Group. The number of road accidents has declined significantly over recent years following the Group's efforts to improve road safety.

Since the Group itself rarely transports its products by road, it decided to liaise closely with its transport contractors to consider means to help reduce the numbers of accidents.

In 2012, the Marketing and Services segment launched a major Transporter Compliance Inspection program (TCI) in Africa and the Middle-East, identified as high-priority areas.

As part of TCI, the efforts of the inspection teams, made up of internal specialists and independent transport experts, led to the identification and disqualification as potential contractors of highest-risk transporters, and the definition of action and improvement plans for transporters qualified as potential contractors. The program defined requirements and good practices, including: regular inspections, monitoring by

Number of severe road accidents ^(a)	2019	2018	2017
Light vehicles and public transport ^(b)	9	7	11
Heavy goods vehicles ^(b)	24	23	26

(a) Overturned vehicle or other accident resulting in the injury of a crew member (declared incident).

(b) Vehicles on long-term contract with the Group (> 6 months).

Subsidiaries of the progress of action and improvement plans, and monitoring of consolidated results. All of which were structured around four pillars: driver management, vehicle management, trip management and HSE management.

The TCI program established a clear roadmap for transport contractors and deployed concrete tools to help improve safety: onboard computers, onboard cameras, vehicle inspection checklists, fleet renewal, partnerships for driver training, a points-based "driving license" as a pre-requirement to drive for the Group.

In 2017, the program was extended to other Marketing & Services areas (Asia-Pacific, Latin America) and, in 2018, to other business segments of the Group.

The program has yielded results: a clear improvement in the quality of the transporters in the area and a significant drop in the number of fatalities caused by heavy goods vehicles (five-fold drop in five years) as well as serious road accidents involving heavy goods vehicles (three-fold reduction in the Marketing & Services segment since the launch of the TCI program).

With regard to **air transport**, a carrier selection process exists to limit the risks relating to travel by Group and contractor's employees, if their journey is organized by the Group. This process is based on data provided by recognized international bodies: the International Civil Aviation Organization (ICAO), the IATA Operational Safety Audit (IOSA), the International Association of Oil and Gas Producers (IOGP), and civil aviation authority recommendations. Airlines that do not have a rating from an international body are assessed by an independent body commissioned by the Group.

With regard to the prevention of occupational health risks, the Group ONE MAESTRO framework provides that Subsidiaries identify and assess risks at the workplace in the short, medium and long term and also provides guidance for implementation. The analysis of these health risks relate to chemical, physical, biological, ergonomic and psychosocial risks resulting in the roll-out of an action plan. In addition, it requires that each Group entity sets out a formal medical monitoring procedure taking into account the requirements under local law (frequency, type of examination, etc.) and the level of exposure of its personnel to the various risks.

To complement this program, the Group has set up an employee health observation committee. The aim is to monitor the health of a sample of employees in order to identify the emergence of certain illnesses and, if applicable, suggest appropriate preventive measures. The data, which is gathered anonymously during medical examinations, covers approximately 10% of Group employees worldwide.

The Group also has a Medical Advisory Committee that meets regularly to discuss key health issues relating to the Group's activities. It decides whether there is a need for additional health protection strategies to be implemented. It consists of external scientific experts and also brings together the Group's senior executives and stakeholders concerned by these issues.

In order to share information on the Group's progress in the area of occupational health, as for previous years, in 2019 the Group organized a day of discussions with the Group's business segments.

The Group has put in place the following indicators to monitor the performance of its program:

Health indicators (WHRS scope)	2019	2018	2017
Percentage of employees with specific occupational risks benefiting from regular medical monitoring	98%	98% ^(a)	98%
Number of occupational illnesses recorded in the year (in accordance with local regulations)	128	154	143

(a) As an exception to the reporting principles described in point 5.11 (chapter 5), the 2018 rate does not include a company that did not report its data in time for the 2018 WHRS.

3.6.8.3 Environment

This section is primarily intended to present implementation of measures with respect to Subsidiaries, while the implementation of measures specific to Suppliers is described in 3.6.8.5 of this chapter.

Subsidiary assessments

HSE audits, which include the environment, are described in point 3.6.8.2 of this chapter.

The Group's internal requirements state that the environmental management systems of its operated sites that are important for the environment⁽¹⁾ must be ISO 14001 certified within two years of start-up of operations or acquisition: 100% of these 77 sites were compliant in 2019. Beyond these internal requirements, at the end of 2019, a total of 281 of the sites operated by the Group were ISO 14001 certified. In 2019, 7 sites were newly ISO 14001 certified.

Actions to mitigate risks and prevent serious impacts and monitoring procedures

The HSE division and the HSE departments within the Group's entities seek to ensure that both applicable local regulations and internal requirements resulting from the Safety Health Environment Quality Charter and the Group's additional commitments are respected. Group steering bodies, led by the HSE division, are tasked with:

- monitoring TOTAL's environmental performance, which is reviewed annually by the Audit Committee, for which multi-annual improvement targets are set;
- handling, in conjunction with the business segments, the various environment-related subjects of which they are in charge; and
- promoting the internal standards to be applied by the Group's operational entities.

Awareness raising and training actions on the environment are included in the HSE actions described in point 3.5.9.2 in this chapter. The 2019 World Environment Day focused on good practices that protect biodiversity on the Group's sites. To mark the occasion, instructive materials were developed to teach employees more about biodiversity.

To prevent accidental pollution risks and, in particular, spills that could impact the environment, TOTAL implements risk management policies. Risk management measures cover the design and construction of facilities, changes to existing facilities, operations and the control of the integrity of facilities over time.

For its **maritime and river shipments of hydrocarbons**, TOTAL only charters ships and barges that meet the highest international standards. The Group has an internal policy that lays down the process and criteria by which ships and barges are selected (known as vetting). These criteria are based, in particular, on the regulations, best practices and recommendations of the OCIMF⁽²⁾, and, in Europe, on the European Barge Inspection Scheme – EBIS. Tankers and barges are vetted by a single centralized Group entity. The average age of the Group Shipping division's time-chartered fleet is approximately six years.

With regard to **operated marine terminals**, the Group records their physical characteristics and consolidates this data in a global database that forms part of the Marine Terminal Information System (MTIS) of the OCIMF. At the end of 2019, 95% of coastal marine and offshore terminals had submitted their characteristics, thereby making it easier to assess the compatibility of ships with ports of call. Additionally, TOTAL encourages all maritime terminals to use the *Marine Terminal Management Self Assessment* (MTMSA), the framework recommended by the industry for the self-assessment of terminals and the continuous

improvement of the safety of product transfers. A training course on ship/shore interface management (SSSCL *Ship Shore Safety Check List*) and cargo transfer operations, developed by the Group in 2016, has been completed by operators of 80% of operated-terminals by the end of 2019.

In order to prepare to manage a major accidental spill efficiently, TOTAL implemented a global **crisis management** system that is described in point 3.6.6.4 of this chapter.

For the sites operated by the Group exposed to the risk of accidental spills that reach the surface water, this system is supplemented by requirements of the **One MAESTRO reference framework**. These requirements demand that the oil spill contingency plans be regularly reviewed and tested by the Subsidiaries in exercises. These plans are specific to each site and are adapted to their structure, activities and environment while in line with Group recommendations.

Subsidiaries can call on in-house human and material resources (Fast Oil Spill Team, FOST) and benefit from assistance agreements with the main third-party organizations specialized in the management of oil and gas spills.

For **oil and gas exploration & production activities**, since 2014, subsea capping and subsea containment equipment that can be transported by air has been strategically positioned at various points of the world (South Africa, Brazil, Norway and Singapore). This equipment provides solutions that are readily available in the event of oil or gas eruptions in offshore drilling operations. From these locations, the equipment can benefit TOTAL's operations worldwide. This equipment was developed by a group of nine oil companies, including TOTAL, and is managed by Oil Spill Response Ltd (OSRL), a cooperative dedicated to the response to marine pollution by oil and gas.

TOTAL has also designed and developed its own capping system (*Subsea Emergency Response System*) to stop potential eruptions in drilling or production operations as quickly as possible. Since 2015, equipment has been installed in Angola, then the Republic of the Congo, potentially covering the entire Gulf of Guinea region. In March 2019, an item of this equipment was deployed and tested at a depth of more than 1,200 m in a large-scale exercise in Nigeria.

Oil spill preparedness	2019	2018	2017
Number of sites whose risk analysis identified at least one risk of major accidental pollution to surface water ^(a)	128	126	126
Proportion of those sites with an operational oil spill contingency plan	100%	99%	91%
Proportion of those sites that have performed at least one oil spill response exercise during the year	91%	86% ^(b)	95%

(a) The variation of the number of sites between 2016 and 2018 is due to perimeter variation
 (b) The decrease compared to 2017 corresponds mainly to two Subsidiaries where equipment was being refurbished in 2018.

In accordance with industry practices, TOTAL monitors accidental liquid oil and gas spills of more than one barrel. Spills that exceed a predetermined severity threshold are reviewed on a monthly basis and annual statistics are sent to the Group Performance Management Committee. All spills are followed by corrective actions aimed at returning the environment to an acceptable state as quickly as possible.

(1) Sites emitting more than 30 kt CO₂e per year.

(2) OCIMF (Oil Companies International Marine Forum): An industry forum including the leading worldwide oil companies. This organization manages, in particular, the Ship Inspection Report (SIRE) Programme, which holds and provides access to tanker and river barge inspection reports (Barge inspection Questionnaire – BIQ).

Accidental liquid hydrocarbon spills of a volume or more than one barrel that affected the environment, excluding sabotage

	2019	2018	2017
Number of spills	57	74	62
Total volume of spills (thousands of m ³)	1.2	0.3	0.5

Limitation of the environmental impact

Water, air

The Group's operations generate emissions into the atmosphere from combustion plants and the various conversion processes and discharges into wastewater. In addition to complying with applicable legislation, the Group drew up a guide that the Subsidiaries can use to limit the quantities discharged. More particularly, the Group set itself targets for the reduction in sulfur dioxide (SO₂) emissions and limitation of discharges of hydrocarbons into water. After analyses have been conducted, the exposed sites can introduce various reduction systems that include organizational measures (such as using predictive models to control peaks in sulfur dioxide (SO₂) emissions based on weather forecast data and the improvement of combustion processes management, etc.) and technical measures (wastewater treatment plants, using low NO_x burners and electrostatic scrubbers, etc.). Today, all the refineries owned exclusively by the Group have this type of system.

For new facilities developed by the Group, the internal rules require impact assessments to be carried out on these emissions and, if necessary, actions must be taken to limit their impact.

In 2010, SO₂ emissions reached 99 kt. The Group set itself the target of not exceeding 49.5 kt by 2020; it has met this target since 2017.

Chronic emissions into the atmosphere^(a)

	2019	2018	2017
SO ₂ emissions (kt)	39	48	47
NO _x emissions (kt)	72	66	69

(a) Refer to point 5.11 of this chapter for the scope of reporting.

SO₂ emissions that are likely to cause acid rain are regularly checked and reduced. The decrease in these emissions in 2019 is mainly due to a decrease in activity at refining units and the implementation of a more stringent policy concerning acid gas flaring by the Exploration & Production segment in the United Arab Emirates.

NO_x emissions mainly concern hydrocarbon exploration and production activities and are primarily located offshore and far away from the coast. Their impact on air quality is therefore considered to be minor. The increase in 2019 is mainly due to an increase in offshore drilling and logistics activities.

Discharged water quality

	2019	2018	2017
Hydrocarbon content of offshore water discharges (in mg/l)	13.0	14.1	17.7
% of sites that meet the target for the quality of offshore discharges (30 mg/l)	100% ^(a)	96% ^(a)	100% ^(a)
Hydrocarbon content of onshore water discharges (in mg/l)	1.7	1.8	2.4
% of sites that meet the target for the quality of onshore discharges (15 mg/l)	100%	100%	100%

(a) Alwynn site (United Kingdom) excluded, as its produced water discharges only occur during the maintenance periods of the water reinjection system and are subject to a specific regulatory authorization.

Soil

The risk of contaminated land related to TOTAL's Activities is mainly from accidental spills and storage of waste. The Group has drawn up recommendations that the Subsidiaries can use to prevent and contain this contamination. The recommended approach is based on four pillars:

- preventing leaks, by implementing, as far as possible, industry best practices in engineering, operations and transport;
- carrying out maintenance at appropriate frequency to minimize the risk of leaks;
- overall monitoring of the environment to identify any soil and groundwater pollution;
- managing any contamination from previous activities by means of containment and reduction or disposal operations.

In addition, a Group rule defines the following minimum requirements:

- identification of each site's environmental and health impacts related to possible soil and groundwater contamination;
- assessment of soil and groundwater contamination based on various factors (extent of pollution inside or outside the site's boundaries, nature and concentrations of pollutants, presence of a vector that could allow the pollution to migrate, use of the land and groundwater in and around the site);
- management of health or environmental impacts identified based on the use of the site.

Lastly, decommissioned facilities operated by the Group (i.e., chemical plants, service stations, mud pits or lagoons resulting from hydrocarbon extraction operations, wasteland on the site of decommissioned refinery units, etc.) impact the landscape and may, despite all the precautions taken, be sources of chronic or accidental pollution. In addition to the appropriate management of waste produced by the dismantling and decommissioning of sites, TOTAL has created a policy of evaluation and management of the risks caused by the pollution of soil and groundwater. For the sites at the end of their activity, remediation operations are determined in accordance with regulatory obligations with an objective of continuing to supervise the sites while favouring the possibility of redevelopment of Group activities (solar, reforestry, etc.). Remediation operations are carried out by specialized entities created by the Group. At the end of 2019, 114 industrial sites that were no longer in operation (excluding service stations) were in the process of remediation.

Sustainable use of resources

Fresh water

The Group's activities, mainly those of Refining & Chemicals, and to a lesser extent those of the Exploration & Production and the Integrated Gas, Renewables & Power segments, may potentially have an impact on, as well as be dependent on, water resources. This is especially true when an activity is located in a water resources sensitive environment.

Fully aware of these challenges, TOTAL implements the following water risk management principles:

1. monitor water withdrawals to identify priority sensitive sites and then carry out a risk assessment;
2. improve the water resources management depending on identified needs, by adapting the priority sites' environmental management system.

In order to identify its facilities exposed to the risk of water stress, TOTAL records the withdrawal and discharge of water on all of its operated sites relevant for this indicator and assesses these volumes on the basis of the current and future water stress indicators of the WRI⁽¹⁾ Aqueduct tool. Currently, 9.3%⁽²⁾ of fresh water withdrawals take place in a global water stress area. For the sites situated in these areas and that withdraw more than 500,000 m³ per year, TOTAL assesses water resources risk levels using, in particular, the Local Water Tool (LWT) for Oil & Gas from the Global Environmental Management Initiative (GEMI). This tool also helps guide the actions taken to mitigate the risks and to make optimal use of water resources on the sites when necessary.

This risk assessment establishes that the activities of the sites operated by the Group only expose the other users of the water to a relatively low risk of water stress. Following this assessment, two sites were identified as being at risk and were reported to the CDP⁽³⁾: the Grandpuits and Normandie refineries. The risk concerns the supply of water to these sites, which could be cut in order to maintain access to water for priority users.

In 2019, the Group answered the CDP Water survey for the 2018 period and was graded A-. The main indicator used in this reporting is fresh water withdrawal.

Water-related indicator ^(a)	2019	2018	2017
Fresh water withdrawals excluding cooling water (million m ³)	115	116	116

(a) Refer to point 5.11 of chapter 5 for the scope of reporting.

Soil

TOTAL uses the ground surface that it needs to safely conduct its industrial operations and, in 2019, did not make extensive use of ground surfaces that could substantially conflict with various natural ecosystems or agriculture.

Sensitive natural environments

Due to their nature, TOTAL's activities may potentially be located in **sensitive natural environments**. The Group is fully aware of this challenge and takes biodiversity and ecosystems into account in its internal standards, the core of which is its Safety Health Environment Quality Charter. As an illustration, for new facilities developed by the Group, its internal standards require the conducting of impact assessment studies that take into account biodiversity and ecosystems and the implementation of actions if necessary. For existing facilities, the Group recommended to its Subsidiaries that avoid-reduce-restor-compensate steps be taken. To make this policy more tangible, in July 2018, and within the framework of the Act4Nature initiative, the Group made 16 biodiversity commitments. These are described in the

biodiversity brochure available on the website sustainable-performance.total.com. There are 10 general commitments common to all of the signatory companies and an additional six commitments specific to TOTAL, some of which existed before the initiative.

3.6.8.4 Climate

Governance

In order to make an effective contribution to the climate change issue, TOTAL has put in place an organization and a structured governance. The Group has defined four strategic priorities that address climate change-related issues.

In support of the Group's governance bodies, the Strategy and Climate division structures the implementation of the Group's action with respect to climate change while working with the strategic and operational divisions of the Group's business segments. Progress is monitored through indicators, allowing the Group to adjust its actions.

Oversight by the Board of Directors

TOTAL's Board of Directors ensures that climate-related issues are incorporated into the Group's strategy and examines climate change risks and opportunities during the annual strategic outlook review of the Group's business segments. The Board of Directors examines the Group's GHG emissions reduction targets and reviews its performance on an annual basis.

To carry out its work, the Board of Directors relies on its Strategic & CSR Committee, whose rules of procedure were changed in September 2017 then in July 2018 in order to extend its missions to corporate social responsibility (CSR) and to the inclusion of climate-related issues in the Group's strategy.

In view of the importance of climate change challenges, in 2019, the Board of Directors decided to change the criteria for the determination of the variable portion of the Chairman and Chief Executive Officer's compensation for 2019 including by applying a quantifiable criterion related to the evolution of GHG emissions (Scopes 1 & 2) on operated oil & gas facilities (refer to chapter 4, section 4.3.2 for details). This criterion complements those introduced in 2016 to better account for the achievements of the Group's CSR and HSE targets. CSR performance is assessed by considering the extent to which climate issues are included in the Group's strategy, the Group's reputation in terms of corporate social responsibility as well as all aspects of the diversity policy.

Role of management

TOTAL's Chairman and Chief Executive Officer, in accordance with the long-term strategic directions set by the Board of Directors, implements the strategy of the Group while making sure climate change challenges are taken into account. In particular, he relies on the President, Group Strategy-Innovation, who is a member of the Executive Committee, to whom the Senior Vice President Strategy & Climate, and the Senior Vice President Climate report. The Senior Vice President Climate chairs the Climate-Energy Steering Committee, which mainly includes representatives of Strategy and HSE management from the various business segments. The purpose of this Committee is to structure the Group's approach to climate, in particular to:

- propose GHG emission reduction targets for the Group's operated oil & gas facilities;
- propose a strategy to reduce the carbon intensity of the energy products used by the Group's customers;
- monitor existing or emerging CO₂ markets;
- drive new-technology initiatives, in particular with industrial partners, to reduce CO₂ emissions (energy efficiency, CO₂ capture and storage, for example).

(1) World Resources Institute.

(2) According to CDP Water 2018 definition.

(3) Non-profit organization that offers environmental reporting services for investors, enterprises, city authorities, States and regional authorities. Refer to <https://www.cdp.net/en>

Strategy

Climate change is at the heart of the Company’s strategic vision. TOTAL’s approach is based on four axes.

1) Growing in the gas value chains (natural gas, biogas and hydrogen)

To respond effectively to the strong rise in demand for electricity, TOTAL is continuing its development in the gas sector, the CO₂ emissions of which are half that of coal when used to generate electricity⁽¹⁾. Gas is also a supplement that is essential to cope with the intermittent supply of renewables and seasonal fluctuations in demand. The growth of natural gas will see a constantly increasing proportion of greener gas in the existing infrastructure network, such as biogas and hydrogen, to reduce greenhouse gas emissions.

The Group has continued its efforts to expand its activities along the entire gas chain, from production to end customer. Upstream, TOTAL has finalized various acquisitions, including Engie’s LNG (liquefied natural gas) assets and Anadarko’s LNG assets in Mozambique, and has launched some major LNG projects, such as Ichthys in Australia and Cameron in the United States. In addition, the Group has proceeded with or benefited from the launch of major developments, like the Arctic LNG 2 project (refer to point 2.3 of chapter 2). TOTAL is the world’s second-ranking⁽²⁾ operator on this market, selling a volume of more than 34 Mt in 2019.

In distribution, TOTAL has moved into gas fuel for transport activities by acquiring a 25% stake in Clean Energy Fuels Corp.⁽³⁾, one of the leading distributors of gas fuel for HGVs in the United States, and by signing a contract with CMA-CGM, the first shipping company to equip its transcontinental container ships with LNG-powered engines. In 2018, the Group also entered into a partnership with the Adani Group, India’s largest private conglomerate in energy and gas infrastructure, in order to contribute to the development of the natural gas market. This partnership, which was extended in 2019, illustrates the Group’s desire to help countries transition from coal to a more diversified energy mix.

Strengthening the position of gas in the energy mix must, however, be accompanied by a greater focus on control of methane emissions. To preserve the advantage that gas offers in terms of GHG emissions compared to coal for electricity generation, it is necessary to reduce methane emissions associated with the production and transportation of gas. In 2019, methane emissions from facilities operated by the Group for its Upstream hydrocarbons activities amounted to circa 0.20% of the commercial gas produced⁽⁴⁾. The Group’s target is to reduce this intensity below 0.20%.

Since 2014, the Group has been a member of the Oil & Gas Methane Partnership between governments and industrial companies for the improvement of tools to measure and control methane emissions set up by the Climate and Clean Air Coalition and promoted by UN Environment and the non-profit organization Environmental Defense Fund. The Group also took several actions as part of the Oil & Gas Climate Initiative and signed the guiding principles on the reduction of methane emissions across the natural gas value chain⁽⁵⁾.

2) Developing a profitable low-carbon electricity business

TOTAL’s position is growing on the unregulated part of the low-carbon electricity value chain (i.e., excluding the transportation of electricity), from electricity generation – generated from renewables or gas – to storage (batteries, hydrogen) and sale to end customers. As demand for electricity is expected to grow in the coming decades, TOTAL plans to invest \$1.5 to \$2.0 billion per year. In 2018, the Group made strategic acquisitions, including Direct Énergie and its subsidiary Quadran, respectively renamed Total Direct Énergie and Total Quadran, thereby stepping up its presence in renewable energy (wind, solar and hydropower and in biogas).

In 2018, TOTAL acquired four combined-cycle natural gas power plants in France with a global capacity of 1.6 GW (refer to point 2.3 of chapter 2 for further information on these acquisitions).

The Group aims to hold an installed gross production capacity of renewable electricity in excess of 25 GW by 2025, of which 10 GW in Europe. In 2019, this capacity was approximately 3 GW.

In distribution, following the acquisition in 2018 of the French specialist in smart recharging solutions, G2Mobility renamed Total EV Charge, the Group has diversified its electric mobility offer. TOTAL aims to operate 150,000 charging points on private or public parking lots in Europe by 2025.

Example: Electric vehicles, Netherlands

TOTAL was awarded Europe’s largest concession contract for electric vehicles charging by the ‘Metropolitan Region Amsterdam Electric’ (MRA-Electric). Under this agreement, TOTAL will install and operate up to 20,000 new public charging points in the Netherlands, in the three provinces of North-Holland, Flevoland and Utrecht⁽¹⁾. This new contract intends to address the fast growing demand for public Electric Vehicle (EV) charging points in the Netherlands. This EV charging network shall cover a population of 3.2 million inhabitants and around 15% of the current Netherlands EV charging demand. As part of this concession contract, the electricity supplied by TOTAL to the EV charging network will be 100 % sourced from renewable power (solar, wind, ...) and produced in the country.

TOTAL has also launched a range of fluids for electric and hybrid vehicles.

As an electricity supplier, the Group aims to serve almost eight million customers by 2025.

3) Avoid expensive oil, reducing emissions at our facilities and promoting sustainable biofuels

The Group foresees a long-term stagnation, or even a decline, in the demand for oil and is, therefore, concentrating on low break-even oil assets.

Additionally, TOTAL is taking steps to reduce CO₂ emissions from its operated facilities. A dedicated task force bringing together different skills in the Group was set up in 2019. The Group has set itself a target of reducing GHG emissions from its operated oil & gas facilities from 46 Mt of CO₂ to less than 40 Mt of CO₂ between 2015 and 2025.

(1) Source: International Reference Center for the Life Cycle of Products, Processes and Services; Life cycle assessment of greenhouse gas emissions associated with natural gas and coal in different geographical contexts, October 2016, and “Review of Life Cycle Analysis of gas and coal supply and power generation from GHG and Air Quality Perspective” Imperial College London, 2017.

(2) Company’s data

(3) A company listed on the NASDAQ, 24.84% interest on December 31, 2019.

(4) Refer to the OGCI methodology for methane intensity calculation.

(5) “Guiding Principles on Reducing Methane Emissions across the Natural Gas Value Chain”.

(6) With the exception of the municipalities of Amsterdam and Utrecht.

Improving the energy efficiency of the installations is an essential part of this effort. The Group aims to improve its energy efficiency by an average of 1% per year over the 2010-2020 period, at a time when exploration is becoming increasingly complex. This indicator is described in point 3.6.8.4.3 of this chapter. TOTAL also uses appropriate architectures and equipment and introduces technological innovations. For example, on offshore production barges, offshore platforms and onshore facilities, heat recovery systems on gas turbine exhausts have been installed, thereby avoiding the need for furnaces or boiler systems.

Finally, the incorporation of biofuels can help reduce CO₂ emissions from road and air transport. According to European standards, they reduce CO₂ equivalent emissions by at least 50% through their complete life cycle, in comparison with the equivalent fossil fuels⁽¹⁾. As a pioneer in biofuels for more than 20 years, TOTAL is now one of Europe's major actors, with 2.5 Mt blended sustainable biofuels⁽²⁾ in 2019. On a worldwide scale, the Group contributed to the incorporation of 3.6 Mt of sustainable biofuels. In addition, TOTAL produced 0.24 Mt of sustainable biofuels in its refineries in 2019. With the start of production at the La Mède biorefinery in 2019, with a capacity of 0.5 Mt per year of hydrotreated vegetable oil (HVO), the Group has a market share of over 10% in Europe in HVO production.

For more than 10 years, TOTAL's R&D teams have developed technologies that have broadened the range of usable resources, while also meeting the need for sustainability. The consortium BioTFuel is working on, for example, the development of lignocellulose (plant waste).

4) Developing businesses that contribute to carbon neutrality

The preservation and restoration of natural carbon wells (forests, wetlands, etc.) and carbon capture and storage (CCUS) will be key to achieving carbon neutrality in the second part of the 21st century.

TOTAL has launched a new activity based on preserving and restoring the capacity of ecosystems to act as carbon sinks. This activity is owned by a business unit created in 2019 that is dedicated to investments in natural carbon sinks, made up of environmental and agronomy experts, with an investment budget of \$100 million per year from 2020 onwards, and with a target of 5 MtCO₂ of sustainable storage capacity per year by 2030. In addition, as part of the *Total Foundation* program, the Total Foundation is currently conducting projects in forest preservation and restoration (refer to point 5.10 of chapter 5).

On the other hand, CCUS will be essential for several industries, especially those that emit massive amounts of CO₂ due to the nature of their business (cement, steel, etc.). TOTAL allocates significant resources to this area by dedicating up to 10% of the Group's R&D budget to it. Several projects made significant progress, including Northern Lights (Norway), a project in which the Group participates alongside Equinor and Shell. TOTAL is also a partner of the Net Zero Teesside project (UK), together with the OGCI's investment fund and several other industry players⁽³⁾.

TOTAL also stepped up its R&D program in 2019 by entering partnerships with the National Carbon Capture Center in the United States and IFPEN in France. The Group has also launched a development study for a major pilot industrial scale project in Dunkirk, a project to produce methanol from CO₂ and hydrogen in Germany with the start-up Sunfire, and a feasibility study of an industrial system to capture and reuse the CO₂ produced by the LafargeHolcim cement plant in the United States⁽⁴⁾.

Sector initiatives and international framework

TOTAL is involved in various international initiatives on the main challenges raised by climate change. Indeed, tackling climate change requires cooperation between all actors, from both public and private sectors.

Thus, TOTAL responded, in 2014, to the call of the UN Global Compact, encouraging companies to consider a CO₂ price internally and publicly support the need for such a price via regulation adapted to the local context. In particular, TOTAL advocates the introduction of a balanced, progressive international agreement to prevent distortion of competition between industries or regions worldwide. Drawing attention to future constraints on GHG emissions is crucial to changing the energy mix. TOTAL therefore promotes the setting of a worldwide price for each ton of carbon emitted, while ensuring fair treatment of "sectors exposed to carbon leakage" (as defined by the EU). In addition, TOTAL is working with the World Bank as part of the Carbon Pricing Leadership Coalition (CPLC). In June 2017, TOTAL became a founding member of the Climate Leadership Council, an initiative that calls for the introduction of a "carbon dividend", with a redistribution mechanism that pays dividends to the entire population.

In 2014, TOTAL was actively involved in launching and developing the Oil & Gas Climate Initiative (OGCI), a global industry partnership. At year-end 2019, this initiative involved 13 major international energy players. Its purpose is to develop solutions for a sustainable low emissions future. Launched in 2017, the OGCI Climate Investments fund, which has access to over \$1 billion over 10 years, invests in technology that significantly cuts emissions. Examples of investments include a large-scale industrial CO₂ capture and storage project (Net Zero Teesside Project), methane emission monitoring services by satellite (GHGSat), by aircraft (Kairos Aerospace) or by drone (SeekOps Inc.) and a technology that incorporates CO₂ as a raw material in the production of polyols used in polyurethanes, which are plastics that have multiple uses (Econic Technologies).

The Group also plays a role in various international initiatives that involve the private and public sectors to bring about (non-exhaustive list):

- carbon pricing within Caring for Climate – United Nations Global Compact, and the Paying for Carbon call;
- the end of routine flaring of gas associated to oil production within the World Bank's Zero Routine Flaring by 2030 initiative;
- greater transparency, while taking into account the recommendations of the G20 Financial Stability Board on climate, and of the Task Force on Climate-related Financial Disclosures (TCFD); and
- the development of new state-of-the-art energy companies, since 2017 within the Breakthrough Energy Coalition (BEC), a group of investors created by Bill Gates in 2015, and since 2016 within the Breakthrough Energy Ventures, a \$1 billion fund created in 2016 by the BEC.

The list of trade associations of which TOTAL is a member and the lobbying Ethics Charter that governs these memberships are published on the website www.total.com. The Group cooperates with these associations mainly on technical or scientific subjects, but certain associations sometimes make public statements on climate change. In 2019, TOTAL assessed the 30 main trade associations to which it belongs in order to check that they are in line with the Group's stance on the climate. This alignment was reviewed according to six key points: their scientific position, the Paris Agreement, carbon pricing, the role of natural gas, the development of renewable energies and the development of CCUS. Following this review, TOTAL decided not to renew its membership of

(1) Article 17, paragraph 2 of the RED1 European Directive.

(2) Physical volume of biofuels in equivalent ethanol and esters according to the rules defined by the European RED Directive, excluding volumes sold to third parties via trading.

(3) BP, ENI, Equinor, Occidental Petroleum and Shell.

(4) Svante Inc., LafargeHolcim, Oxy Low Carbon Ventures LLC and TOTAL.

the American Fuel & Petrochemical Manufacturers association. TOTAL remains a member of three associations (the American Chemistry Council, the American Petroleum Institute and the Canadian Association of Petroleum Producers) identified as being partially aligned, to advocate internally for changes in their position. TOTAL is prepared to reconsider its membership in the event of continued disagreement.

In November 2019, TOTAL wrote to the US agency in charge of the environment (US-EPA), through a public consultation process, to oppose the projected lowering of regulatory requirements on methane emission control in the oil and gas industry. The Group supports policies which aim to reduce methane emissions from natural gas production and consumption.

TOTAL also actively participates in the debate on climate issues, thanks especially to its long-term partnerships with university chairs, such as the Climate Economics Chair at Paris-Dauphine University, the climate change research program of Massachusetts Institute of Technology (MIT)⁽¹⁾, and Toulouse School of Economics. TOTAL also offers training and makes presentations at several universities, thereby taking part in the debate.

Targets and metrics to measure climate-related risks and opportunities

TOTAL has set targets and introduced a number of indicators to steer its performance.

The Group's climate targets:

- reduce the GHG emission (Scopes 1 & 2) on operated oil & gas facilities of 46 Mt CO₂e in 2015 to less than 40 Mt CO₂e in 2025.
- reduce routine flaring⁽²⁾ by 80% on operated facilities between 2010 and 2020 in order to eliminate it by 2030;
- improve by an average of 1% per year the energy efficiency of operated facilities between 2010 and 2020;
- reduce the intensity of methane emissions of facilities operated by the Group for its Upstream hydrocarbon activities below 0.20% of the commercial gas produced;
- maintain the intensity of CO₂e emissions of facilities operated by the Group for its Upstream hydrocarbons activities under 20 kg CO₂e/boe.

What has been accomplished:

- a GHG emission reduction (Scopes 1 & 2) on operated oil & gas facilities from 46 Mt CO₂e to 41.5 Mt CO₂e between 2015 and 2019;
- more than 80% reduction in routine flaring between 2010 and 2019;
- more than 10% improvement in energy efficiency between 2010 and 2019;
- an intensity of methane emissions around 0.20% of the commercial gas produced in 2019;
- an intensity of CO₂e emissions below 20 kg CO₂e/boe in 2019.

Indicators related to climate change^(a)

		2019	2018	2017	2016	2015	
SCOPE 1	Direct greenhouse-gas emissions (operated scope)	Mt CO ₂ e	41	40	38	41	42
Breakdown by segment							
	Hydrocarbons Upstream activities	Mt CO ₂ e	18	18	17	19	19
	Refining & Chemicals	Mt CO ₂ e	20	21	21	22	22
	Marketing & Services	Mt CO ₂ e	< 1	< 1	< 1	< 1	< 1
	Integrated Gas, Renewables & Power (excluding upstream gas)	Mt CO ₂ e	3	2	0	0	-
SCOPE 1	Direct greenhouse-gas emissions based on the Group's equity interest	Mt CO ₂ e	55	54	50	51	50
SCOPE 2	Indirect emissions attributable to energy consumption by sites	Mt CO ₂ e	4	4	4	4	4
GHG emissions (Scopes 1 & 2) on operated oil & gas facilities							
	Net primary energy consumption (operated scope)	TWh	160	143 ^(b)	142	150	153
	Group energy efficiency indicator	Base 100 in 2010	88.0	88.4	85.7	91.0	90.8
	Daily volume of all flared gas (Exploration & Production operated scope) (including safety flaring, routine flaring and non-routine flaring)	Mm ³ /d	5.7	6.5	5.4	7.1	7.2
	Of which routine flaring	Mm ³ /d	0.9	1.1	1.0	1.7 ^(c)	2.3 ^(d)

(a) Report to point 5.11 of chapter 5 for reporting scope

(b) Excluding primary energy consumption of Direct Énergie gas power plants.

(c) Estimated volume at end 2016 based on new definition of routine flaring published in June 2016 by the Working Group Global Gas Flaring Reduction.

(d) Volumes estimated upon historical data.

(1) The Joint Program on the Science and Policy of Global Change.

(2) Routine flaring, as defined by the working group of the Global Gas Flaring Reduction program within the framework of the World Bank's Zero Routine Flaring initiative.

This data as well as the related risks are also reported to the CDP once a year, and TOTAL's response to the CDP⁽¹⁾ Climate Change questionnaire is posted on the Group's website (sustainable-performance.total.com). For its 2019 reporting regarding 2018 activities, the Group received an A-.

Flaring

Reducing routine flaring has been a long-standing target for the Group, which designs its new projects without resorting to it. In addition, TOTAL is committed to putting an end to routine flaring on its operated facilities by 2030. An 80% reduction target was set for 2020 compared to 2010, in other words, an average of 1.5 Mm³/d. This target has been met since 2017.

Furthermore, as part of the Global Gas Flaring Reduction program, TOTAL has worked alongside the World Bank for over 10 years to help producing countries and industrial players control flaring of gas associated to oil production.

The decrease in flaring in 2019 is due to better compressor reliability and shorter start-up periods in Africa.

Energy efficiency

One of the Group's performance targets is to better control energy consumption. Since the beginning of 2013, a Group directive has defined the requirements to be met at operated sites using more than 50,000 tons of oil equivalent per year of primary energy (approximately 40 sites). At the end of 2019, all the sites involved reported compliance or had taken steps to comply with this directive. The aim is to ensure that 100% of sites using more than 50,000 tons of oil equivalent per year by the end of 2020 have an auditable energy management system, such as the ISO 50001 standard on energy management⁽²⁾. A certain number of sites that use less than 50,000 tons of oil equivalent per year have also voluntarily taken measures to become ISO 50001 certified.

Energy efficiency is a key factor for the improvement of economic, environmental and industrial performance. Since 2013, the Group has used a Group Energy Efficiency Index (GEEI) to assess its performance in this area. It consists of a combination of energy intensity ratios (ratio of net primary energy consumption to the level of activity) per business.

The Group's target for the 2010-2020 period is to improve the energy efficiency of its operated facilities by an average of 1% per year. By design, the base value of the GEEI was defined as 100 in 2010 and the target is to reach 90.4 in 2020. This target has been met since 2017.

GHG emissions

The Group has reduced by 50% the GHG emissions (Scopes 1 & 2) from its operated activities since 2005. This reduction was reached notably due to reducing flaring and improving energy efficiency.

In 2019, TOTAL set itself a target to reduce GHG emissions (Scopes 1 & 2) on its operated oil & gas facilities to less than 40 Mt CO₂e in 2025.

3.6.8.5 Suppliers

Mapping

The mapping of severe impacts of the Activities on human rights, fundamental freedoms, health, safety and the environment was supplemented by a risk mapping specific to the Group's procurement, by category of goods and services, with the participation of more than 80 persons (CSR experts and buyers) and the support of AFNOR. As part of its continuous improvement approach, Total Global Procurement worked on its methodology in 2019, with a view to updating in 2020 the previously established map, based on questionnaires completed by the managers of each purchasing category.

Supplier assessment

The Supplier qualification process

The Supplier qualification process was harmonized at Group level in 2017 and a new internal framework was published in 2018. A new IT Supplier qualification tool was developed in 2019 and will gradually be rolled out in over 100 countries. In 2019, over 4,000 of the Suppliers managed by Total Global Procurement in France were included into the application. It is designed to automate and document the supplier qualification process.

The Supplier assessment process

Simultaneously, the Group has set up a Supplier assessment process to identify and prevent risks of severe impacts on human rights, fundamental freedoms, health and safety. Since 2016, the Group conducts audits on working conditions amongst Suppliers. A targeted annual audit plan is defined every year and includes the Suppliers put forward by the Subsidiaries based in countries that have been identified as having a certain level of risk of human rights violations. Four times more audits were conducted in 2019 than in 2018. Since 2016, these audits have covered a population of close to 80,000 people working on Supplier sites worldwide.

Moreover, TOTAL, BP, Equinor and Shell are continuing their efforts to develop a common collaborative platform to assess the respect for human rights by their suppliers. Together, they seek to encourage the improvement of working conditions in the supply chain. This initiative addresses the United Nations SDG N° 8: "to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all".

(1) The CDP is a non-profit organization that offers environmental reporting services for investors, enterprises, city authorities, States and regional authorities.

(2) The ISO 50001 standard accompanies the implementation in companies of an energy management system that allows a better use of energy.

Example: Procurement of agricultural raw materials

TOTAL produces and markets biofuels partly produced from agricultural raw materials.

All biofuels incorporated by the Group in Europe are certified as sustainable according to European Union criteria (ISCC EU type certification). These certification criteria include a review of sustainability and traceability of the oils (carbon footprint, non-deforestation, proper soil use, respect for human rights). Those criteria apply to the entire production and distribution chain of sustainable biofuels and were strengthened in 2019 as part of the revision of the Directive on renewable energy in transport (RED2). In particular, the European Union caps the use of agriculture raw materials in biofuels to limit changes in land use.

In July 2019, TOTAL started up the La Mède biorefinery in southern France that will produce biofuels from vegetable oils (rape, palm, etc.), waste and residues. The compliance with the sustainability criteria of the oils processed at the La Mède biorefinery is established by an ISCC (International Sustainability & Carbon Certification) type certificate, according to a mass balance demanded by the European Union. TOTAL selects a limited number of suppliers of palm oil and completes the certification with a specific reinforced control system of sustainability and the respect for human rights. In 2019, the Group conducted five human rights audits of its potential palm oil suppliers for the La Mède biorefinery in France. These audits were carried out by independent third parties based on a framework that assesses the implemented system and governance with regards to respecting human rights, working conditions and the rights of communities.

TOTAL has demonstrated its intent to be transparent regarding the origin of every delivery of palm oil purchased for the La Mède biorefinery by publishing the list of plantations and mills attached to the sustainability certificates.

Worldwide, biofuels used by the Group meet sustainability requirements as per applicable regulations.

Finally, pursuant to Rule 13p-1 of the Securities Exchange Act of 1934, as amended, which implemented certain provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, TOTAL has submitted since 2014 to the Securities and Exchange Commission an annual document relating to “conflict minerals”⁽¹⁾ sourced from the Democratic Republic of Congo or an adjoining country. The document indicates whether, during the preceding calendar year, any such minerals were necessary to the operation or production of a product manufactured (or procured) by TOTAL S.A. or one of its affiliates. The main objective of the rule’s obligation to publish this information is to prevent the direct or indirect funding of armed groups in central Africa. For more information, refer to TOTAL’s most recent publication available at: sustainable-performance.total.com or www.sec.gov.

Mitigation and preventive actions

Buyers training

TOTAL has set up several channels of communication to **raise employee awareness** of the risks and issues related to its supply chain. Training modules explaining the Group’s ethical commitments and the Fundamental Principles of Purchasing have been developed for and made available to Group procurement representatives. In 2019, more than 300 buyers were made aware and/or trained on respect for human rights and working conditions by Suppliers.

The Group provides its **buyers** with supporting materials, such as the “Sustainable Purchasing Awareness Cards”. These fact sheets cover various topics relating to human rights at work (such as forced labor and child labor, etc.). A set of communication tools intended to help procurement representatives initiate discussions on the Fundamental Principles of Purchasing was also circulated within Total Global Procurement. The materials used in the annual performance review have been revised to include a section on human rights.

In June 2019, the Total Global Procurement seminar was attended by 239 participants (buyers and procurement support functions) and included a focus on responsible procurement. When updating the CSR risk map relating to the Group’s procurement, workshops were increase the buyer’s awareness of the issue of responsible procurement.

The 2019 World Quality Day brought together parties involved in performance improvement to discuss the theme “Performance, let’s embark all actors” at events held simultaneously in Paris, Pau and Copenhagen. Various project managers shared their experiences gained by using lean management tools, and a guest speaker illustrated the use of lean in the early phases of a project. Efforts were also made to raise the participants’ awareness of issues related to responsible purchasing.

Awareness and training of suppliers

Awareness-raising actions are carried out during meetings with Suppliers, particularly the Suppliers Day event that brings the Group’s strategic Suppliers together every two years. During the 2019 Suppliers Day, the Fundamental Principles of Purchasing and the Group’s new Code of Conduct were distributed to all participants. Emphasis was laid on responsible procurement in particular.

Every year, the International Procurement Office (TOTAL IPO in Shanghai, China) organizes a **compliance day**. In 2019, special focus was given to the issue of respect for human rights.

Progress with other companies

Since 2018, TOTAL has been a member of the United Nations Global Compact platform on Decent Work in Global Supply Chains and, in this capacity, takes part in various workshops that aim to **help the member companies of the Global Compact make progress** in this area. In December 2018, the Group committed to continuing its efforts in terms of decent work and the respect for human rights in its supply chain by signing the “Six Commitments” of the United Nations Global Compact. In October 2019, TOTAL welcomed participants at its offices for the platform’s fourth and final round table meeting. The Group’s buyers also take part in **international working groups on responsible procurement**. TOTAL belongs to IPIECA’s Supply Chain Working Group. Building on the workshops held since 2015, TOTAL continued to participate in the Operationalization of the UN Guiding Principles work organized by the IPIECA, aimed at both oil and gas companies and engineering, procurement and construction (EPC) contractors.

(1) Rule 13p-1 defines “conflict minerals” as follows (irrespective of their geographical origin): columbite-tantalite (coltan), cassiterite, gold, wolframite as well as their derivatives, which are limited to tantalum, tin and tungsten.

Whistleblowing mechanisms

With respect to the development of good practices in business relations, TOTAL has consistently raised its employees' awareness of mediation as an alternative method for resolving disputes since 2013. In 2019, an open day for employees of the Group, lawyers and operational staff, enabled participants to learn about the benefits of mediation. A brochure designed to increase awareness of the mediation process is available to all Group employees. In addition, an email address (mediation.fournisseurs@total.com) is available on the TOTAL website to allow the Group's suppliers to contact the dedicated internal mediator, who is tasked with facilitating relations between the Group and its French and international suppliers. The general purchasing terms and conditions also mention the possibility of recourse to mediation.

Monitoring procedures

A **Responsible Procurement roadmap**, updated in 2019, defines TOTAL's outlook for 2019-2023 in terms of respecting human rights throughout the supply chain, environment and economic development. Representatives of the Management Committee of Total Global Procurement, management of the Civil Society Engagement, HSE and Legal divisions as well as the Ethics Committee were invited in 2019 to participate to the Responsible Procurement Committee which is tasked with monitoring the implementation of the Group's Responsible Procurement roadmap.

4

Report on corporate governance



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[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

4 Report on corporate governance

Administration and management bodies

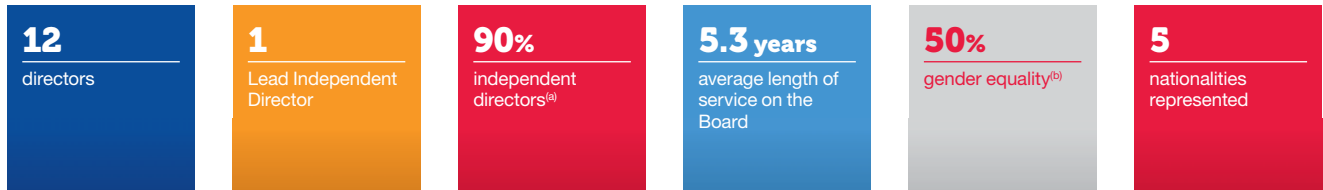
The information set out in this chapter forms the Board of Directors' report on corporate governance, produced pursuant to Article L. 225-37 of the French Commercial Code. This report was prepared on the basis of the deliberations of the Board of Directors, and with the assistance of several of the Company's corporate functional divisions, including in particular

the Legal, Finance and People & Social Responsibility Departments. After the sections relevant to their respective duties were reviewed by the Governance and Ethics Committee and the Compensation Committee, the report was approved by the Board of Directors.

4.1 Administration and management bodies

4.1.1 Composition of the Board of Directors

As of March 18, 2020



(a) Excluding the director representing employee shareholders and the director representing employees, in accordance with the recommendations of the AFEP-MEDEF Code (point 9.3). For more information, refer to point 4.1.1.4 of this chapter.

(b) Excluding the director representing employees, in accordance with Article L. 225-27-1 of the French Commercial Code and the director representing employee shareholders in accordance with Article L. 225-23 of the French Commercial Code.

The Company is administered by a Board of Directors whose 12 members include a director representing employee shareholders elected on the proposal of the shareholders specified in Article L. 225-102 of the French Commercial Code, in accordance with the provisions of Article L. 225-23 of the French Commercial Code (hereafter referred to as the "director representing employee shareholders") and a director representing employees appointed by the Central Works Council (replaced since December 2018 by the Central Social and Economic Committee) of UES Amont – Global Services – Holding, in accordance with the provisions of Article L. 225-27-1 of the French Commercial Code and the Company's bylaws.

Mr. Patrick Pouyanné is the Chairman and Chief Executive Officer of TOTAL S.A. He has served as Chairman of the Board of Directors since December 19, 2015, the date on which the functions of Chairman of the Board of Directors and Chief Executive Officer of TOTAL S.A. were combined (refer to point 4.1.5.1 of this chapter).

A Lead Independent Director has served since December 19, 2015. Her duties are specified in the Rules of Procedure of the Board of Directors (refer to point 4.1.2.1 of this chapter).


Directors are appointed for a three-year period (Article 11 of the Company's bylaws). The terms of office of the members of the Board are staggered to space more evenly the renewal of appointments and to ensure the continuity of the work of the Board of Directors and its Committees, in accordance with the recommendations of the AFEP-MEDEF Code, which the Company refers to. The profiles, experience and expertise of the directors are detailed in the biographies below.

The Board of Directors decided to propose to the Shareholders' Meeting to be held on May 29, 2020 a plan to convert TOTAL S.A. into a European company (*Societas Europaea* or SE). This legal status as a European company, common to all the countries of the European Union and used by a growing number of companies both in France and in Europe, will better reflect the economic and social reality of the Group as well as fully acknowledge its European dimension. The Group has a strong European presence, with activities in 25 European countries, representing more than 60% of its employees and more than 70% of the Group's sales.

The conversion of TOTAL S.A. into a European company will have no impact on the Company's governance, activities, tax affairs, organization, where it is listed or the location of the head office, which will remain in France. The Company's bylaws amended as a result of this conversion project which will be submitted to the Shareholders' Meeting to be held May 29, 2020, will also include various adaptations related in particular to the French Law No. 2019-486 of May 22, 2019 on the growth and transformation of businesses, known as "PACTE" law, particularly with regard to participation of employees in the Company's Board of Directors.

Overview of the Board of Directors as of March 18, 2020

Appendix 3 of the AFEP-MEDEF Code

As of March 18, 2020	Personal information			Number of shares	Experience	Independence	Position on the Board			Participation in Board Committees
	Age	Gender	Nationality		Number of directorships ^(a)		Initial date of appointment	Term of office expires	Length of service on the Board	
Patrick Pouyanné <i>Chairman and Chief Executive Officer</i>	56	M		172,113	1		2015	2021	5	✓
Patrick Artus	68	M		1,000	2	✓	2009	2021	11	✓
Patricia Barbizet <i>Lead Independent Director</i>	64	F		11,050	3	✓	2008	2020	12	✓
Marie-Christine Coisne-Roquette	63	F		4,559	1	✓	2011	2020	9	✓
Lise Croteau	59	F		1,000	3	✓	2019	2022	1	✓
Mark Cutifani	61	M		2,000	1	✓	2017	2020	3	✓
Valérie Della Puppa Tibi <i>Director representing employee shareholders</i>	51	F		30	0	n/a	2019	2022	1	
Maria van der Hoeven	70	F		1,000	1	✓	2016	2022	4	✓
Anne-Marie Idrac	68	F		1,385	4	✓	2012	2021	8	✓
Jean Lemierre	69	M		1,042	1	✓	2016	2022	4	✓
Christine Renaud <i>Director representing employees</i>	51	F		320	0	n/a	2017	2020	3	✓
Carlos Tavares	61	M		1,000	2	✓	2017	2020	3	✓

(a) Number of directorships held by the director at listed companies outside his or her group, including foreign companies, assessed in accordance with the recommendations of the AFEP-MEDEF Code, point 19 (refer to point 4.1.1.3 of this chapter).

As of March 18, 2020

Audit Committee	Governance and Ethics Committee	Compensation Committee	Strategy & CSR Committee
<p>4 members 100% independent</p> <p>Marie-Christine Coisne-Roquette* Patrick Artus Lise Croteau Maria van der Hoeven</p>	<p>4 members 100% independent</p> <p>Patricia Barbizet* Marie-Christine Coisne-Roquette Anne-Marie Idrac Jean Lemierre</p>	<p>4 members 100% independent^(a)</p> <p>Patricia Barbizet* Mark Cutifani Christine Renaud^(b) Carlos Tavares</p>	<p>6 members 80% independent^(a)</p> <p>Patrick Pouyanné* Patrick Artus Patricia Barbizet Anne-Marie Idrac Jean Lemierre Christine Renaud^(b)</p>

(a) Excluding the directors representing employees in accordance with the recommendations of AFEP-MEDEF Code (point 9.3).

(b) Director representing employees.

* Chair of the Committee.

Changes that have occurred within the membership of the Board of Directors and Committees during the financial year

Appendix 3 of the AFEP-MEDEF Code – Situation as at March 18, 2020

	Departure	Appointment	Reappointment
Board of Directors			
05/29/2019	Gérard Lamarche	Lise Croteau	Maria van der Hoeven
	Renata Perycz ^(a)	Valérie Della Puppa Tibi ^(a)	Jean Lemierre
Audit Committee			
05/29/2019	Gérard Lamarche	Lise Croteau	
Governance and Ethics Committee			
05/29/2019	Mark Cutifani	Marie-Christine Coisne-Roquette	
Compensation Committee			
05/29/2019	Gérard Lamarche	Mark Cutifani	
	Renata Perycz ^(a)	Christine Renaud ^(b)	

(a) Director representing employee shareholders.

(b) Director representing employees.

Designation of the new Lead Independent Director

Ms. Patricia Barbizet has assumed the functions of Lead Independent Director since December 19, 2015. Since she was appointed as director on May 16, 2008, Ms. Barbizet will have served 12 years on the Board on May 16, 2020 and will no longer be considered as an independent director from that date. Subject to the renewal of her mandate as a director at the Shareholders' Meeting to be held on May 29, 2020, the Board of Directors is considering appointing Ms. Marie-Christine Coisne-Roquette in the function as Lead Independent Director at the end of the Shareholders' Meeting.

Renewal of directorships and appointment proposed to the Shareholders' Meeting to be held on May 29, 2020

The terms of office of directors Mses. Patricia Barbizet and Marie-Christine Coisne-Roquette and Messrs. Mark Cutifani and Carlos Tavares will expire at the Ordinary Shareholders' Meeting to be held on May 29, 2020, as well as the terms of office of the director representing employees.

- Renewal of directorships

At its meeting on March 18, 2020, the Board of Directors, upon the proposal of the Governance and Ethics Committee, decided to submit to the Annual Shareholders' Meeting to be held on May 29, 2020, the renewal of the directorships of Mses. Patricia Barbizet and Marie-Christine Coisne-Roquette, and Mr. Mark Cutifani for a three-year term to expire at the end of the Shareholders' Meeting to be held in 2023 to approve the 2022 financial statements.

Given his responsibilities as head of the PSA Group engaged in a major merger, Mr. Carlos Tavares did not ask for the renewal of his mandate as director. The Board thanks Mr. Carlos Tavares for the quality of his participation in the work of the Board of Directors and its Committees since May 26, 2017.

Ms. Patricia Barbizet will continue to afford the Board her financial and management expertise, and actively contribute to the quality of the Board's discussions. Ms. Patricia Barbizet will have served 12 years on the Board on May 16, 2020 and will no longer be considered as an independent director from that date.

Ms. Marie-Christine Coisne-Roquette will continue to provide the Board with her international experience as an attorney and business executive, as well as her knowledge of the sector of electrical equipment distribution. Subject to the renewal of her mandate as a director at the Shareholders' Meeting to be held on May 29, 2020, the Board of Directors is considering appointing Ms. Marie-Christine Coisne-Roquette in the function as Lead Independent Director at the end of the Shareholders' Meeting.

Mr. Mark Cutifani will continue to provide the Board with his expertise in the industry and the cyclical economy of raw materials, alongside his international expertise.

- Appointment of a new director

At the meeting of March 18, 2020, the Board of Directors decided, upon the proposal of the Governance and Ethics Committee, to propose to the same Shareholders' Meeting the appointment of Mr. Jérôme Contamine as a director for a three-year term to expire at the end of the Shareholders' Meeting to be held in 2023 to approve the 2022 financial statements.

Mr. Jérôme Contamine, French, will specifically provide the Board with his knowledge in the energy field, as well as in the financial field. After having served in various positions in the Financial Division and the Exploration & production Division of the company Elf-Aquitaine from 1998 to 2000, Mr. Jérôme Contamine was Chief Financial Officer of Veolia and then Chief Financial Officer of Sanofi from 2009 to 2018.

After analysis based on the independence criteria set forth in point 9.5 of the AFEP-MEDEF Code updated in January 2020, the Board noted that Mr. Jérôme Contamine could be considered as independent.

At the end of the Shareholders' Meeting to be held on May 29, 2020, if the proposed resolutions were approved, the proportion of directors of each gender would be greater than 40% in accordance with the provisions of Article L. 225-18-1 of the French Commercial Code⁽¹⁾.

- Directors representing employees

The office of director representing employees also expires at the end of the Annual Ordinary Shareholders' Meeting to be held on May 29, 2020. In accordance with the provisions of Article L. 225-27-1 of the French Commercial Code and with the Company's bylaws, the Central Social and Economic Committee of UES Amont – Global Services – Holding is to be convened to appoint the new director representing employees for a three-year term to expire at the end of the Annual Shareholders' Meeting to be held in 2023 to approve the 2022 financial statements.

Furthermore, in accordance of Law No. 2019-486 of May 22, 2019 on the growth and transformation of businesses, known as "PACTE" law, the Shareholders' Meeting of the Company will be convened, at its meeting on May 29, 2020, to amend Article 11 (paragraph 17) of the Company's bylaws in order to lower from 12 to 8 directors the threshold from which a second director representing employees must be designated. Considering the composition of the Board of Directors, a second director representing employees will have to be designated in the six months following the Shareholders' Meeting to be held on May 29,

(1) Excluding the director representing employees, in accordance with Article L. 225-27-1 of the French Commercial Code, and the director representing employee shareholders in accordance with Article L. 225-23 of the French Commercial Code.

2020, under conditions provided for by the bylaws, i.e. by the European Works Council or by the Committee of the European Company after the decision to convert the Company into a European company, the

bylaws' amendment accordingly and the registration of the Company as a European company.

4.1.1.1 Profile, experience and expertise of the directors (Information as of December 31, 2019)⁽¹⁾



Patrick Pouyanné

Chairman and Chief Executive Officer of TOTAL S.A.*
Chairman of the Strategy & CSR Committee

Born on June 24, 1963 (French)

Director of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 29, 2015

Last reappointment: Ordinary Shareholders' Meeting on June 1, 2018

Expiry date of term of office: 2021 Ordinary Shareholders' Meeting
Number of Total shares held: 172,113

Number of Total Actionnariat France collective investment fund units held: 9,477.6759 (as of 12/31/2019)

Business address: TOTAL S.A. 2 place Jean Millier, La Défense 6, 92400 Courbevoie France

Biography & Professional Experience

A graduate of École Polytechnique and a Chief Engineer of France's Corps des Mines, Mr. Pouyanné held, between 1989 and 1996, various administrative positions in the Ministry of Industry and other cabinet positions (technical advisor to the Prime Minister – Édouard Balladur – in the fields of the Environment and Industry from 1993 to 1995, Chief of staff for the Minister for Information and Aerospace Technologies – François Fillon – from 1995 to 1996). In January 1997, he joined TOTAL's Exploration & Production division, first as Chief Administrative Officer in Angola, before becoming Group representative in Qatar and President of the Exploration and Production subsidiary in that country in 1999. In August 2002, he was appointed President, Finance, Economy and IT for Exploration & Production. In January 2006, he became Senior Vice President, Strategy, Business Development and R&D in Exploration & Production and was appointed a member of the Group's Management Committee in May 2006. In March 2011, Mr. Pouyanné was appointed Deputy General Manager, Chemicals, and Deputy General Manager, Petrochemicals. In January 2012, he became President, Refining & Chemicals and a member of the Group's Executive Committee.

On October 22, 2014, he became Chief Executive Officer of TOTAL S.A. and Chairman of the Group's Executive Committee. On May 29, 2015, he was appointed by the Annual Shareholders' Meeting as director of TOTAL S.A. for a three-year term. The Board of Directors of TOTAL appointed him as Chairman of the Board of Directors as of December 19, 2015. Mr. Pouyanné thus became the Chairman and Chief Executive Officer of TOTAL S.A. Following the renewal of Mr. Pouyanné's directorship at the Shareholders' Meeting on June 1, 2018 for a three-year period, the Board of Directors renewed Mr. Pouyanné's term of office as Chairman and Chief Executive Officer for a period equal to that of his directorship. Mr. Pouyanné is also the Chairman of the Association United Way – L'Alliance since June 2018, having accepted this office as TOTAL S.A.'s Chairman and Chief Executive Officer. He has also been a member of the Board of Directors of École Polytechnique (since September 2018), of the Institut Polytechnique de Paris since September 2019) and of the Association Française des Entreprises Privées (French association of private companies) (since 2015).

Main function: Chairman and Chief Executive Officer of TOTAL S.A.*

Directorships and functions held at any company during the 2019 fiscal year

Within the TOTAL Group

- Chairman and Chief Executive Officer of TOTAL S.A.* and Chairman of the Strategy & CSR Committee

Outside the TOTAL Group

- Director of Capgemini S.E.* (since May 10, 2017) and member of the Strategy and Investments Committee (since September 1, 2017)

Directorships that have expired in the previous five years

None

(1) Including the information referred to in Article L. 225-37-4 of the French Commercial Code, and point 12.1 of Annex I to Commission Delegated Regulation EU 2019/980 of March 14, 2019 supplementing Regulation (EU) 2017/1129 of the European Parliament and of the Council on the form, content, review and approval of the prospectus to be published when securities are offered to the public or admitted to trading on a regulated market.

For information relating to the offices held by directors, companies marked with an asterisk are listed companies.



Patrick Artus

Independent director
Member of the Audit Committee
Member of the Strategy & CSR Committee

Born on October 14, 1951 (French)

Director of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 15, 2009

Last reappointment: Ordinary Shareholders' Meeting on June 1, 2018

Expiry date of term of office: 2021 Ordinary Shareholders' Meeting

Number of Total shares held: 1,000 (as of 12/31/2019)

Business address: Natixis 47 quai d'Austerlitz 75013 Paris – France

Biography & Professional Experience

A graduate of École Polytechnique, École Nationale de la Statistique et de l'Administration Économique (ENSAE) and the Institut d'Études Politiques de Paris, Mr. Artus began his career at INSEE (the French National Institute for Statistics and Economic Studies) where his work included economic forecasting and modeling. He then worked at the Economics Department of the OECD (1980), later becoming the Head of Research at the ENSAE from 1982 to 1985. He was the scientific advisor at the Research Department of the Banque de France, before joining the Natixis Group as the head of the Research Department, and has been a member of its Executive Committee since May 2013. He is an associate professor at the Paris School of Economics. He is also a member of the Cercle des Économistes.

Main function: Head of the Research Department and member of the Executive Committee of Natixis*

Directorships and functions held at any company during the 2019 fiscal year

Within the Natixis group

- Head of the Research Department and member of the Executive Committee of Natixis*

Outside the Natixis group

- Director of TOTAL S.A.* and member of the Audit Committee and the Strategy & CSR Committee
- Director of IPSOS*

Directorships that have expired in the previous five years

None



Patricia Barbizet

Independent director – Lead Independent Director
Chairwoman of the Governance and Ethics Committee
Chairwoman of the Compensation Committee
Member of the Strategy & CSR Committee

Born on April 17, 1955 (French)

Director of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 16, 2008

Last reappointment: Ordinary Shareholders' Meeting on May 26, 2017

Expiry date of term of office: Ordinary Shareholders' Meeting of May 29, 2020

Number of Total shares held: 11,050 (as of 12/31/2019)

Business address: Temaris et Associés SAS, 40 rue François 1^{er}, 75008 Paris France

Biography & Professional Experience

A graduate of École Supérieure de Commerce de Paris (ESCP-Europe) in 1976, Patricia Barbizet started her career in the Treasury division of Renault Véhicules Industriels, and then as CFO of Renault Crédit International. In 1989, she joined the group of François Pinault as CFO, and was CEO of Artémis, the Pinault family's investment company, between 1992 and 2018. She was also CEO and Chairwoman of Christie's from 2014 to 2016.

Patricia Barbizet was Vice Chairwoman of the Board of Directors of Kering and Vice Chairwoman of Christie's plc. She has been a member of the Board of Directors of TOTAL S.A. since 2008, and was a director of Bouygues, Air France-KLM and PSA Peugeot-Citroën. She chaired the Investment Committee of the Fonds Stratégique d'Investissement (FSI) from 2008 to 2013.

Main function: Chairwoman of Temaris et Associés SAS

Directorships and functions held at any company during the 2019 fiscal year

- Chairwoman of Temaris et Associés SAS since October 2018
- Director of TOTAL S.A.*, Lead Independent Director, Chairwoman of the Governance and Ethics Committee, and since May 29, 2019, Chairwoman of the Compensation Committee and member of the Strategy & CSR Committee
- Director of Axa* since April 2018
- Director of Pernod Ricard* since November 2018

Directorships that have expired in the previous five years

- Director of Groupe Fnac Darty* until May 2019
- Director of Artémis until July 2018
- Chief Executive Officer of Artémis until January 2018
- Deputy Chairwoman of Christie's International plc until January 2018
- Director and Vice Chairwoman of the Board of Directors of Kering S.A.* until December 2018
- General Manager (non-executive) and member of the Supervisory Board of Financière Pinault until January 2018
- Permanent representative of Artémis, member of the Board of Directors of Agefi until January 2018
- Permanent representative of Artémis, member of the Board of Directors of Sebdo le Point until January 2018
- Member of the Management Board of Société Civile du Vignoble de Château Latour until January 2018
- Director of Yves Saint Laurent until November 2018



- *Amministratore & Amministratore Delegato* of Palazzo Grassi until January 2018
- Member of the Supervisory Board of Ponant until January 2018
- Representative of Artémis at the Supervisory Board of Collection Pinault Paris until January 2018
- Chairwoman and CEO of Christie's International plc until December 2016
- Member of the supervisory board of Peugeot S.A.* until April 2016
- Director of Société Nouvelle du Théâtre Marigny until November 2015

Marie-Christine Coisne-Roquette

Independent director

Chairwoman of the Audit Committee

Member of the Governance and Ethics Committee

Born on November 4, 1956 (French)

Director of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 13, 2011

Last reappointment: Ordinary Shareholders' Meeting on May 26, 2017

Expiry date of term of office: Ordinary Shareholders' Meeting of May 29, 2020

Number of Total shares held: 4,559 (as of 12/31/2019)

Business address: Sonepar 25 rue d'Astorg 75008 Paris – France

Biography & Professional Experience

Ms. Coisne-Roquette has a Bachelor's Degree in English. A lawyer by training, with a French Master's in law and a Specialized Law Certificate from the New York bar, she started her career as an attorney in 1981 at the Paris and New York bars, as an associate of Cabinet Sonier & Associés in Paris. In 1984, she became a member of the Board of Directors of Colam Entreprendre, a family holding company that she joined full time in 1988. As Chairwoman of the Board of Colam Entreprendre and the Sonepar Supervisory Board, she consolidated family ownership, reorganized the Group structures and reinforced the shareholders' Group to sustain its growth strategy. Chairwoman and Chief Executive Officer of Sonepar as of 2002, Marie-Christine Coisne-Roquette became Chairwoman of Sonepar S.A.S. in 2016. At the same time, she heads Colam Entreprendre as its Chairwoman and Chief Executive Officer. Formerly a member of the Young Presidents' Organization (YPO), she served the MEDEF (France's main employers' association) as Executive Committee member for 13 years and was Chairwoman of its Tax Commission from 2005 to 2013. She was a member of the Economic, Social and Environmental Council from 2013 and 2015 and is currently a Director of TOTAL S.A.

Main function: Chairwoman of Sonepar S.A.S. and Chairwoman and Chief Executive Officer of Colam Entreprendre

Directorships and functions held at any company during the 2019 fiscal year

Within the Sonepar group

- Chairwoman of Sonepar S.A.S.
- Chairwoman of the Corporate Board of Sonepar S.A.S.
- Chairwoman and Chief Executive Officer of Colam Entreprendre (S.A.)
- Legal representative of Sonepar S.A.S., Chairperson of Sonepar International
- Legal representative of Sonepar S.A.S., director of Sonepar France S.A.S.
- Permanent representative of Colam Entreprendre, director of SO.VE. MAR.CO Europe (S.A.)
- Chief Executive Officer of Sonepack S.A.S.

Outside the Sonepar group

- Director of TOTAL S.A.*, Chairwoman of the Audit Committee and, since May 29, 2019, member of the Governance and Ethics Committee
- Co-manager of Développement Mobilier & Industriel (*société civile*)
- Managing Partner of Ker Coro (*société civile immobilière*)
- Member of the Supervisory Board of Akuo Energy S.A.S.



Directorships that have expired in the previous five years

- Legal representative of Sonepar S.A.S., co-manager of Sonedis (*société civile*) until October 29, 2018
- Permanent representative of Colam Entreprendre, co-manager of Sonedis (*société civile*) until October 29, 2018
- Permanent representative of Sonepar Belgium to the Board of Cebeo N.V. (Belgium) until February 2018
- Chairwoman of the Board of Directors of Sonepar S.A. until 2016

Lise Croteau

Independent director
Member of the Audit Committee

Born on May 5, 1960 (Canadian)

Director of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 29, 2019

Expiry date of term of office: 2022 Ordinary Shareholders' Meeting

Number of Total ADS held: 1,000 (as of 12/31/2019)

Business address: 919 rue des Camélias, Montreal, Quebec, H3E 1Y5, Canada

Biography & Professional Experience

Ms. Croteau began her career as an auditor, joining Hydro-Québec in 1986 where she held financial management and control positions of increasing responsibility. From 2015 to 2018, she held the position of Executive Vice-President and Chief Financial Officer of Hydro-Québec, prior to retiring. A chartered professional accountant since 1984, Ms. Croteau holds a Bachelor's degree in Business Administration, and in 2008 was named a Fellow of the Order of Chartered Professional Accountants of Quebec in recognition of her contribution to the profession.

Ms. Croteau has been an independent director of Boralex since 2018 and the chairwoman of the Audit Committee since 2019. Boralex is a company listed in Toronto whose activities cover the processing of wood residues, cogeneration, hydroelectric power, as well as wind and solar energy.

Since June 2019, Ms. Croteau has been a director on the Boards of Québecor Inc. and Québecor Media Inc. as well as a member of the Human Resources and Corporate Governance Committee. Québecor is a Canadian leader in the telecommunications, entertainment, news media and culture fields.

Main function: Independent director

Directorships and functions held at any company during the 2019 fiscal year

- Director of TOTAL S.A.* and member of the Audit Committee since May 29, 2019
- Director of Québecor inc.* and member of the Human Resources Committee since June 16, 2019
- Director of Québecor Média inc.* and member of the Human Resources Committee since June 16, 2019
- Director of Boralex*

Directorships that have expired in the previous five years

- Director of TVA Group Inc.* until June 16, 2019



Mark Cutifani

Independent director
Member of the Compensation Committee

Born on May 2, 1958 (Australian)

Director of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 26, 2017

Expiry date of term of office: Ordinary Shareholders' Meeting on May 29, 2020

Number of Total shares held: 2,000 (as of 12/31/2019)

Business address: Anglo American plc. Group 20 Carlton House Terrace, London, SW1Y 5AN, United Kingdom

Biography & Professional Experience

Mr. Cutifani was appointed director and Chief Executive of the Anglo American plc on April 3, 2013. He is a member of the Board's Sustainability Committee and chairs the Group Management Committee. Mr. Cutifani has 42 years of experience in the mining industry in various parts of the world, covering a broad range of products. Mark Cutifani is a non-executive director of Anglo American Platinum Limited, Chairman of Anglo American South Africa and Chairman of De Beers plc. He was previously the Chief Executive Officer of AngloGold Ashanti Limited. Before joining AngloGold Ashanti, Mr. Cutifani was COO responsible for global nickel business of Vale. Prior to that, he held various management roles at Normandy Group, Sons of Gwalia, Western Mining Corporation, Kalgoorlie Consolidated Gold Mines and CRA (Rio Tinto).

Mr. Cutifani has a degree in Mining Engineering (with honors) from the University of Wollongong in Australia. He is a Fellow of the Royal Academy of Engineering, the Australasian Institute of Mining and Metallurgy and the Institute of Materials, Minerals and Mining in the United Kingdom.

Mr. Cutifani received an honorary doctorate from the University of Wollongong in Australia in 2013 and an honorary doctorate from Laurentian University in Canada in 2016.

Main function: Chief Executive of Anglo American plc.*

Directorships and functions held at any company during the 2019 fiscal year

Within the Anglo American group

- Director and Chief Executive Officer of Anglo American plc.*
- Non-executive director of Anglo American Platinum Limited
- Chairman of Anglo American South Africa
- Chairman of De Beers plc.

Outside the Anglo American group

- Director of TOTAL S.A.* and, since May 29, 2019, member of the Compensation Committee

Directorships that have expired in the previous five years

- Chief Executive Officer of AngloGold Ashanti Limited



Valerie Della Puppa Tibi

Director representing employee shareholders

Born on August 22, 1968 (French)

Director of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 29, 2019

Expiry date of term of office: 2022 Ordinary Shareholders' Meeting

Number of Total shares held: 30

Number of Total Actionnariat France collective investment fund units held: 59.95 and **number of units of the Total France**

Capital+ collective investment fund: 18.96 (as of 12/31/2019)

Business address: TOTAL S.A. 2 place Jean Millier, La Défense 6, 92400 Courbevoie France

Biography & Professional Experience

A graduate of the Institut Universitaire de Technologie of Sceaux (Paris XI) in International Trade, Ms. Della Puppa Tibi entered the Group in 1989. She held several positions in international logistics at the Lub Marine entity of the subsidiary Lubrifiants. In parallel, Ms. Della Puppa Tibi studied at the Conservatoire des Arts et Métiers (International Trade curriculum – Marketing, International Trade, Commodity Markets courses) as well as languages (English, Spanish and Italian). In 2002, she joined the Réseau France as a contract pilot for the maintenance of service stations. In 2011, Ms. Della Puppa Tibi joined the Procurement Division of the Marketing Refining as e-procurement manager then Lead Buyer at the creation of Total Global Procurement in 2017.

Ms. Della Puppa Tibi has also been a member of the European works Council (since 2017) and alternate elected member of the Supervisory Boards of the Total Actionnariat France and Total France Capital + collective investment funds (since October 2018).

Main function: TOTAL S.A.* employee

Directorships and functions held at any company during the 2019 fiscal year

- Director representing employee shareholders of TOTAL S.A.* since May 29, 2019

Directorships that have expired in the previous five years

None



Maria van der Hoeven

Independent director
Member of the Audit Committee

Born on September 13, 1949 (Dutch)

Director of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 24, 2016

Last reappointment: Ordinary Shareholders' Meeting on May 29, 2019

Expiry date of term of office: 2022 Ordinary Shareholders' Meeting

Number of Total shares held: 1,000 (as of 12/31/2019)

Business address: Sadatdomein 31, 6229 HC Maastricht, The Netherlands

Biography & Professional Experience

Ms. van der Hoeven trained as a teacher, becoming a professor in economic sciences and administration then a school counselor. She was then Executive Director of the Administrative Center for vocational training for adults in Maastricht for seven years and then Director of the Limbourg Technology Center. She was a member of the Dutch Parliament, served as Minister of Education, Culture and Science from 2002 to 2007, and was Minister of Economic Affairs of the Netherlands from 2007 to 2010. Ms. van der Hoeven then served as Executive Director of the International Energy Agency (IEA) from September 2011 to August 2015. During this period, she contributed to increasing the number of members of the Agency and emphasized the close link between climate and energy policy. In September 2015, Ms. van der Hoeven joined the Board of Trustees of Rocky Mountain Institute (USA) and in the spring of 2016, became a member of the supervisory board of Innogy SE (Germany). Since October 2016, Ms. van der Hoeven has been Vice Chairwoman of the High-level Panel of the European Decarbonisation Pathways Initiative within the European Commission.

Main function: Independent director

Directorships and functions held at any company during the 2019 fiscal year

- Director of TOTAL S.A.* and member of the Audit Committee
- Member of the Supervisory Board of Covra since January 1, 2020 (the Netherlands)
- Member of the Board of Trustees of Rocky Mountain Institute (USA)

Directorships that have expired in the previous five years

- Member of the Supervisory Board of Innogy SE* until October 4, 2019
- Member of the Supervisory Board of RWE AG (Germany)



Anne-Marie Idrac

Independent Director
Member of the Governance and Ethics Committee
Member of the Strategy & CSR Committee

Born on July 27, 1951 (French)

Director of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 11, 2012

Last reappointment: Ordinary Shareholders' Meeting on June 1, 2018

Expiry date of term of office: 2021 Ordinary Shareholders' Meeting

Number of Total shares held: 1,385 (as of 12/31/2019)

Business address: 9 place Vauban 75007 Paris France

Biography & Professional Experience

A graduate of Institut d'Études Politiques de Paris and formerly a student at École Nationale d'Administration (ENA – 1974), Ms. Idrac began her career holding various positions as a senior civil servant at the Ministry of Infrastructure (*Ministère de l'Équipement*) in the fields of environment, housing, urban planning and transportation. She served as Executive Director of the public institution in charge of the development of Cergy-Pontoise (*Établissement public d'Aménagement de Cergy-Pontoise*) from 1990 to 1993 and Director of land transport from 1993 to 1995. Ms. Idrac was State Secretary for Transport from May 1995 to June 1997, elected member of Parliament for Yvelines from 1997 to 2002, regional councillor for Île-de-France from 1998 to 2002 and State Secretary for Foreign Trade from March 2008 to November 2010. She also served as Chairwoman and Chief Executive Officer of RATP from 2002 to 2006 and then as Chairwoman of SNCF from 2006 to 2008.

Main function: Independent director

Directorships and functions held at any company during the 2019 fiscal year

- Director of TOTAL S.A.*, member of the Governance and Ethics Committee and member of the Strategy & CSR Committee
- Director of Air France-KLM* and Chairwoman of the Sustainable Development and Compliance Committee
- Director of Bouygues*, Chairwoman of the CSR Committee and member of the Audit Committee
- Director of Saint Gobain* and Chairwoman of the Nominations and Compensation Committee
- Director of Sanef since October 2019

Directorships that have expired in the previous five years

- Chairwoman of the Supervisory Board of Toulouse-Blagnac Airport until May 2018
- Member of the Supervisory Board of Vallourec until 2015



Jean Lemierre

Independent director

Member of the Governance and Ethics Committee

Member of the Strategy & CSR Committee

Born on June 6, 1950 (French)

Director of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 24, 2016

Last reappointment: Ordinary Shareholders' Meeting on May 29, 2019

Expiry date of term of office: 2022 Ordinary Shareholders' Meeting

Number of Total shares held: 1,042 (as of 12/31/2019)

Business address: BNP Paribas 3 rue d'Antin 75002 Paris France

Biography & Professional Experience

Mr. Lemierre is a graduate of the Institut d'Études Politiques de Paris and the École Nationale d'Administration. He also holds a law degree. Mr. Lemierre held various positions at the French tax authority, including as Head of the Fiscal Legislation Department and Director-General of Taxes. He was then appointed as Cabinet Director at the French Ministry of Economy and Finance before becoming Director of the French Treasury in October 1995. Between 2000 and 2008, he was President of the European Bank for Reconstruction and Development (EBRD). He became an advisor to the Chairman of BNP Paribas in 2008 and has been Chairman of BNP Paribas since December 1, 2014. During his career, Mr. Lemierre has also been a member of the European Monetary Committee (1995–1998), Chairman of the European Union Economic and Financial Committee (1999–2000) and Chairman of the Paris Club (1999–2000). He then became a member of the International Advisory Council of China Investment Corporation (CIC) and the International Advisory Council of China Development Bank (CDB). He is currently Chairman of the Centre d'Études Prospectives et d'Informations Internationales (CEPII) and a member of the Institute of International Finance (IIF).

Main function: Chairman of the Board of Directors of BNP Paribas*

Directorships and functions held at any company during the 2019 fiscal year

Within the BNP Paribas group

- Chairman of the Board of Directors of BNP Paribas*
- Director of TEB Holding AS

Outside the BNP Paribas group

- Director of TOTAL S.A.*, member of the Governance and Ethics Committee and member of the Strategy & CSR Committee
- Chairman of Centre d'Études Prospectives et d'Informations Internationales (CEPII)
- Member of the Institute of International Finance (IIF)
- Member of the International Advisory Board of Orange*
- Member of the International Advisory Council of China Development Bank* (CDB)
- Member of the International Advisory Council of China Investment Corporation (CIC)
- Member of the International Advisory Panel (IAP) of the Monetary Authority of Singapore (MAS)

Directorships that have expired in the previous five years

None



Christine Renaud

Director representing employees

Member of the Compensation Committee

Member of the Strategy & CSR Committee

Born on May 7, 1968 (French)

Director representing employees of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 26, 2017

Expiry date of term of office: Ordinary Shareholders' Meeting on May 29, 2020

Number of Total shares held: 320

Number of Total Actionnariat France collective investment fund

units held: 1,497 and number of units of the Total France

Capital+ collective investment fund: 42 (as of 12/31/2019)

Business address: TOTAL S.A. 2 place Jean Millier, La Défense 6, 92400 Courbevoie France

Biography & Professional Experience

A graduate of the Institut Universitaire de Technologie en Chimie at Poitiers University, Ms. Renaud began her career with the Group in 1990 as an analytical development technician for Sanofi (Ambarès site) and then the Groupement de Recherches de Lacq (GRL). In 2004, she joined the organic analysis laboratory at the Pôle d'Études et de Recherches de Lacq (PERL). During her time at GRL, Ms. Renaud was elected as a member of the Works Committee before holding office as a union representative and member of the Group's European Committee from 2004 to 2011. At the end of 2011, Ms. Renaud was elected as Secretary of the Group's European Committee. Her term of office was renewed in 2013 until April 5, 2017. At its meeting of March 30, 2017, the UES Amont Central Works Council – Global Services – Holding appointed Ms. Renaud as director representing employees on the Board of Directors of TOTAL S.A. as of May 26, 2017, for a period of three years expiring following the 2020 Shareholders' Meeting of TOTAL S.A.

Since March 1, 2018, Ms. Renaud has served as communications officer at the Centre Technique et Scientifique Jean Féger.

Since December 15, 2019, Ms. Renaud has been a Talent Developer in the HR department.

Main function: TOTAL S.A.* employee

Directorships and functions held at any company during the 2019 fiscal year

- Director representing employees of TOTAL S.A.*, member of the Strategy & CSR Committee, and since May 29, 2019, member of the Compensation Committee

Directorships that have expired in the previous five years

None



Carlos Tavares

Independent director
Member of the Compensation Committee

Born on August 14, 1958 (Portuguese)

Director of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 26, 2017

Expiry date of term of office: Ordinary Shareholders' Meeting on May 29, 2020

Number of Total shares held: 1,000

Business address: Peugeot S.A. 7 rue Henri Ste Claire Deville, 92500 Rueil-Malmaison, France

Biography & Professional Experience

A graduate of the École Centrale de Paris, Mr. Carlos Tavares held various positions of responsibility within the Renault group between 1981 and 2004 before joining the Nissan group. Having been Executive Vice President, Chairman of the Management Committee Americas and President of Nissan North America, he was then Group Chief Operating Officer of the Renault Group from 2011 to 2013. He joined the Managing Board of Peugeot S.A. on January 1, 2014, and was appointed Chairman of the Managing Board on March 31, 2014.

Main function: Chairman of the Managing Board of Peugeot S.A.*

Directorships and functions held at any company during the 2019 fiscal year

Within the Peugeot group

- Chairman of the Managing Board of Peugeot S.A.*
- Chairman of the Board of Directors of PSA Automobiles S.A.*
- Chairman of the Supervisory Board of Opel Automobiles GmbH

Outside the Peugeot group

- Director of TOTAL S.A.* and member of the Compensation Committee
- Director of AIRBUS Group*

Directorships that have expired in the previous five years

- Director of Banque PSA Finance
- Director of PCMA Holding B.V.
- Director of Faurecia* until October 2018

Directorships of TOTAL S.A. expired in 2019

Gérard Lamarche

Independent director, Chairman of the Compensation Committee and member of the Audit Committee until May 29, 2019

Born on July 15, 1961 (Belgian)

Director of TOTAL S.A. from January 12, 2012 until the Ordinary Shareholders' Meeting on May 29, 2019

Biography & Professional Experience

Mr. Lamarche graduated in economic science from Louvain-La-Neuve University and is also a graduate of INSEAD business school (Advanced Management Program for Suez Group Executives). He also attended the Global Leadership Series training course at the Wharton International Forum in 1998-99. He started his career at Deloitte Haskins & Sells in Belgium in 1983, before becoming a consultant in mergers and acquisitions in the Netherlands in 1987. In 1988, Mr. Lamarche joined Société Générale de Belgique as an investment manager. He was promoted to the position of management controller in 1989 before becoming a consultant in strategic operations from 1992 to 1995. He joined Compagnie Financière de Suez as a Project Manager for the Chairman and Secretary of the Executive Committee (1995–1997), before being appointed as the acting Managing Director in charge of Planning, Management Control and Accounts. In 2000, Mr. Lamarche moved to NALCO (the American subsidiary of the Suez group and the world leader in the treatment of industrial water) as Director and Chief Executive Officer. He was appointed Chief Financial Officer of the Suez group in 2003. In April 2011, Mr. Lamarche became a director on the Board of Directors of Groupe Bruxelles Lambert (GBL). He has been the Deputy Managing Director since January 2012. Mr. Lamarche is currently a director of LafargeHolcim Ltd (Switzerland), TOTAL S.A., SGS S.A. (Switzerland) and Umicore (Belgium).

Main function: Deputy Managing Director of Groupe Bruxelles Lambert*

Directorships and functions held at any company during the 2019 fiscal year^(a)

Within Groupe Bruxelles Lambert

- Deputy Managing Director of Groupe Bruxelles Lambert*

Within holdings of Groupe Bruxelles Lambert

- Director of TOTAL S.A.*, Chairman of the Compensation Committee and member of the Audit Committee until May 29, 2019
- Director and member of the Audit Committee of LafargeHolcim Ltd*
- Director of SGS S.A.*
- Director of Umicore*

Directorships that have expired in the previous five years

- Director of TOTAL S.A.*, Chairman of the Compensation Committee and member of the Audit Committee until May 29, 2019
- Director of Lafarge* until 2016
- Director and Chairman of the Audit Committee of Legrand* until 2016

Renata Perycz

Director representing employee shareholders and member of the Compensation Committee until May 29, 2019

Born on November 5, 1963 (Polish)

Director of TOTAL S.A. since the Ordinary Shareholders' Meeting on May 24, 2016 until the Ordinary Shareholders' Meeting on May 29, 2019

Biography & Professional Experience

Ms. Perycz is a graduate of the University of Warsaw, the École des Hautes Études Commerciales (HEC) and the SGH Warsaw School of Economics. Ms. Perycz entered the Group in 1993 as a logistics and sales manager for Total Polska. In 2000, she became a supplies and logistics manager before becoming head of the subsidiary's Purchasing Department in 2003.

In 2007, she became Director of Human Resources and Purchasing at Total Polska. Since 2013, Ms. Perycz has been the subsidiary's Human Resources and Internal Communications director.

She has also been an elected member, representing unit holders, of the Supervisory Board of FCPE Total Actionnariat International Capitalisation since 2012.

Main function: Human Resources and Internal Communications Director of Total Polska

Directorships and functions held at any company during the 2019 fiscal year^(a)

- Director representing employee shareholders of TOTAL S.A.* and member of the Compensation Committee until May 29, 2019

Directorships that have expired in the previous five years

- Director representing employee shareholders of TOTAL S.A.* and member of the Compensation Committee until May 29, 2019
-

(a) Information as of May 29, 2019.

4.1.1.2 Absence of conflicts of interest or convictions

The Board of Directors' Rules of Procedure stipulate the specific rules for preventing conflicts of interest applicable to directors in the following terms (refer to point 4.1.2.1 of this chapter for the full version of the Rules of Procedure):

“2.5. Duty of loyalty

Directors must not take advantage of their office or duties to gain, for themselves or a third party, any monetary or non-monetary benefit.

They must notify the Chairman of the Board of Directors and the Lead Independent Director, if one has been appointed, of any existing or potential conflict of interest with the Company or any Group company. They must refrain from participating in the vote relating to the corresponding resolution as well as from participating in any debates preceding such vote.

Directors must inform the Board of Directors of their participation in any transaction that directly involves the Company, or any Group company, before such transaction is finalized.

Directors must not assume personal responsibilities in companies or businesses having activities in competition with those of the Company or any Group company without first having informed the Board of Directors.

Directors undertake not to seek or accept from the Company, or from companies directly or indirectly connected to the Company, any advantages liable to be considered as being of a nature that may compromise their independence.”

“7.2. Duties of the Lead Independent Director

5. Prevention of conflicts of interest

Within the Governance and Ethics Committee, the Lead Independent Director organizes the performance of due diligence in order to identify and analyze potential conflicts of interest within the Board of Directors. He informs the Chairman and Chief Executive Officer of any conflicts of interest identified as a result. He reports to the Board of Directors in relation to this work.

Pursuant to the obligation to declare conflicts of interest set out in Article 2.5 of these Rules, any director affected by an existing or potential conflict of interest must inform the Chairman and Chief Executive Officer and the Lead Independent Director.”

The Lead Independent Director has performed due diligence in order to identify and analyze potential conflicts of interest. She brought to the attention of the Chairman and Chief Executive Officer the potential conflicts of interest that had been identified. The Lead Independent Director was thus consulted in October 2019 by a director about a potential conflict of interest arising due to that director's possible participation on the Board of Directors of an unlisted company in the transport infrastructure sector. Due to the absence of a conflict of interest, this director accepted the office of director that was on offer in this company.

On the basis of the work carried out, the Board of Directors noted the absence of potential conflicts of interest between the directors' duties with respect to the Company and their private interests.

To the Company's knowledge, there is no family relationship among the members of the Board of Directors of TOTAL S.A.; there is no arrangement or agreement with the major shareholders, customers or suppliers under which a director was selected, and there is no service agreement that binds a director to TOTAL S.A. or to any of its subsidiaries and provides for special benefits under the terms thereof.

The current directors of the Company have informed the Company that they have not been convicted of fraud, have not been associated with bankruptcy, sequestration, receivership or court-ordered liquidation proceedings, and have not been subject to any incrimination, conviction or sanction pronounced by an administrative authority or professional body, prohibited from managing a company or disqualified as stipulated in item 12.1 of Annex I of EU-delegated regulation 2019/980 of March 14, 2019, over the last five years.

4.1.1.3 Plurality of directorships held by directors

The number of directorships held by the directors at listed companies outside their group, including foreign companies, was assessed as of December 31, 2019, in accordance with the recommendations of the AFEP-MEDEF Code (point 19) which states that *“an executive officer should not hold more than two other directorships in listed corporations, including foreign corporations, outside of his or her group. [This] limit [...] does not apply to directorships held by an executive officer in subsidiaries and holdings, held alone or together with others, of companies whose main activity is to acquire and manage such holdings [...] A director should not hold more than four other directorships in listed corporations, including foreign corporations outside of the group.”*

Summary of other directorships held by members of the Board of Directors

As of December 31, 2019	Number of directorships held at listed companies ^(a)	Compliance with the criteria of the AFEP-MEDEF Code
Patrick Pouyanné	1	✓
Patrick Artus	2	✓
Patricia Barbizet	3	✓
Marie-Christine Coisne-Roquette	1	✓
Lise Croteau	3	✓
Mark Cutifani	1	✓
Valérie Della Puppa Tibi ^(b)	0	✓
Maria van der Hoeven	1	✓
Anne-Marie Idrac	4	✓
Jean Lemierre	1	✓
Christine Renaud ^(c)	0	✓
Carlos Tavares	2	✓

(a) In accordance with the criteria of the AFEP-MEDEF Code.

(b) Director representing employee shareholders.

(c) Director representing employees.

4.1.1.4 Directors' independence

At its meeting on February 5, 2020, the Board of Directors, on the proposal of the Governance and Ethics Committee, reviewed the independence of the Company's directors as of December 31, 2019. At this Committee's proposal, the Board considered that, pursuant to the AFEP-MEDEF Code to which the Company refers to, a director is independent when *“he or she has no relationship of any kind whatsoever with the corporation, its group or its management that may interfere the exercise of his or her freedom of judgment”*.

For each director, this assessment was based on the independence criteria set forth in points 9.5 to 9.7 of the AFEP-MEDEF Code, updated in January 2020, and as described below.

Criterion 1: Employee corporate officer during the previous five years

"not to be or not to have been within the previous five years:

- *an employee or executive officer of the company;*
- *an employee, executive officer or director of a company consolidated within the corporation;*
- *an employee, executive officer or director of the company's parent company or a company consolidated within this parent company".*

Criterion 2: Cross-directorships

"not to be an executive officer of a company in which the corporation holds a directorship, directly or indirectly, or in which an employee appointed as such or an executive officer of the corporation (currently in office or having held such office within the last five years) holds a directorship".

Criterion 3: Significant business relationships

"not to be a customer, supplier, commercial banker, investment banker or consultant:

- *that is significant to the corporation or its group;*
- *or for which the corporation or its group represents a significant portion of its activity.*

The evaluation of the significance or otherwise of the relationship with the company or its group must be debated by the Board, and the quantitative and qualitative criteria that led to this evaluation (continuity, economic dependence, exclusivity, etc.) must be explicitly stated in the report on corporate governance".

Criterion 4: Family ties

"not to be related by close family ties to a company officer".

Criterion 5: Auditor

"not to have been an auditor of the corporation within the previous five years".

Criterion 6: Period of office exceeding 12 years

"not to have been a director of the corporation for more than twelve years. Loss of the status of independent director occurs on the date of this twelve years is reached."

Criterion 7: Status of non-executive officer

"A non-executive officer cannot be considered independent if he or she receives variable compensation in cash or in the form of securities or any compensation linked to the performance of the corporation or group."

Criterion 8: Status of major shareholder

"Directors representing major shareholders of the corporation or its parent company may be considered independent, provided these shareholders do not take part in the control of the corporation. Nevertheless, beyond a 10% threshold in capital or voting rights, the Board, upon a report from the nominations committee, should systematically review the qualification of a director as independent in the light of the make-up of the corporation's capital and the existence of a potential conflict of interest."

It was confirmed, regarding the independence of Mses. Barbizet, Coisne-Roquette, Croteau, van der Hoeven and Idrac, and Messrs. Artus, Cutifani, Lemierre and Tavares that the independence analyses carried out previously remained relevant.

In particular, the following was noted as of the date of December 31, 2019.

- The level of activity between Group companies and companies of BNP Paribas, of which Mr. Lemierre is Chairman of the Board of Directors, did not represent a material part of the financial institution's overall business (the level of activity of the Group companies with BNP Paribas is less than 0.1% of this bank's net banking income⁽¹⁾, nor a material part of the total amount of external financing of the Group's activities (less than 5%). The Board noted the absence of economic dependence and exclusivity in the activities between the two groups. It thus concluded that Mr. Lemierre could be deemed to be an independent director.
- The level of activity between Group companies and companies of the Natixis group, of which Mr. Artus is a member of the Executive Committee, did not represent a material part of this group's overall

business (the level of activity of the Group companies with Natixis is less than 0.2% of this bank's net banking income⁽¹⁾, nor a material part of the total amount of external financing of the Group's activities (less than 5%). The Board noted the absence of economic dependence and exclusivity in the activities between the two groups. It thus concluded that Mr. Artus could be deemed to be an independent director.

- Regarding Peugeot S.A., of which Mr. Tavares is Chairman of the Managing Board, on the one hand, the Group's sales to Peugeot S.A. in 2018 (i.e., €94.9 million) represented 0.05% of the Group's 2019 consolidated sales (\$200.3 billion, i.e., €178.8 billion) and, on the other hand, the amount of the Group's purchases from Peugeot S.A. in 2019 (i.e., €28.1 million) represented 0.11% of the total amount of purchases made by the Group in 2019 (i.e. €26.4 billion). The portion of the Group's business with Peugeot S.A. cannot be considered material. Moreover, for Peugeot S.A., on the one hand, the amount of Peugeot's purchases from the Group in 2019 (i.e., €94.9 million) represented 0.24% of the total amount of Peugeot S.A.'s purchases in 2019 (i.e., €38.8 billion) and, on the other hand, the amount of Peugeot S.A.'s sales in 2019 to the Group (i.e., €28.1 million)

(1) Net banking income 2019.

represented 0.03% of Peugeot S.A.'s consolidated sales in 2019 (i.e., €74.7 billion). The portion of the Group's business with Peugeot S.A. cannot be considered material. The Board noted the absence of economic dependence and exclusivity in the activities between the two groups. It thus concluded that Mr. Tavares could be deemed to be an independent director.

- Regarding Anglo American Plc, of which Mr. Cutifani is Chief Executive, on the one hand, the Group's sales to Anglo American plc in 2019 (i.e., \$376 million) represented 0.19% of the Group's consolidated sales in 2019 (i.e., \$200.3 billion) and, on the other hand, the amount of the Group's purchases from Anglo American Plc in 2019 was immaterial. The portion of the Group's business with Anglo American Plc cannot be considered material for the Group. Moreover, for Anglo American Plc, on the one hand, the amount of Anglo American Plc's purchases in 2019 from the Group (i.e., \$376 million) represented 2.8% of the total amount of Anglo American Plc's purchases in 2019 (i.e., \$13.3 billion) and, on the other hand, the amount of Anglo American Plc's sales in 2019 to the Group was immaterial. The portion of the Group's business with Anglo American Plc. with the Group cannot be considered material for Anglo American Plc. The Board noted the absence of economic dependence and exclusivity in the activities between the two groups. It thus concluded that Mr. Cutifani could be deemed to be an

independent director.

- The level of activity between Group companies and companies of the Sonepar group, of which Ms. Coisne-Roquette is Chairwoman, did not represent a material part of the overall business of the Sonepar group (the purchases made by Group companies from the Sonepar group totaled €1.9 million in 2018, i.e., 0.01% of the total amount of purchases made by the Group in 2019 (€26.4 billion). The Board noted the absence of economic dependence and exclusivity in the activities between the two groups. It thus concluded that Ms. Coisne-Roquette could be deemed to be an independent director.

Accordingly, following the Governance and Ethics Committee's proposal, Meses. Barbizet, Coisne-Roquette, Croteau, van der Hoeven and Idrac and Messrs. Artus, Cutifani, Lemierre and Tavares were considered independent directors.

The percentage of independent directors on the Board based on its composition as of December 31, 2019, was 90%⁽¹⁾.

The rate of independence of the Board of Directors is higher than the rate of independence recommended by the AFEP-MEDEF Code, which specifies that at least half of the members of the Board in widely-held companies with no controlling shareholders must be independent.

(1) Excluding the director representing employee shareholders and the director representing employees, in accordance with the recommendations of the AFEP-MEDEF Code (point 9.3).

Summary of the independence of the members of the Board of directors

Appendix 3 of the AFEP-MEDEF Code – Independence of directors

As of December 31, 2019

Criteria ^(a)	Patrick Pouyanné	Patrick Artus	Patricia Barbizet	Marie-Christine Coisne-Roquette	Lise Croteau	Mark Cutifani	Valérie Della Pappa Tibi ^(b)	Maria van der Hoeven	Anne-Marie Idrac	Jean Lemierre	Christine Renaud ^(c)	Carlos Tavares
Criterion 1: Employee corporate officer within the past 5 years	✗	✓	✓	✓	✓	✓	n/a	✓	✓	✓	n/a	✓
Criterion 2: Cross-directorships	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓	n/a	✓
Criterion 3: Significant business relationships	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓	n/a	✓
Criterion 4: Family ties	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓	n/a	✓
Criterion 5: Statutory Auditor	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓	n/a	✓
Criterion 6: Period of office exceeding 12 years	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓	n/a	✓
Criterion 7: Status of non-executive director	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Criterion 8: Status of major shareholder	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓	n/a	✓
Compliance with the independence criteria of the AFEP- MEDEF Code	✗	✓	✓	✓	✓	✓	n/a ^(d)	✓	✓	✓	n/a ^(d)	✓

(a) In this table, ✓ signifies that a criterion for independence is satisfied and ✗ signifies that a criterion for independence is not satisfied.

(b) Director representing employee shareholders.

(c) Director representing employees.

(d) Excluding the director representing employee shareholders and the director representing employees, in accordance with the recommendations of the AFEP-MEDEF Code (point 9.3).

4.1.1.5 Diversity policy of the Board of Directors

The Board of Directors places a great importance on its composition and the composition of its Committees. In particular, it relies on the work of the Governance and Ethics Committee, which reviews annually and proposes, as circumstances may require, desirable changes to the composition of the Board of Directors and Committees based on the Group's strategy.

The Governance and Ethics Committee conducts its work within the framework of a formal procedure so as to ensure that the directors' areas of expertise are complementary and that their profiles are diverse, to maintain an overall proportion of independent members that is appropriate to the Company's governance structure and shareholder base, to allow for a balanced representation of women and men on the Board, as well as to promote an appropriate representation of directors of different nationalities. These principles underpin the selection process for directors.

In its composition as of March 18, 2020, the Board of Directors is made up of directors of diverse backgrounds: among its 12 members, 7 directors held executive positions in international groups, 6 have an experience in

public sector and 3 are employees of the Group. Regarding skills, five directors have a deep knowledge of the energy sector and two directors of the transportation sector. Six directors have a recognized expertise in economy and finance and three regarding governance and CSR.

As part of an effort that began several years ago, the composition of the Board of Directors has changed significantly since 2010 to achieve better gender balance and an openness to more international profiles.

Based on its composition as of March 18, 2020, the 12 members of the Board of Directors include 5 male directors and 7 female directors, with 5 nationalities represented.

In accordance with Articles L. 225-27-1 and L. 225-23 of the French Commercial Code, the director representing employees and the director representing employee shareholders are not taken into account for the application of the provisions relating to the gender balance of the Board. Therefore, the proportion of women on the Board was 50% as of December 31, 2019 (5 men and 5 women out of 10 directors). The 40% threshold of directors from each gender required by Article L. 225-18-1 of the French Commercial Code was reached as of December 31, 2019.

4.1.1.6 Training of directors and knowledge of the Company

Directors may ask to receive training in the specifics of the Company, its businesses and its business sector, as well as any training that may help them perform their duties as directors.

In addition, the director representing employees receives in-house training time at the Company and/or economics training offered by an outside body chosen by the director, after the Board Secretary has accepted the body and the training program. This training time, which was initially set at 20 hours per year, has been increased to 60 hours per year by decision of the Board of Directors at its meeting of July 26, 2017.

In addition, in line with the provisions of Article L. 225-23 of the French Commercial Code introduced by Law No. 2019-486 of May 22, 2019, known as the “PACTE” law, the director representing employee shareholders may, at his/her request, be given training time set at 40 hours per year. Training may be undertaken within the Company or Group, and/or provided by an external body chosen by the director, once the body and program have been accepted by the Secretary of the Board, in line with the conditions set out in the regulations.

Since 2013, the Board of Directors has met each year at a Group site. Over the past three years, having visited the Bu Hasa field in Abu Dhabi in the United Arab Emirates, the Laggan project site in the North Sea

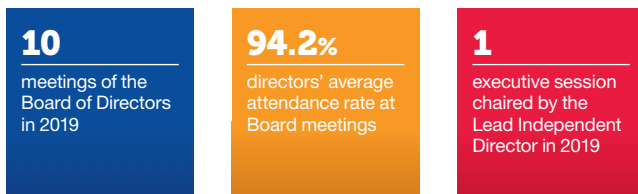
in the United Kingdom, and the Yamal LNG site in Northern Russia respectively, the Board was able to visit the Halfdan offshore platform in particular, at the time of the Board meeting held in Copenhagen, Denmark on October 29, 2019.

Some of the directors also had the opportunity to visit other Group sites. In 2019, four directors visited the Jean Féger Scientific and Technical Center (CSTJF) in Pau, France. Two directors also visited the Saclay site (France) where the Group’s Research & Development division is located. In September 2018, three directors visited the Umm Shaif offshore field (Abu Dhabi). Two other directors visited the deepwater operational center in Lagos, the FPSO of the AKPO offshore field and the LNG plant on Bonny Island (Nigeria) in December 2018.

These site visits by the Board of Directors and its members are opportunities to meet with the Group’s employees, partners and local leading figures in the energy sector.

The directors also have regular contact with Group management, including members of the Executive Committee at Board meetings and operational managers during visits to the Group’s sites. These interactions between directors and managers help the directors better understand the Group’s activities in a practical way.

4.1.2 Board of Directors’ functioning



4.1.2.1 Working procedures of the Board of Directors

The working procedures of the Board of Directors are set out in its Rules of Procedure, which specify the mission of the Board of Directors and the rules related to the organization of its work. The Board’s Rules of Procedure also specify the obligations of each director, as well as the role and powers of the Chairman and the Chief Executive Officer.

Mr. Charles Paris de Bollardière has served as Secretary of the Board of Directors since his appointment by the Board of Directors on September 15, 2009.

Since November 4, 2014, the date of the first appointment of the director representing employees on the Board of Directors, a member of the Central Works Council (replaced since December 2018 by the Central Social and Economic Committee) attends Board meetings in an advisory capacity, pursuant to Article L. 2312-75 of the French Labor Code.

Law No. 2019-486 of May 22, 2019 on the growth and transformation of businesses amended Article L. 225-27-1 of the French Commercial Code, lowering to eight the number of directors beyond which a second director representing employees must be appointed. Pursuant to these provisions, a second director representing employees will have to be appointed within six months of the decision of the Extraordinary Shareholders’ Meeting to be held on May 29, 2020, which will be convened to amend the bylaws of TOTAL S.A. accordingly.

The Rules of Procedure of the Board of Directors are reviewed on a regular basis in order to adapt them to changes in governance rules and practices. In 2014, changes were made to include, in particular, new provisions relating to information of the Board of Directors in the event of new directorships being assumed by the directors or changes in existing directorships, together with a reminder of the obligations of confidentiality inherent to the work of the Board. In December 2015, changes were made to provide for the appointment of a Lead Independent Director in the event of the combination of the functions of Chairman of the Board and Chief Executive Officer and to define his or her duties. In July 2018, changes were made in response to the new demands pertaining to social and environmental responsibility further to the revision of the AFEP-MEDEF Code in June 2018.

The text of the latest unabridged version of the Rules of Procedure of the Board of Directors, as approved by the Board of Directors at its meeting on July 25, 2018, is provided below. It is also available on the Company’s website under “Our Group/Our identity/Our governance”.

The Board of Directors of TOTAL S.A⁽¹⁾ approved the following Rules of Procedure.

1. ROLE OF THE BOARD OF DIRECTORS

The Board of Directors is a collegial body that determines the strategic direction of the Company and supervises the implementation of this vision. With the exception of the powers and authority expressly reserved for shareholders and within the limits of the Company's legal purpose, the Board may address any issue related to the Company's operation and make any decision concerning the matters falling within its purview. Within this framework, the Board's duties and responsibilities include, but are not limited to, the following:

- appointing the executive and non-executive directors⁽²⁾ and supervising the handling of their responsibilities;
- striving to promote creation of long-term value by the Company by taking into account the social and environmental challenges of its activities;
- defining the Company's strategic orientations and, more generally, that of the Group;
- regularly reviewing, in relation with such strategic orientations, opportunities and risks such as financial, legal, operational, social and environmental risks as well as measures taken as a result;
- being informed of market developments, the competitive environment and the main challenges facing the Company, including with regard to social and environmental responsibility;
- approving investments or divestments being considered by the Group that exceed 3% of shareholders' equity as well as any significant transaction outside the announced strategy of the Company;
- reviewing information on significant events related to the Company's operations, in particular for investments and divestments involving amounts exceeding 1% of shareholders' equity;
- ensuring that its composition as well as that of the Committees it establishes are balanced in terms of diversity (nationality, age, gender, skills and professional experience);
- conducting any audits and investigations it deems appropriate. In particular, the Board, with the assistance of the Committees it has established, ensures that:
 - authority has been properly defined and that the various corporate bodies of the Company make proper use of their powers and responsibilities,
 - no individual is authorized to commit to pay or to make payments, on behalf of the Company, without proper supervision and control,
 - a system for preventing and detecting corruption and influence peddling is in place,
 - a non-discrimination and diversity policy within the Company and its Group exists and is implemented,
 - the internal control function operates properly and the statutory auditors are able to perform their mission satisfactorily, and
 - the Committees duly perform their responsibilities;
- ensuring the quality of the information provided to shareholders and financial markets through the financial accounts that it closes and the reports that it publishes, as well as when major transactions are completed;
- convening and setting the agenda for Shareholders' Meetings or meetings of bond holders;
- preparing on an annual basis the list of directors it deems to be independent according to criteria set by the Code of Corporate Governance to which the Company refers;
- appointing a Lead Independent Director under the conditions set out in article 7, when the Chairman of the Board of Directors is also the Chief Executive Officer pursuant to a decision by the Board of Directors.

2. OBLIGATIONS OF THE DIRECTORS OF TOTAL S.A.

Before accepting a directorship, all applicants receive a copy of TOTAL S.A.'s bylaws and these Rules of Procedure. They must ensure that they have broad knowledge of the general and particular obligations related to their duty, especially the laws and regulations governing directorships in French limited liability companies (*sociétés anonymes*) whose shares are listed in one or several regulated markets. They must also ensure that they are familiar with the guidelines set out in the Corporate Governance Code to which the Company refers.

Accepting a directorship creates an obligation to comply with applicable regulations relating in particular to the functioning of the Board of Directors, and with the ethical Rules of Professional Conduct for directors as described in the Corporate Governance Code to which the Company refers. It also creates an obligation to comply with these rules of procedure and to uphold the Group's values as described in its Code of Conduct.

When directors participate in and vote at meetings of the Board of Directors, they are required to represent all of the Company's shareholders and to act in the interest of the Company as a whole.

2.1 Independence of judgment

Directors undertake to maintain, in all circumstances, the independence of their analysis, judgment, decision-making and actions as well as not to be unduly influenced, directly or indirectly, by other directors, particular groups of shareholders, creditors, suppliers or, more generally, any third party.

2.2 Other directorships or functions

Directors must keep the Board of Directors informed of any position they hold on the management team, Board of Directors or Supervisory Board of any other company, whether French or foreign, listed or unlisted. This includes any positions as a non-voting member (*censeur*) of a board. To this end, directors expressly undertake to promptly notify the Chairman of the Board of Directors, and the Lead Independent Director if one has been appointed, of any changes to the positions held, for any reason, whether appointment, resignation, termination or non-renewal.

2.3 Participation in the Board's work

Directors undertake to devote the amount of time required to duly consider the information they are given and otherwise prepare for meetings of the Board of Directors and of the Committees of the Board of Directors on which they sit. They may request from the executive and non-executive directors any additional information they deem necessary or useful to their duties. If they consider it necessary, they may request training on the Company's specificities, businesses and industry sector, its challenges in terms of social and environmental responsibility as well as any other training that may be of use to the effective exercise of their duties as directors.

Unless unable, in which case the Chairman of the Board shall be provided advance notice, directors are to attend all meetings of the Board of Directors, meetings of Committees of the Board of Directors on which they serve and Shareholders' Meetings.

The Chairman of the Board ensures that directors receive all relevant information concerning the Company, including that of a negative nature, particularly analyst reports, press releases and the most important media articles.

(1) TOTAL S.A. is referred to in these Rules of Procedure as the "Company" and collectively with all its direct and indirect subsidiaries as the "Group".

(2) The term "executive director" refers to the Chairman and Chief Executive Officer, if the Chairman of the Board of Directors is also responsible for the management of the Company; the Chairman of the Board of Directors and the Chief Executive Officer, if the two roles are carried out separately; and, where applicable, any Deputy Chief Executive Officers or Chief Operating Officers, depending on the organizational structure adopted by the Board of Directors.

2.4 Confidentiality

Directors and any other person who attends all or part of any meeting of the Board of Directors or its Committees, are under the strict obligation not to disclose any details of the proceedings.

All documents reviewed at meetings of the Board of Directors, as well as information conveyed prior to or during the meetings, are strictly confidential.

With respect to all non-public information acquired during the exercise of their functions, directors are bound by professional secrecy not to divulge such information to employees of the Group or to outside parties.

This obligation goes beyond the mere duty of discretion provided for by law. Directors must not use confidential information obtained prior to or during meetings for their own personal benefit or for the benefit of anyone else, for whatever reason. They must take all necessary steps to ensure that the information remains confidential. Confidentiality and privacy are lifted when such information is made publicly available by the Company.

2.5 Duty of loyalty

Directors must not take advantage of their office or duties to gain, for themselves or a third party, any monetary or non-monetary benefit.

They must notify the Chairman of the Board of Directors and the Lead Independent Director, if one has been appointed, of any existing or potential conflict of interest with the Company or any Group company. They must refrain from participating in the vote relating to the corresponding resolution as well as from participating in any debates preceding such vote.

Directors must inform the Board of Directors of their participation in any transaction that directly involves the Company, or any Group company, before such transaction is finalized.

Directors must not assume personal responsibilities in companies or businesses having activities in competition with those of the Company or any Group company without first having informed the Board of Directors.

Directors undertake not to seek or accept from the Company, or from companies directly or indirectly connected to the Company, any advantages liable to be considered as being of a nature that may compromise their independence.

2.6 Duty of expression

Directors undertake to clearly express their opposition if they deem a decision being considered by the Board of Directors is contrary to the Company's corporate interest and they must endeavor to convince the Board of Directors of the pertinence of their position.

2.7 Transactions in the Company's securities and stock exchange rules

While in office, directors are required to hold the minimum number of registered shares of the Company as set by the bylaws.

Generally speaking, directors must act with the highest degree of prudence and vigilance when completing any personal transaction involving the financial instruments of the Company, its subsidiaries or affiliates that are listed or that issue listed financial instruments.

To that end, directors must comply with the following requirements:

1. Any shares or ADRs of TOTAL S.A. or its listed subsidiaries are to be held in registered form, either with the Company or its agent, or as administered registered shares with a French broker (or North American broker for ADRs), whose contact details are

communicated by the director to the Secretary of the Board of Directors.

2. Directors shall refrain from directly or indirectly engaging in (or recommending engagement in) transactions involving the financial instruments (shares, ADRs or any other securities related to such financial instruments) of the Company or its listed subsidiaries, or any listed financial instruments for which the director has insider information.

Insider information is specific information that has not yet been made public and that directly or indirectly concerns one or more issuers of financial instruments or one or more financial instruments and which, if it were made public, could have a significant impact on the price of the financial instruments concerned or on the price of financial instruments related to them.

3. Any transaction in the Company's financial instruments (shares, ADRs or related financial instruments) is strictly prohibited during the thirty calendar days preceding the publication by the Company of its periodic results (quarterly, half-year or annual) as well as on the day of any such announcement.

4. Moreover, directors shall comply, where applicable, with the provisions of Article L. 225-197-1 of the French Commercial Code, which stipulates that free shares may not be sold:

- during the ten trading days preceding and the three trading days following the date on which the Consolidated Financial Statements or, failing that, the annual financial statements, are made public;
- during the period from the date on which the Company's corporate bodies become aware of information that, if it were made public, could have a significant impact on the Company's share price, until ten trading days after such information is made public.

5. Directors are prohibited from carrying out transactions on any financial instruments related to the Company's share (Paris option market (MONEP), warrants, exchangeable bonds, etc.), and from buying on margin or short selling such financial instruments.

6. Directors are also prohibited from hedging the shares of the Company and any financial instruments related to them, and in particular:

- Company shares that they hold; and, where applicable:
 - Company share subscription or purchase options;
 - rights to Company shares that may be awarded free of charge;
 - Company shares obtained from the exercise of options or granted free of charge.

7. Directors must make all necessary arrangements to declare, pursuant to the form and timeframe provided by applicable law, to the French securities regulator (Autorité des marchés financiers), as well as to the Secretary of the Board of Directors, any transaction involving the Company's securities conducted by themselves or by any other person to whom they are closely related.

3. PRACTICES OF THE BOARD OF DIRECTORS

3.1 Board meetings

The Board of Directors meets at least four times a year and whenever circumstances require.

Prior to each Board meeting, the directors receive the agenda and, whenever possible, all other materials necessary to consider for the session.

Directors may be represented by another director at a meeting of the Board, provided that no director holds more than one proxy at any single meeting. Each director may represent only one of their colleagues during a given meeting of the Board of Directors.

Whenever authorized by law, directors are considered present for quorum and majority purposes who attend Board meetings through video conferencing or other audiovisual means that are compliant with the technical requirements set by applicable regulations.

3.2 Directors' fees

The Board of Directors allocates annual directors' fees within the total amount authorized by the Annual Shareholders' Meeting. Compensation includes a fixed portion and a variable portion that takes into account each directors' actual participation in the work of the Board of Directors and its Committees together with, if applicable, the duties of the Lead Independent Director.

The Chief Executive Officer or, if the functions are combined, the Chairman and Chief Executive Officer, does not receive any director's fees for his participation in the work of the Board and its Committees.

3.3 Secretary of the Board of directors

The Board of Directors, based on the recommendation of its Chairman, appoints a Secretary of the Board who assists the Chairman in organizing the Board's activities, and particularly in preparing the annual work program and the schedule of Board meetings.

The Secretary drafts the minutes of Board meetings, which are then submitted to the Board for approval. The Secretary is authorized to dispatch Board meeting minutes and to certify copies and excerpts of the minutes.

The Secretary is responsible for all procedures pertaining to the functioning of the Board of Directors. These procedures are reviewed periodically by the Board.

All Board members may ask the Secretary for information or assistance.

3.4 Evaluation of the functioning of the Board of directors

The Board evaluates its functioning at regular intervals not exceeding three years. The evaluation is carried out under the supervision of the Lead Independent Director, if one has been appointed, or under the supervision of the Governance and Ethics Committee, with the assistance of an outside consultant. The Board of Directors also conducts an annual review of its practices.

4. ROLE AND AUTHORITY OF THE CHAIRMAN

The Chairman represents the Board of Directors and, except under exceptional circumstances, has sole authority to act and speak on behalf of the Board of Directors.

The Chairman organizes and oversees the work of the Board of Directors and ensures that the Company's corporate bodies operate effectively and in compliance with good governance principles. The Chairman coordinates the work of the Board of Directors and its Committees. The Chairman establishes the agenda for each Board meeting, including items suggested by the Chief Executive Officer.

The Chairman ensures that directors receive, in a timely manner and in a clear and appropriate format, the information they need to effectively carry out their duties.

In liaison with the Group's General Management, the Chairman is responsible for maintaining relations between the Board of Directors and the Company's shareholders. The Chairman monitors the quality of information disclosed by the Company.

In close cooperation with the Group's General Management, the Chairman may represent the Company in high-level discussions with government authorities and major partners, both at a national and international level.

The Chairman is regularly informed by the Chief Executive Officer of significant events and situations relating to the Group, particularly with regard to strategy, organization, monthly financial reporting, major

investment and divestment projects and key financial transactions. The Chairman may ask the Chief Executive Officer or other senior executives of the Company, provided that the Chief Executive Officer is informed, to supply any information that may help the Board or its Committees to carry out their duties.

The Chairman may meet with the statutory auditors in order to prepare the work of the Board of Directors and the Audit Committee.

Every year, the Chairman presents a report to the Annual Shareholders' Meeting describing the preparation and organization of the Board of Directors' work, any limits set by the Board of Directors concerning the powers of the Chief Executive Officer, and the internal control procedures implemented by the Company. To this end, the Chairman obtains the necessary information from the Chief Executive Officer.

5. AUTHORITY OF THE CHIEF EXECUTIVE OFFICER

The Chief Executive Officer is responsible for the Company's overall management. He represents the Company in its relationships with third parties. He also chairs the Executive Committee. The Chief Executive Officer is vested with the broadest powers to act on behalf of the Company in all circumstances, subject to the powers that are, by law, restricted to the Board of Directors and to the Annual Shareholders' Meeting, as well as to the Company's corporate governance rules and in particular these rules of procedure of the Board of Directors.

The Chief Executive Officer is responsible for presenting the Group's results and prospects to shareholders and the financial community on a regular basis.

At each meeting of the Board of Directors, the Chief Executive Officer presents an overview of significant Group events.

6. BOARD COMMITTEES

The Board of Directors approved the creation of:

- an Audit Committee;
- a Governance and Ethics Committee;
- a Compensation Committee;
- a Strategy & CSR Committee.

The roles and composition of each Committee are set forth in their respective rules of procedure, which have been approved by the Board of Directors.

The Committees perform their duties under the authority and for the benefit of the Board of Directors.

Each Committee reports on its activities to the Board of Directors.

7. LEAD INDEPENDENT DIRECTOR

7.1 Appointment of the Lead Independent Director

When the functions of the Chairman of the Board and Chief Executive Officer are combined, the Board of Directors appoints a Lead Independent Director, on the recommendation of the Governance and Ethics Committee, among the directors considered to be independent by the Board of Directors.

The appointed Lead Independent Director holds this position while in office as director, unless otherwise decided by the Board of Directors, which may choose to terminate his duties at any time. If for any reason the director is no longer deemed to be independent, his or her position as Lead Independent Director will be terminated.

The Lead Independent Director, if one is appointed, chairs the Governance and Ethics Committee.

7.2 Duties of the Lead Independent Director

The Lead Independent Director's duties include:

1. **Convening meetings of the Board of Directors – Meeting Agenda**
The Lead Independent Director may request that the Chairman and Chief Executive Officer call a meeting of the Board of Directors to discuss a given agenda.

He may request that the Chairman and Chief Executive Officer include additional items on the agenda of any meeting of the Board of Directors.
2. **Participation in the work of the Committees**
If not a member of the Compensation Committee, the Lead Independent Director is invited to attend meetings and participates in the work of the Compensation Committee relating to the annual review of the executive directors' performance and recommendations regarding their compensation.
3. **Acting as Chairperson of Board of Directors' meetings**
When the Chairman and Chief Executive Officer is unable to attend all or part of a meeting of the Board of Directors, the Lead Independent Director chairs the meeting. In particular, he or she chairs those Board meetings the proceedings of which relate to the evaluation of the performance of the executive directors and the determination of their compensation, which take place in their absence.
4. **Evaluation of the functioning of the Board of Directors**
The Lead Independent Director manages the evaluation process relating to the functioning of the Board of Directors and reports on this evaluation to the Board of Directors.
5. **Prevention of conflicts of interest**
Within the Governance and Ethics Committee, the Lead Independent Director organizes the performance of due diligence in order to identify and analyze potential conflicts of interest within the Board of Directors. He informs the Chairman and Chief Executive Officer of any conflicts of interest identified as a result. He reports to the Board of Directors in relation to this work.

Pursuant to the obligation to declare conflicts of interest set out in Article 2.5 of these Rules, any director affected by an existing or potential conflict of interest must inform the Chairman and Chief Executive Officer and the Lead Independent Director.
6. **Monitoring of the satisfactory functioning of the Board and compliance with the Rules of Procedure**
The Lead Independent Director ensures compliance with the rules of the Corporate Governance Code to which TOTAL S.A. refers and with the Rules of Procedure of the Board of Directors. He or she may make any suggestions or recommendations that he deems appropriate to this end.

He or she ensures that the directors are in a position to carry out their tasks under optimal conditions and that they have sufficient information to perform their duties.

With the agreement of the Governance and Ethics Committee, the Lead Independent Director may hold meetings of the directors who do not hold executive or salaried positions on the Board of Directors. He reports to the Board of Directors on the conclusions of such meetings.

7. Relationships with Shareholders

The Chairman and Chief Executive Officer and the Lead Independent Director are the shareholders' dedicated contacts on issues that fall within the remit of the Board.

When a shareholder approaches the Chairman and Chief Executive Officer in relation to such issues, they may seek the opinion of the Lead Independent Director before responding appropriately to the shareholder's request.

When the Lead Independent Director is approached by a shareholder in relation to such issues, he or she must inform the Chairman and Chief Executive Officer, providing his or her opinion, so that the Chairman and Chief Executive Officer may respond appropriately to the request. The Chairman and Chief Executive Officer must inform the Lead Independent Director of the response given.

With the consent of the Chairman of the Board of Directors, the Lead Independent Director may represent the Board of Directors at meetings with the shareholders of the Company on matters of corporate governance.

7.3 Resources, conditions of office and activity report

The Chairman and Chief Executive Officer must regularly update the Lead Independent Director on the Company's activities.

The Lead Independent Director has access to all of the documents and information necessary for the performance of his or her duties.

The Lead Independent Director may consult the Secretary of the Board and use the latter's services in the performance of his or her duties.

Under the conditions set out in Article 3.2 of these Rules and those established by the Board of Directors, the Lead Independent Director may receive additional director's fees for the duties entrusted to him or her.

The Lead Independent Director must report annually to the Board of Directors on the performance of his or her duties. During Annual Shareholders' Meetings, the Chairman and Chief Executive Officer may invite the Lead Independent Director to report on his or her activities.

4.1.2.2 Activity of the Board of Directors in 2019

Directors are in principle summoned to Board meetings by letter sent the week preceding the meetings. Whenever possible, documents to be considered for decisions to be made at Board meetings are sent with the notice of meetings. The minutes of the previous meeting are expressly approved at the following Board meeting.

In 2019, the Board of Directors held 10 meetings. The global attendance

rate for the directors was 94.2%. The Audit Committee held 7 meetings, with an attendance rate of 96.4%; the Compensation Committee met 3 times, with 93.3% attendance; the Governance and Ethics Committee held 4 meetings, with 93.8% attendance; and the Strategy & CSR Committee met 3 times, with 94.4% attendance.

A table summarizing individual attendance at the Board of Directors and Committee meetings is provided below.

Directors' attendance at Board and Committees meetings in 2019

Directors	Board of Directors		Audit Committee		Compensation Committee		Governance and Ethics Committee		Strategy & CSR Committee	
	Attendance rate	Number of meetings	Attendance rate	Number of meetings	Attendance rate	Number of meetings	Attendance rate	Number of meetings	Attendance rate	Number of meetings
Patrick Pouyanné, <i>Chairman and Chief Executive Officer</i>	100%	10/10	–	–	–	–	–	–	100%	3/3
Patrick Artus	100%	10/10	100%	7/7	–	–	–	–	67%	2/3
Patricia Barbizet, <i>Lead Independent Director</i>	100%	10/10	–	–	100%	3/3	100%	4/4	100%	3/3
Marie-Christine Coisne-Roquette	100%	10/10	100%	7/7	100%	3/3	100%	2/2	–	3 ^(f)
Lise Croteau ^(a)	100%	5/5	100%	4/4	–	–	–	–	–	2 ^(f)
Mark Cutifani	80%	8/10	–	–	–	^(e)	50%	1/2	–	2 ^(f)
Valérie Della Puppa Tibi ^{(a)(b)}	100%	5/5	–	–	–	–	–	–	–	2 ^(f)
María van der Hoeven	100%	10/10	100%	7/7	–	–	–	–	–	3 ^(f)
Anne-Marie Idrac	100%	10/10	–	–	–	–	100%	4/4	100%	3/3
Gérard Lamarche ^(c)	80%	4/5	67%	2/3	100%	3/3	–	–	–	1 ^(f)
Jean Lemierre	100%	10/10	–	–	–	–	100%	4/4	100%	3/3
Renata Perycz ^{(b)(c)}	100%	5/5	–	–	100%	3/3	–	–	–	1 ^(f)
Christine Renaud ^(d)	100%	10/10	–	–	–	^(e)	–	–	100%	3/3
Carlos Tavares	60%	6/10	–	–	67%	2/3	–	–	–	1 ^(f)
Attendance rate	94.2%		96.4%		93.3%		93.8%		94.4% ^(g)	

(a) Director since May 29, 2019.

(b) Director representing employee shareholders.

(c) Director until May 29, 2019.

(d) Director representing employees.

(e) Member of the Committee since May 29, 2019 – no meeting beyond this date in 2019.

(f) Voluntary participation (director not a member of the Strategy & CSR Committee).

(g) Excluding voluntary participation.

The Board meetings included, but were not limited to, a review of the following subjects:

February 6

- presentation to the Board of the work of the Strategy & CSR Committee at its meeting on December 12, 2018;
- closing of the 2018 accounts (Consolidated Financial Statements, parent company accounts) after the Audit Committee's report and work performed by the statutory auditors;
- draft allocation of the result of TOTAL S.A., setting of the 2018 dividend, ex-dividend and payment dates for the 2018 fiscal year, end of the option for payment of the dividend in shares;
- main investor relations messages;
- presentation to the Board of the work of the Governance and Ethics Committee at its meeting on February 6, 2019;
- report of the Lead Independent Director on her mandate;
- assessment of the independence of the directors as of December 31, 2018;
- allocation of directors' fees for fiscal year 2018;
- market abuse regulations – blackout periods;
- information on transactions on the Company's securities by the Chairman and Chief Executive Officer;
- presentation to the Board of the work of the Compensation Committee at its meeting on February 6, 2019;
- the Chairman and Chief Executive Officer's compensation (in his absence);

- commitments made by the Company to the Chairman and Chief Executive Officer;
- compensation policy for the Chairman and Chief Executive Officer for fiscal year 2019;
- review of implementation conditions of a performance share grant and/or stock option plan in 2019;
- approval of the payment of a non-recurring profit-sharing supplement;
- review of a number of points in the management report (Articles L. 225-100 *et seq.* of the French Commercial Code);
- approval of the Board of Directors' report to the Shareholders' Meeting regarding purchases and sales of shares of the Company pursuant to Article L. 225-211 of the French Commercial Code;
- information on the amount of the share capital of TOTAL S.A.;
- information about the results of the option to receive the payment of the second interim dividend for fiscal year 2018 in shares;
- information on Company share buybacks;
- renewal of the authorization to issue bonds;
- renewal of the authorization to issue security, commitments and guarantees;
- guarantee authorization;
- declarations of crossing of thresholds in the Company's share capital or voting rights.

March 13

- information of the Board of Directors relating to investment in the Arctic LNG 2 project;
- presentation to the Board of the work of the Governance and Ethics Committee at its meeting on March 13, 2019;
- summary of assessment of the Board of Directors' practices;
- review of the directorships: proposal for appointment and renewal of the directorships; opinion on applicants for the position of director representing employee shareholders;
- composition of the Board's Committees;
- approval to retain the overall cap on directors' fees;
- presentation to the Board of the work of the Compensation Committee at its meeting on March 13, 2019;
- the Chairman and Chief Executive Officer's compensation (in his absence);
- compensation policy for the Chairman and Chief Executive Officer for fiscal year 2019;
- confirmation of the final grant of performance shares under the 2016 plan as regards the fulfillment of the performance conditions;
- granting of performance shares to the Chairman and Chief Executive Officer and other beneficiaries (2019 Plan);
- presentation to the Board of the work of the Strategy & CSR Committee at its meeting on March 13, 2019;
- approval of the Group's financial policy;
- preparation for the Annual Shareholders' Meeting; setting of the agenda for the Shareholders' Meeting; approval of the various chapters of the Registration Document forming the management report within the meaning of the French Commercial Code, of the report on corporate governance and of the special reports on subscription and purchase options on shares of the Company and the granting of performance shares; approval of the report of the Board of Directors and the text of the draft resolutions put to the Shareholders' Meeting; press releases;
- setting the schedule related to the dividend (interim dividends and balance) for the fiscal years 2019 and 2020;
- distribution of the third interim dividend for the 2018 fiscal year and setting of the new share issue price for this interim dividend;
- authorization to issue a guarantee;
- ratification by the Board of the Agreement falling within the scope of Article L. 225-38 of the French Commercial Code entered into between the Company and Association United Way – L'Alliance representing corporate patronage;
- information on bond issues.

April 25

- report of the meeting of the Strategy & CSR Committee of March 13, 2019;
- information relating to investments in the Arctic LNG 2 project;
- update on the prevention of the risk of corruption within the Group;
- statutory and Consolidated Financial Statements, results for the first quarter of 2019 after the Audit Committee's report and work performed by the statutory auditors;
- presentation to the Board of the work of the Audit Committee at its meeting on April 23, 2019;
- setting of a first interim dividend on the dividend for fiscal year 2019;
- press releases;
- preparation of the Annual Shareholders' Meeting: final report of the Board of Directors on the draft resolutions submitted to the Annual Shareholders' Meeting; final text of the draft resolutions;
- information about the results of the option to receive the payment of the third interim dividend for fiscal year 2018 in shares;
- information on Company share buybacks;
- information on bond issues;
- declarations of crossing of thresholds in the Company's share capital or voting rights;
- information to the Board of Directors regarding the setting of the subscription period and price for shares of the Company for the 2019 share capital increase reserved for employees.

May 3

- approval of the proposed acquisition of the African assets of Anadarko Petroleum Corporation from the Occidental Petroleum Corporation.

May 29 – prior to Meeting

- information on the Mero 2 project in Brazil;
- preparation for and organization of the Annual Shareholders' Meeting: report from governance roadshows undertaken ahead of the Meeting, and responses to the written questions submitted by shareholders;
- delegation of powers to undertake operations on shares of the Company;
- information on bond issues;
- authorization to issue a guarantee;
- information and decisions related to the 2019 capital increase reserved for employees;
- change to the composition of the Board's Committees.

July 24

- final investment decision in the Arctic LNG 2 project in Russia;
- presentation to the Board of the work of the Governance and Ethics Committee at its meeting on July 23, 2019;
- information on the voting results of the Shareholders' Meeting on May 29, 2019;
- confidentiality of the work of the Board of Directors;
- determination of the conditions of office for the position of director representing employee shareholders;
- review of the consequences of Law No. 2019-486 of May 22, 2019, known as the "PACTE" law;
- agreement in principle of the Board to continue to review a project to convert the Company into a European company;
- presentation of the strategic perspectives of the Refining & Chemicals segment, including safety and energy efficiency aspects, the improvement of operational performance and the control of investments;
- statutory and Consolidated Financial Statements, results for the second quarter 2019 and the first half of 2019 after the Audit Committee's report and work performed by the statutory auditors;
- presentation to the Board of the work of the Audit Committee at its meetings on June 18 and July 22, 2019;
- setting of a second interim dividend on the dividend for fiscal year 2019;
- approval of the supplementary report by the Board of Directors on the share capital increase reserved for employees (Total Capital 2019) pursuant to Article R. 225-116 of the French Commercial Code;
- review of the Shell divestment to Noreco of its interests in the DUC concession in which TOTAL S.A. holds a stake;
- information on Company share buybacks;
- information on bond issues;
- renewal of the authorization to issue bonds;
- renewal of the authorization to issue security, commitments and guarantees;
- delegation of powers to undertake operations on shares of the Company;
- declarations of crossing of thresholds in the Company's share capital or voting rights.

September 18

- progress report on the closing of the acquisition of the African assets of Anadarko Petroleum Corporation;
- presentation to the Board of the report of the Strategy & CSR Committee at its meeting on September 18, 2019;
- strategic perspectives of Exploration & Production activities with a presentation of safety indicators and environmental objectives;
- presentation of the Group's five-year plan;
- information to be presented to investors in September 2019 in New York on the strategy and the perspectives of the Group;
- the Company's strategic directions (Articles L. 2312-17 and L. 2312-24 of the French Labor Code);
- share capital increase reserved for employees (Total Capital 2020) and grant of free shares as a deferred contribution in this framework;
- information on bond issues.

September 23

- approval of the amendment of the shareholder return policy to help speed up dividend growth and the associated press release.

October 29 (in Copenhagen)

- presentation to the Board of the work of the Strategy & CSR Committee at its meeting on September 18, 2019 including presentation of the strategic orientations of Gas, Renewables & Power – 5-year outlook – 20-year ambition;
- presentation to the Board of the work of the Governance and Ethics Committee at its meeting on October 10, 2019;
- adoption of the project to convert the Company into a European company;
- strategic perspectives of the Marketing & Services segment;
- presentation of the Company's policy in terms of professional equality and equal pay, the renegotiation of the 2010 Agreement on professional gender equality which led to the signing of an agreement in June 2019, and update on the Group's targets in terms of internationalization and feminization of hires and senior management;
- Consolidated Financial Statements, results for the third quarter of 2019 after the Audit Committee's report and work performed by the statutory auditors;
- presentation to the Board of the work of the Audit Committee at its meetings on October 8 and 25, 2019;
- setting a third interim dividend to be paid on the dividend for fiscal year 2019;
- information on Company share buybacks;
- information on the Company's stock options and share capital;
- declarations of crossing of thresholds in the Company's share capital;
- information about the formal notice sent to the Company by non-governmental organizations on the Group's projects in Uganda.

December 11

- presentation of the Anchor project in the Gulf of Mexico;
- presentation of the Strategy & CSR Committee report of December 11, 2019;
- presentation of the Group's 2020 budget;
- review of regulated agreements (Article L. 225-40-1 of the French Commercial Code);
- reduction of the Company's share capital through the cancellation of treasury shares;
- notification to the Board of the change in the Company's representative used in the service of its registered shares.

4.1.2.3 Committees of the Board of Directors**THE AUDIT COMMITTEE****Composition**

As of March 18, 2020, the Audit Committee is made up of four members, with a 100% rate of independence. Ms. Marie-Christine Coisne-Roquette chairs the Committee. Mr. Patrick Artus, Ms. Lise Croteau and Maria van der Hoeven are members of the Committee. Ms. Coisne-Roquette was appointed "financial expert" of the Committee by the Board at its meeting of December 16, 2015. The careers of the Committee members confirm their possession of acknowledged expertise in the financial, accounting or audit fields (refer to point 4.1.1.1 of this chapter).

Duties

The rules of procedure of the Audit Committee define the Committee's duties as well as its working procedures. After having been modified on February 8, 2017, in order to adapt the missions of the Committee to the European audit reform, the Committee's rules of procedure were last modified on July 25, 2018, in order to take account of the new social and environmental responsibility requirements, further to the revision of the AFEF-MEDEF Code in June 2018. The text of the unabridged version of the rules of procedure approved by the Board of Directors on July 25, 2018, is available on TOTAL's website under "Our Group/Our identity/Our Governance".

Notwithstanding the duties of the Board of Directors, the Audit Committee is tasked with the following missions in particular:

Regarding the statutory auditors:

- making a recommendation to the Board of Directors on the statutory auditors put before the Annual Shareholders' Meeting for designation or renewal, following their selection procedure organized by General Management and enforcing the applicable regulations;
- monitoring the statutory auditors in the performance of their missions and, in particular, examining the additional report drawn up by the statutory auditors for the Committee, while taking account of the observations and conclusions of the High Council of statutory auditors (Haut Conseil du Commissariat aux comptes) further to the inspection of the auditors in question in application of the legal provisions, where appropriate;
- ensuring that the statutory auditors meet the conditions of independence as defined by the regulations, and analyzing the risks to their independence and the measures taken to mitigate these risks; to this end, examining all the fees paid by the Group to the statutory auditors, including for services other than the certification of the financial statements, and making sure that the rules applying to the maximum length of the term of the statutory auditors and the obligation to alternate are obeyed;
- approving the delivery by the statutory auditors of services other than those relating to the certification of the financial statements, in accordance with the applicable regulations.

Regarding accounting and financial information:

- following the process to produce financial information and, where appropriate, formulating recommendations to guarantee its integrity, where appropriate;
- monitoring the implementation and the proper workings of a disclosures Committee in the Company, and reviewing its conclusions;
- examining the assumptions used to prepare the financial statements, assessing the validity of the methods used to handle significant transactions and examining the parent company financial statements and annual, half-yearly, and quarterly Consolidated Financial Statements prior to their examination by the Board of Directors, after regularly monitoring the financial situation, cash position and off-balance sheet commitments;
- guaranteeing the appropriateness and the permanence of the accounting policies and principles chosen to prepare the statutory and Consolidated Financial Statements of the Company;
- examining the scope of the consolidated companies and, where appropriate, the reasons why companies are not included;
- examining the process to validate the proved reserves of the companies included in the scope of consolidation;
- reviewing, if requested by the Board of Directors, major transactions contemplated by the Company.

Regarding internal control and risk management procedures:

- monitoring the efficiency of the internal control and risk management systems, and of internal audits, in particular with regard to the procedures relating to the production and processing of accounting, financial and non-financial information, without compromising its independence, and in this respect:
 - checking that these systems exist and are deployed, and that actions are taken to correct any identified weaknesses or anomalies,
 - reviewing, based in particular on the risk maps developed by the Company, the exposure to risks, such as financial risks (including material off-balance sheet commitments), legal risks, operational risks, social and environmental risks, as well as measures taken as a result;

- annually examining the reports on the work of the Group Risk Management Committee (formerly named Group Risk Committee) and the major issues for the Group,
- examining the annual work program of the internal auditors and being regularly informed of their work,
- reviewing significant litigation at least once a year,
- overseeing the implementation of the Group's Financial Code of Ethics,
- proposing to the Board of Directors, for implementation, a procedure for complaints or concerns of employees, shareholders and others, related to accounting, internal control or auditing matters, and monitoring the implementation of this procedure,
- where appropriate, examining important operations in which a conflict of interests could have arisen.

The Audit Committee reports to the Board of Directors on the performance of its duties. It also reports on the results of the statutory auditors' mission concerning the certification of the financial statements, on how this mission contributed to the integrity of the accounting and financial information and its role in this process. It shall inform the Board of Directors without delay of any difficulties encountered.

Organization of activities

The Committee meets at least seven times each year: each quarter to review in particular the statutory financial statements of the Company, and the annual and quarterly Consolidated Financial Statements, and at least on three other occasions to review matters not directly related to the review of the quarterly financial statements.

At each Committee meeting where the quarterly financial statements are reviewed, the Chief Financial Officer presents the Consolidated Financial Statements and the statutory financial statements of the Company, as well as the Group's financial position and, in particular, its liquidity, cash flow and debt situation. A memo describing risk exposure and off-balance sheet commitments is communicated to the Committee. This review of the financial statements includes a presentation by the statutory auditors underscoring the key points observed.

As part of monitoring the efficiency of the internal control and risk management systems, as well as internal audits with regard to the procedures relating to the production and processing of accounting, financial and non-financial information, the Committee is informed of the work program of the Corporate Internal Control and Audit Department and its organization, on which it may issue an opinion. The Committee also receives a summary of the internal audit reports, which is presented at each Committee meeting where the quarterly financial statements are reviewed. The risk management processes implemented within the Group, as well as updates to them, are presented regularly to the Committee.

The Committee may meet with the Chairman and Chief Executive Officer or, if the functions are separate, the Chairman of the Board of Directors, the Chief Executive Officer as well as, if applicable, any Deputy Chief Executive Officer of the Company. It may perform inspections and consult with managers of operating or non-operating department, as may be useful in performing its duties. The Chairman of the Committee gives prior notice of such meeting to the Chairman and Chief Executive Officer or, if the functions of Chairman of the Board of Directors and Chief Executive Officer are separate, both the Chairman of the Board of Directors and the Chief Executive Officer. In particular, the Committee is authorized to consult with those involved in preparing or auditing the financial statements (Chief Financial Officer and principal Finance Department managers, Audit Department, Legal Department) by asking the Company's Chief Financial Officer to call them to a meeting.

The Committee consults with the statutory auditors regularly, including at least once a year without any Company representative present. If it is informed of a substantial irregularity, it recommends to the Board of Directors all appropriate action.

If it considers that it is necessary for the accomplishment of its mission, the Committee asks the Board of Directors for resources to

receive assistance or conduct external studies on subjects within its competence. If the Committee calls on external consulting services, it makes sure that they are objective.

Work of the Audit Committee

In 2019, the Audit Committee met 7 times, with an attendance rate of 96.4%. The Chairman and Chief Executive Officer did not attend any of the meetings of the Audit Committee.

The Audit Committee's work mainly focused on the following areas:

February 4

- review of the Consolidated Financial Statements and statutory financial statements of TOTAL S.A. as parent company for the fourth quarter of 2018 and the 2018 fiscal year. Presentation by the statutory auditors of their work performed in accordance with French and American professional audit standards;
- review of the Group's financial position;
- update on outstanding balance of guarantees granted by TOTAL S.A. as of December 31, 2018;
- update on the Sarbanes-Oxley process: self-assessment carried out by the Group and audit of the internal control related to financial reporting by the statutory auditors as part of the SOX 404 process;
- presentation of the "Risks and control" chapter of the Registration Document: risk factors, legal proceedings, internal control and risk management procedures relating to accounting and financial information;
- update on the 2018 internal audit and 2019 work schedule.

March 11

- presentation of the statement of non-financial performance;
- presentation of the update to the Vigilance Plan and the report on its implementation;
- evaluation process for hydrocarbon reserves at the end of the 2018 fiscal year;
- presentation of the report on the payments made to governments;
- general presentation of the Group's insurance policy and the cover put in place for 2019 in terms of property damage, business interruption, and civil liability; update on D&O (Directors & Officers) insurance;
- review of the Statutory Auditors' reports.

April 23

- review of the Consolidated Financial Statements and statutory financial statements of TOTAL S.A. for the first quarter of 2019, with a presentation by the statutory auditors of a summary of their limited review;
- presentation of the 2019 health, safety and environment audit plan and review of the fiscal year 2018;
- review of the internal audit;
- update on the prevention of the risk of corruption.

June 18

- presentation of the Gas, Renewables & Power activities risk map;
- presentation of the work of the Group Risk Management Committee;
- update on management of benefits;
- presentation of the activities of the Satorp platform (Saudi Arabia).

July 22

- review of the Consolidated Financial Statements and statutory financial statements of TOTAL S.A. as parent company for the second quarter of 2019 as well as those for the first half of 2019. Presentation by the statutory auditors of a summary of their limited review;
- presentation of the Group's financial position as of June 30, 2019;
- update on the internal audits conducted;
- presentation of the result of the entry into force on January 1, 2019 of IFRS 16 on leases and the interpretation of IFRIC 23 "Uncertainty relating to tax treatment", a description of the monitoring of the scope of consolidation and associated control tests.

October 8

- update on the timescale relating to the statutory auditors' office and on the call for tenders procedure to be implemented;
- audit of the accounts as of December 31, 2019: statutory auditors' analysis of the main transverse risks to be addressed as important points in their audit plan for the closing of the 2019 accounts; presentation by the statutory auditors of the new U.S. obligations relating to the audit report: from 2019, this report will contain a section on Critical Audit Matters;
- review of significant litigation and status update on the main pending proceedings involving the Group;
- presentation of the organization memorandum of the Disclosure Committee (CCIP) and its work;
- review of the Group's fiscal position;
- presentation of the statutory auditors' fees, and changes to the new non-audit services policy.

October 25

- interview of the members of the Audit Committee with the statutory auditors in the absence of Group employees. Review of the Consolidated Financial Statements and statutory financial statements of TOTAL S.A. as parent company for the third quarter of 2019 as well as those for the first nine months of 2019. Presentation by the statutory auditors of a summary of their limited review;
- review of the Group's financial position at the end of the quarter;
- update on the internal audits conducted in the third quarter of 2019;
- information on compliance by relevant employees with the provisions of the Financial Code of Ethics;
- update on the schedule and the call for tenders procedure of the statutory auditors.

At each meeting related to the quarterly financial statements, the Committee reviewed the Group's financial position in terms of liquidity, cash flow and debt, as well as its significant risks and off-balance sheet commitments. The Audit Committee was periodically informed of the risk management processes implemented within the Group as well as the work carried out by the Audit & Internal Control division, which was presented at each Committee meeting where the quarterly financial statements were reviewed.

The Audit Committee reviewed the financial statements no later than two days before they were reviewed by the Board of Directors, a sufficient amount of time as set out in the recommendations of the AFEP-MEDEF Code.

The statutory auditors attended all Audit Committee meetings held in 2019.

The Chief Financial Officer, the Vice President Accounting and the Senior Vice President Audit & Internal Control division attended all Audit Committee meetings related to their area. The Treasurer had an excused absence for one of the meetings.

The Chairman of the Committee reported to the Board of Directors on the Committee's work.

THE GOVERNANCE AND ETHICS COMMITTEE**Composition**

As of March 18, 2020, the Governance and Ethics Committee is made up of four members, with a 100% rate of independence. Ms. Patricia Barbizet chairs the Committee. Mses. Marie-Christine Coisne-Roquette, Anne-Marie Idrac and Mr. Jean Lemierre are members of the Committee.

Duties

The rules of procedure of the Governance and Ethics Committee define the Committee's duties as well as its working procedures. They were modified in order to extend the duties of the Committee to matters

regarding compliance as well as the prevention and the detection of corruption and influence peddling. The text of the unabridged version of the rules of procedure approved by the Board of Directors on July 25, 2018, is available on TOTAL's website under "Our Group/Our identity/Our Governance".

The Governance and Ethics Committee is focused on:

- recommending to the Board of Directors the persons that are qualified to be appointed as directors, so as to guarantee the scope of coverage of the directors' competencies and the diversity of their profiles;
- recommending to the Board of Directors the persons that are qualified to be appointed as executive directors;
- preparing the Company's corporate governance rules and supervising their implementation;
- ensuring compliance with ethics rules and examining any questions related to ethics and situations of conflicting interests;
- reviewing matters regarding compliance as well as the prevention and detection of corruption and influence peddling.

Its duties include:

- presenting recommendations to the Board of Directors for its membership and the membership of its Committees, and the qualification in terms of independence of each applicant for Directors' positions on the Board of Directors;
- proposing annually to the Board of Directors the list of directors who may be considered as "independent directors";
- examining, for the parts within its remit, reports to be sent by the Board of Directors or its Chairman to the shareholders;
- assisting the Board of Directors in the selection of the organization of the governance of the Company as well as the selection and evaluation of the executive directors and examining the preparation of their possible successors including establishing a succession plan, including cases of unforeseeable absence;
- recommending to the Board of Directors the persons that are qualified to be appointed as directors;
- recommending to the Board of Directors the persons that are qualified to be appointed as members of a Committee of the Board of Directors;
- proposing methods for the Board of Directors to evaluate its performance, and in particular preparing means of regular self-assessment of the workings of the Board of Directors, and the possible assessment thereof by an external consultant;
- proposing to the Board of Directors the terms and conditions for allocating directors' fees and the conditions under which expenses incurred by the directors are reimbursed;
- developing and recommending to the Board of Directors the corporate governance principles applicable to the Company;
- preparing recommendations requested at any time by the Board of Directors or the General Management of the Company regarding appointments or governance;
- examining the conformity of the Company's governance practices with the recommendations of the Code of Corporate Governance to which the Company refers;
- supervising and monitoring the implementation of the approach of the Company with regard to ethics, compliance, prevention and detection of corruption and influence peddling and, in this respect, ensuring that the necessary procedures are in place, including those for updating the Group's Code of Conduct and that this Code is disseminated and applied;
- examining any questions related to ethics and potential situations of conflicting interests;
- examining changes in the duties of the Board of Directors.

Work of the Governance and Ethics Committee

In 2019, the Governance and Ethics Committee held 4 meetings, with 93.8% attendance. Its work mainly focused on the following areas:

February 6

- report of the Lead Independent Director on her mandate;
- update on the directors' offices and on members of the Committees;
- proposals to the Board of Directors regarding the assessment of the independence of the directors based on the independence criteria specified in the AFEP-MEDEF Code;
- allocating of directors' fees to directors and Committee members;
- update on the Market Abuse regulations (Regulation (EU) No. 596/2014 of April 16, 2014) and the applicable blackout periods;
- information update on transactions on the Company's securities by executive directors.

March 13

- assessment of the Board of Directors' practices;
- proposal to the Board of Directors regarding the appointment of a new director and the renewal of the terms of office of two directors which was submitted to the Shareholders' Meeting of May 29, 2019;
- opinion on the applicants for the post of director representing employee shareholders whose applications were submitted to the vote of the Shareholders' Meeting of May 29, 2019;
- proposals to the Board of Directors regarding the composition of the Committees;
- allocating of directors' fees to directors and Committee members;
- examination of the sections of the report on corporate governance within its remit;
- approval of the draft report to the Annual Shareholders' Meeting and of the text of the draft resolutions.

July 23

- presentation of the consequences of Law No. 2019-486 of May 22, 2019 (known as the "PACTE" law);
- determination of the conditions of office for the position of director representing employee shareholders;
- review of the opportunity to launch a project to convert TOTAL S.A. into a European company.

October 10

- presentation of the project to convert TOTAL S.A. into a European company and the applicable legal framework.

THE COMPENSATION COMMITTEE**Composition**

As of March 18, 2020, the Compensation Committee is made up of four members, with a 100% rate of independence⁽¹⁾. Ms. Patricia Barbizet chairs the Committee. Messrs. Mark Cutifani, Carlos Tavares and Ms. Christine Renaud (director representing employees) are members of the Committee.

Duties

The rules of procedure of the Compensation Committee define the Committee's duties as well as its working procedures. They were modified on July 25, 2018, in order to take account of the new social and environmental responsibility requirements, further to the revision of the AFEP-MEDEF Code in June 2018. The text of the unabridged version of the rules of procedure approved by the Board of Directors on July 25, 2018, is available on TOTAL's website under "Our Group/Our identity/Our Governance".

The Committee is focused on:

- examining the executive compensation policies implemented by the Group and the compensation of members of the Executive Committee;

- evaluating the performance and recommending the compensation of each executive director;
- preparing reports which the Company must present in these areas.

The Committee's duties include:

- examining the main objectives proposed by the Company's General Management regarding compensation of the Group's senior executives, including stock option and restricted share grant plans as well as "equity-based plans", and advising on this subject;
- presenting recommendations and proposals to the Board of Directors concerning:
 - compensation, pension and life insurance plans, in-kind benefits and other compensation (including severance benefits) for the executive directors of the Company; in particular, the Committee proposes compensation structures that take into account the Company's strategic orientations, objectives and earnings, market practices as well as one or more criteria related to social and environmental responsibility,
 - stock option and restricted share grants, particularly grants of restricted shares to the executive directors;
- examining the compensation of the members of the Executive Committee, including stock option and restricted share grant plans as well as "equity-based plans", pension and insurance plans and in-kind benefits;
- preparing and presenting reports in accordance with these rules of procedure;
- examining, for the parts within its remit, reports to be sent by the Board of Directors or its Chairman to the shareholders;
- preparing recommendations requested at any time by the Chairman of the Board of Directors or the General Management of the Company regarding compensation;
- at the request of the Chairman of the Board, examining all draft reports of the Company regarding compensation of the executive officers or any other matters within its competence.

Work of the Compensation Committee

In 2019, the Compensation Committee held 3 meetings, with 93.3% attendance. The Chairman and Chief Executive Officer does not attend the Committee's deliberations regarding his own situation.

Its work mainly focused on the following areas:

February 5

- compensation to be paid to the Chairman and Chief Executive Officer for fiscal year 2018;
- commitments made by the Company to the Chairman and Chief Executive Officer;
- compensation policy for the Chairman and Chief Executive Officer for fiscal year 2019;
- implementation conditions of a performance share and/or stock option plan in 2019;
- option to pay a non-recurring profit-sharing supplement.

March 1

- compensation to be paid to the Chairman and Chief Executive Officer for fiscal year 2018;
- compensation policy for the Chairman and Chief Executive Officer for fiscal year 2019;
- compliance with the restrictions on share transfers by the Chairman and Chief Executive Officer;
- grant conditions for performance shares to the Chairman and Chief Executive Officer, and other beneficiaries (2019 Plan).

(1) Excluding the director representing employees, in accordance with the recommendations of the AFEP-MEDEF Code (point 9.3).

March 13

- compensation to be paid to the Chairman and Chief Executive Officer for fiscal year 2018;
- compensation policy for the Chairman and Chief Executive Officer for fiscal year 2019;
- compliance with the restrictions on share transfers by the Chairman and Chief Executive Officer;
- confirmation of the acquisition rate of performance shares under the 2016 plan and regarding the fulfillment of the performance conditions;
- proposal to grant performance shares to the Chairman and Chief Executive Officer, and other beneficiaries (2019 Plan);
- examining sections within its remit of the report on corporate governance to shareholders;
- review of the draft resolutions submitted to the Shareholders' Meeting of May 29, 2019 and of the Board's draft report on these resolutions.

THE STRATEGY & CSR COMMITTEE**Composition**

As of March 18, 2020, the Strategy & CSR Committee is made up of six members, including four independent directors and the director representing employees. Mr. Patrick Pouyanné chairs the Committee. Meses. Patricia Barbizet, Anne-Marie Idrac and Christine Renaud and Messrs. Patrick Artus and Jean Lemierre are members of the Committee.

Duties

The rules of procedure of the Strategy & CSR Committee define the Committee's duties as well as its working procedures. They were last modified on July 25, 2018, in order to take account of the new social and environmental responsibility requirements, further to the revision of the AFEP-MEDEF Code in June 2018. The text of the unabridged version of the rules of procedure approved by the Board of Directors on July 25, 2018, is available on TOTAL's website under "Our Group/Our identity/Our Governance".

To allow the Board of Directors of TOTAL S.A. to ensure the Group's development, the Strategy & CSR Committee's duties include:

- examining the Group's overall strategy proposed by the Company's Chief Executive Officer;
- examining the Group's corporate social and environmental responsibility (CSR) issues and, in particular, issues relating to the incorporation of the Climate challenge in the Group's strategy;
- examining operations that are of particular strategic importance;
- reviewing the competitive environment, the main challenges the Group faces, including with regard to social and environmental responsibility, as well as the resulting medium and long-term outlook for the Group.

Work of the Strategy & CSR Committee

In 2019, the Strategy & CSR Committee met 3 times, with 94.4% attendance. Its work mainly focused on the following areas:

March 13

- presentation of the diversity policy within the Group (practice, results, action plans);
- presentation of Total Energy Outlook 2040 (synthetic overview of prospective studies conducted by the Group in the energy demand field).

September 18

- strategic orientations of Gas, Renewables & Power activities;
- proposal to change the shareholder return policy;
- presentation of the Group's Research & Development.

December 11

- presentation of the new Group Risks map;
- presentation of the One Total Company project, in particular its human component *Better Together*.

4.1.3 Report of the Lead Independent Director on her mandate

During the Board meeting of February 5, 2020, Ms. Barbizet presented a report on her mandate as Lead Independent Director. The Lead Independent Director indicated that she exercised her duties during the 2019 fiscal year as follows:

- **Contact with the Chairman and Chief Executive Officer:**
The Lead Independent Director has been a privileged interlocutor of the Chairman and Chief Executive Officer with respect to significant matters concerning the Group's business and preparing meetings of the Board of Directors and of the Governance and Ethics Committee. The Lead Independent Director thus met the Chairman and Chief Executive Officer very regularly, on a monthly basis, and before each meeting of the Board of Directors.
- **Assessment of the Board of Directors' practices:**
The Lead Independent Director conducted the assessment of the Board of Directors' practices, with the assistance of an external consultant.
- **Avoidance of conflicts of interest:**
The Lead Independent Director has performed due diligence in order to identify and analyze potential conflicts of interest. She brought to the attention of the Chairman and Chief Executive Officer the potential conflicts of interest that had been identified. The Lead Independent Director was thus consulted in October 2019 by a director about a potential conflict of interest arising due to that director's possible participation on the Board of Directors of an unlisted company in the transport infrastructure sector. Due to the absence of a conflict of interest, this director accepted the office of director that was on offer in this company.

- **Monitoring of the Board's practices:**
The Lead Independent Director held a meeting of the independent directors on December 11, 2019. At this meeting, the discussions related in particular to the implementation of the Group's strategy in terms of energy transition in the context of climate change, as well as to the directors' wishes to better understand the opportunities open to the Group, for example by inviting external experts in order to share their views.

- **Relationships with shareholders:**
The Chairman and Chief Executive Officer and the Lead Independent Director are the privileged points of contacts for shareholders concerning matters under the Board's responsibility. In accordance with the provisions of the rules of procedure of the Board, when the Chairman and Chief Executive Officer is solicited in this area, he may consult the Lead Independent Director before responding.

When the Lead Independent Director is solicited in this area, she informs the Chairman and Chief Executive Officer and gives her opinion, so that the Chairman and Chief Executive Officer can give appropriate response to the request. The Chairman and Chief Executive Officer informs the Lead Independent Director of the response.

The Lead Independent Director presented to the shareholders the report relating to her office during the Shareholders' Meeting on May 29, 2019.

- **Customer relations:**
The Lead Independent Director and another director were notified in May 2019 by an agent of a Group's subsidiary of a commercial dispute concerning this agent with said subsidiary. After becoming

familiar with the content of the dispute, the Lead Independent Director concluded that this issue had been properly dealt with.

The Lead Independent Director and another director were also notified in October 2019 by a Group customer of a commercial dispute concerning the quality of a product that was sold to this customer by a Group's company. Analyses concluded the conformity of the product, and as no other claim regarding the production batch was received, the investigation carried out showed that the Group's teams handled the situation with professionalism. An agreement was finally reached between the two parties on December 23, 2019, ending the commercial dispute.

– **Relations with current or former employees:**

The Lead Independent Director was notified on July 12, 2019 of a situation dating back to 2005 relating to a former Group employee and which was previously brought to the attention of the Group Ethics Committee. The Lead Independent Director stated that the Group Ethics Committee took into account the request which was transmitted by the Chairman and Chief Executive Officer by carrying

out the steps necessary to remedy an anomaly with regard to the pension situation of the person concerned on the one hand and on the other hand, to try to handle, after such a long period of time, the personal situation of that person when employee of the Company. The Lead Independent Director indicated in her response of July 29, 2019 that the Ethics Committee could only propose to the person concerned to refer the matter to the public authorities that may be competent and that the Company undertakes to fully cooperate with them. After being notified again on the same situation on August 13, 2019 by a labor union, the Lead Independent Director confirmed on October 9, 2019 that the Group Ethics Committee had properly implemented reasonably foreseeable due diligence and had thus dealt adequately with this situation.

– **Visits to Group sites by the directors:**

Along with other directors, Ms. Barbizet visited the Halfdan field in the North Sea in Denmark's offshore area. This site visit was an opportunity for the directors to meet Group senior executives and partners, as well as leading industrial figures in this country.

4.1.4 Assessment of the Board of Directors' practices

Once a year, the Board of Directors discusses its functioning. It also conducts a formal assessment of its own functioning at regular intervals of up to three years. The evaluation is carried out under the supervision of the Lead Independent Director, if one has been appointed, or under the supervision of the Governance and Ethics Committee, with the assistance of an outside consultant. When a Lead Independent Director is appointed, he or she oversees this evaluation process and reports on it to the Board of Directors.

At its meeting of March 18, 2020, the Board of Directors discussed its functioning. Ms. Barbizet, Lead Independent Director, managed this evaluation process in January 2020 on the basis of a formal self-assessment in the form of a detailed questionnaire. The responses given by the directors were then presented to the Governance and Ethics Committee to be reviewed and summarized. This summary was then discussed by the Board of Directors. This process made it possible to confirm the quality of each director's contribution to the work of the Board and its Committees.

This formal evaluation showed a positive opinion of the functioning of the Board of Directors and the Committees. In particular, it was noted that the suggestions for improvement made by the directors in recent years had generally been taken into account. During the Board of Directors' meetings, some of which were held at certain of the Group's sites, special attention was paid at the presentation of strategy and large-scale projects of investment and divestment).

Furthermore, the main suggestions for improving the Board made by the directors during their January 2017, January 2018 and January 2019 self-assessments have been implemented:

- monitoring risks at Board level: an annual presentation of the Group's risk map has been on the Board's agenda since 2016. In 2019, the new risk map established end 2019 was presented to directors on the occasion of the Strategy & CSR Committee meeting on December 11, 2019.
- changes to the composition of the Board: the Governance and Ethics Committee's proposals to the Board of Directors met the expectations of the Board members, particularly with the addition of the experience of two Chief Executive Officers of leading companies, who joined the Board following the Shareholders' Meeting of May 26, 2017. A new director, who was a former CFO of a hydroelectricity company, was appointed by the Shareholders' Meeting of May 29, 2019.
- independent directors' meeting: now held once a year at the initiative of the Lead Independent Director. Meetings took place on December 11, 2019.

The self-assessment conducted in January 2020 thus highlighted the directors' satisfaction with the functioning of the Board of Directors, both in terms of form and substance, and, in particular, concerning freedom of expression, the quality of dialog, the collegiality of decision-making as well as the relevance of subjects addressed. The directors particularly appreciated the pace and agenda of meetings, the quality of the exchanges during lunches before the meetings and during the visits to Group sites organized for them, as well as the quality of relations with the Lead Independent Director.

The Board of Directors made the following suggestions that could further improve its functioning:

- consider alternative disruptive scenarios within the framework of the strategic consideration;
- implement trainings for directors who are willing to do some;
- propose the presence of external persons during the meetings of the Board or the Committees about general matters (climate).

4.1.5 General Management

4.1.5.1 Unified Management Form

Combination of the management positions

At its meeting on December 16, 2015, the Board of Directors decided to reunify the positions of Chairman and Chief Executive Officer of TOTAL S.A. as of December 19, 2015. Since that date, Mr. Pouyanné has thus held the position of Chairman and Chief Executive Officer of TOTAL S.A.

Following the death of TOTAL's former Chairman and Chief Executive Officer, Mr. de Margerie, the Board of Directors decided, at its meeting on October 22, 2014, to separate the functions of Chairman and Chief Executive Officer in order to best ensure the transition of the General Management. The Board of Directors therefore appointed Mr. Pouyanné as Chief Executive Officer for a term of office expiring following the Annual Shareholders' Meeting held in 2017 to approve the 2016 financial statements⁽¹⁾, and Mr. Desmarest as Chairman of the Board of Directors for a term of office expiring on December 18, 2015, in accordance with the age limit set out in the bylaws. It was announced that, on that date, the functions of Chairman and Chief Executive Officer of TOTAL S.A. would be combined.

At the Ordinary Shareholders' Meeting of June 1, 2018, Mr. Pouyanné's directorship was renewed for a period of three years, i.e., until the end of the Shareholders' Meeting in 2021 that will approve the accounts of fiscal year 2020. On the proposal of the Governance and Ethics Committee, approved by the meeting of the Board of Directors of March 14, 2018, the latter met after the Shareholders' Meeting and unanimously decided to renew Mr. Pouyanné's term of office as the Chairman and Chief Executive Officer for the duration of his directorship.

At the meeting of the Board of Directors of March 14, 2018, the Lead Independent Director notably reiterated that the proposal to continue to combine the positions of Chairman of the Board of Directors and Chief Executive Officer was made further to work done by the Governance and Ethics Committee in the interests of the Company. In this regard, the unified Management Form was deemed to be most appropriate to the Group's organization, modus operandi and business, and to the specific features of the oil and gas sectors, particularly in light of the advantage for the Group of having a unified management in strategic negotiations with States and the Group's partners.

The Lead Independent Director also reiterated that the Group's governance structure ensures a balanced distribution of powers. To this end, at its meeting on December 16, 2015, the Board amended the provisions of its Rules of Procedure to provide for the appointment of a Lead Independent Director in the event of the combination of the positions of Chairman of the Board of Directors and Chief Executive Officer. The Lead Independent Director's duties, resources and rights are described in the Rules of Procedure of the Board of Directors.

The balance of powers within the Company's bodies is also ensured by the composition of the Board of Directors and that of its four Committees, particularly given the high proportion of members who are independent directors. It is further ensured by the directors' full involvement in the work of the Board and the Committees, and by their diverse profiles, skills and expertise.

In addition, the Board's Rules of Procedure provide that investments and divestments considered by the Group exceeding 3% of equity, as well as any significant transactions not included in the announced Company

strategy, must be approved by the Board, which is also informed of any significant events related to the Company's operations, particularly investments and divestments in amounts exceeding 1% of equity.

Finally, the Company's bylaws offer the necessary guarantees to ensure compliance with best governance practices under a unified Management Form. In particular, they stipulate that a Board meeting may be convened by any means, including verbally, and at short notice in case of urgency, by the Chairman or by a third of its members, at any time and as often as required to ensure the best interests of the Company.

Lead Independent Director

At its meeting on December 16, 2015, the Board of Directors appointed Ms. Barbizet as Lead Independent Director as of December 19, 2015. Pursuant to the provisions of the Rules of Procedure of the Board of Directors, she therefore chairs the Governance and Ethics Committee.

Ms. Patricia Barbizet has been a director of TOTAL S.A. since May 16, 2008. Ms. Barbizet will have served 12 years on the Board as from May 16, 2020 and will no longer be considered as an independent director from that date. Subject to the renewal of her mandate as a director at the Shareholders' Meeting to be held on May 29, 2020, the Board of Directors is considering appointing Ms. Marie-Christine Coisne-Roquette in the function as Lead Independent Director at the end of the Shareholders' Meeting.

The duties of the Lead Independent Director are described in detail in the Rules of Procedure of the Board of Directors, the full version of which is provided in point 4.1.2.1 of this chapter.

4.1.5.2 Executive Committee and Group Performance Management Committee

The Executive Committee

The Executive Committee, under the responsibility of the Chairman and Chief Executive Officer, is the decision-making body of the Group.

It implements the strategy formulated by the Board of Directors and authorizes related investments, subject to the approval of the Board of Directors for investments exceeding 3% of the Group's equity, as well as any significant transactions not included in the announced company strategy, or notification of the Board for investments exceeding 1% of equity.

In 2019, the Executive Committee met at least twice a month, except in August when it met only once.

As of December 31, 2019, the members of Executive Committee were as follows:

- Patrick Pouyanné, Chairman and Chief Executive Officer and President of the Executive Committee;
- Arnaud Breuillac, President, Exploration & Production;
- Helle Kristoffersen, President, Strategy & Innovation;
- Momar Nguer, President, Marketing & Services;
- Bernard Pinatel, President, Refining & Chemicals;
- Philippe Sauquet, President, Gas, Renewables & Power;
- Jean-Pierre Sbraire, Chief Financial Officer;
- Namita Shah, President, People & Social Responsibility.

(1) The meeting of the Board of Directors of December 16, 2015, decided to extend the term of office to the end of the Annual Shareholders' Meeting of June 1, 2018, date of expiry of the preceding term of office of Mr. Pouyanné as director.

On January 1, 2020, Alexis Vovk was appointed President, Marketing & Services and member of the TOTAL's Executive Committee and took over Momar Nguer from said date onwards.

The members of the Executive Committee as of December 31, 2019 informed the Company that they have not been convicted of fraud, have not been associated with bankruptcy, sequestration, receivership or court-ordered liquidation proceedings, and have not been subject to any incrimination, conviction or sanction pronounced by an administrative authority or professional body, prohibited from managing a company or disqualified from doing so over the last five years.

The Group Performance Management Committee

The mission of the Group Performance Management Committee is to examine, analyze and monitor the HSE, financial and operational results of the Group. It is chaired by the Chairman and Chief Executive Officer and meets monthly.

In addition to the members of the Executive Committee, this Committee is made up of the heads of the Group's main business units, along with some of the Senior Vice Presidents of functions at the Group and business segments levels.

Balanced representation of women and men and diversity results in the 10% of positions at TOTAL S.A. with the highest responsibilities (Article L. 225-37-4, 6° of the French Commercial Code)

TOTAL is committed to respecting the principles of gender equality, it promotes this fundamental principle and ensures that it is properly applied. The promotion of gender equality is reflected in the Group's deployment of a global diversity policy, in goals set by General Management, of human resources processes that take into account the gender dimension, in agreements promoting a better balance between personal and professional life (such as the agreement on remote working in France) and in awareness-raising and training initiatives.

Regarding TOTAL S.A., the Group's commitment in favor of diversity in management took shape in 2016 with the arrival of the President of the People & Social Responsibility division to the Group's Executive Committee and the President of Strategy & Innovation in 2019 (2 women out of 8 members). As a result, the proportion of women in the Executive Committee represents 25%.

With regard to diversity in the 10% of the highest management of the Company positions, the proportion of women equals 16%. At Group level, which is the most relevant perimeter considering TOTAL's activities, this proportion equals 22%⁽¹⁾. For further information, refer to point 5.3.3.1 of chapter 5.

(1) Proportion calculated on the basis of 96,999 employees.

Profile, experience and expertise of the members of the Executive Committee



Patrick Pouyanne

**Chairman and Chief Executive Officer of TOTAL S.A.
Chairman of the Strategy & CSR Committee**

Born on June 24, 1963 (French)

Business address: TOTAL S.A. 2 place Jean Millier, La Défense 6, 92400 Courbevoie France

Biography & Professional Experience

A graduate of École Polytechnique and a Chief Engineer of France's Corps des Mines, Mr. Pouyanné held, between 1989 and 1996, various administrative positions in the Ministry of Industry and other cabinet positions (technical advisor to the Prime Minister – Édouard Balladur – in the fields of the Environment and Industry from 1993 to 1995, Chief of staff for the Minister for Information and Aerospace Technologies – François Fillon – from 1995 to 1996). In January 1997, he joined TOTAL's Exploration & Production division, first as Chief Administrative Officer in Angola, before becoming Group representative in Qatar and President of the Exploration and Production subsidiary in that country in 1999. In August 2002, he was appointed President, Finance, Economy and IT for Exploration & Production. In January 2006, he became Senior Vice President, Strategy, Business Development and R&D in Exploration & Production and was appointed a member of the Group's Management Committee in May 2006. In March 2011, Mr. Pouyanné was appointed Deputy General Manager, Chemicals, and Deputy General Manager, Petrochemicals. In January 2012, he became President, Refining & Chemicals and a member of the Group's Executive Committee.

On October 22, 2014, he became Chief Executive Officer of TOTAL S.A. and Chairman of the Group's Executive Committee. On May 29, 2015, he was appointed by the Annual Shareholders' Meeting as director of TOTAL S.A. for a three-year term. The Board of Directors of TOTAL appointed him as Chairman of the Board of Directors as of December 19, 2015. Mr. Pouyanné thus became the Chairman and Chief Executive Officer of TOTAL S.A. Following the renewal of Mr. Pouyanné's directorship at the Shareholders' Meeting on June 1, 2018 for a three-year period, the Board of Directors renewed Mr. Pouyanné's term of office as Chairman and Chief Executive Officer for a period equal to that of his directorship. Mr. Pouyanné is also the Chairman of the Association United Way – L'Alliance since June 2018, having accepted this office as TOTAL S.A.'s Chairman and Chief Executive Officer. He has also been a member of the Board of Directors of École Polytechnique (since September 2018), of the Institut Polytechnique of Paris since September 2019 and of the Association Française des Entreprises Privées (French association of private companies) (since 2015).



Arnaud Breuillac

**President, Exploration & Production
Member of the TOTAL's Executive Committee**

Born on July 2, 1958 (French)

Member of the Executive Committee since October 1, 2014

Business address: TOTAL S.A. 2 place Jean Millier, La Défense 6, 92400 Courbevoie France

Biography & Professional Experience

A graduate of the École Centrale de Lyon, Arnaud Breuillac joined TOTAL in 1982. He occupied various positions in Exploration & Production in France, Abu Dhabi, the United Kingdom, Indonesia and Angola, and in Refining management in France.

Between 2004 and 2006, he was the Iran director in the Middle East division. In December 2006, he became a member of the Management Committee of the Exploration & Production segment, as the director of the Continental Europe and Central Asia area. In July 2010, he became the Middle East director in the Exploration & Production segment, and joined the Management Committee in January 2011. On January 1, 2014, Arnaud Breuillac was appointed President of TOTAL Exploration & Production, and he has been a member of the Group's Executive Committee since October 1, 2014.



Helle Kristoffersen

**President of Strategy-Innovation
Member of the TOTAL's Executive Committee**

Born on April 13, 1964 (French and Danish)

Member of the Executive Committee since August 19, 2019

Business address: TOTAL S.A. 2 place Jean Millier, La Défense 6, 92400 Courbevoie France

Biography & Professional Experience

Helle Kristoffersen began her career in 1989 at the investment bank Lazard Frères. In 1991, she moved to the transportation and logistics company Bolloré. In 1994, Ms. Kristoffersen joined Alcatel, where she continued her career until 2010. She served as Alcatel's and then Alcatel-Lucent's Senior Vice President, Strategy.

Ms. Kristoffersen joined Total in January 2011 as Deputy Senior Vice President and then Senior Vice President, Strategy & Business Intelligence. On September 1, 2016, she became Senior Vice President, Strategy & Corporate Affairs, in Gas, Renewables & Power. In 2019, Ms. Kristoffersen was appointed President, Strategy-Innovation and a Total's Executive Committee member.

A dual Danish and French national, Helle Kristoffersen is a graduate of the Ecole Normale Supérieure (Ulm) and the Paris Graduate School of Economics, Statistics and Finance (ENSAE), and holds a master's degree in econometrics from Université Paris I. She is an alumna of the Institute for Higher National Defense Studies (IHEDN) and a Knight of the Legion of Honor.



Momar Nguer

**President, Marketing & Services, and member of the
TOTAL's Executive Committee until December 31, 2019**

Born on July 8, 1956 (French and Senegalese)

Member of the Executive Committee from April 15, 2016 until December 31, 2019

Business address: TOTAL S.A. 2 place Jean Millier, La Défense 6, 92400 Courbevoie France

Biography & Professional Experience

62 year-old Momar Nguer is a graduate of ESSEC. He started his career in 1982 in the financial department of Hewlett Packard France, before joining the Downstream activity of the TOTAL Group in 1984. He became the Sales Director of Total Senegal in 1985. In 1991, he became the manager of TOTAL Network and Consumers in Africa. He then took charge of the General Management of the Marketing subsidiaries of Total Cameroon, in 1995, then Total Kenya, in 1997. In 2000, he was appointed director of East Africa and the Indian Ocean in TOTAL's Refining & Marketing segment. From 2007 to 2011, Momar Nguer was the Group's Aviation Managing Director. In December 2011, he became the Africa – Middle East director of TOTAL's Marketing & Services segment. He joined the Group Performance Management Committee in January 2012 and was appointed Chairman of the Diversity Council on August 1, 2015. On April 15, 2016, he became President, Marketing & Services and a member of the Group's Executive Committee.



Bernard Pinatel

President, Refining & Chemicals
Member of the TOTAL's Executive Committee

Born on June 5, 1962 (French)

Member of the Executive Committee since September 1, 2016

Business address: TOTAL S.A. 2 place Jean Millier, La Défense 6, 92400 Courbevoie France

Biography & Professional Experience

Bernard Pinatel is a graduate of the École Polytechnique and the Institut d'Études Politiques (IEP) de Paris, and has an MBA from the Institut européen d'Administration des Affaires (INSEAD). He is also a statistician-economist (École Nationale de la Statistique et de l'Administration Économique – ENSAE). He started his career at Booz Allen & Hamilton, before joining the TOTAL group in 1991, where he occupied various operational positions in the production plants and head offices of different subsidiaries, including Hutchinson and Coates Lorilleux. He became the CEO France, and then the CEO Europe of Bostik between 2000 and 2006, and the Chairman and Chief Executive Officer of Cray Valley, from 2006 to 2009. In 2010, he became the Chairman and Chief Executive Officer of Bostik. At TOTAL, he became a member of the Group's Management Committee in 2011 and was member of the Management Committee of Refining & Chemicals from 2011 to 2014.

When Arkema took over Bostik in February 2015, he was nominated as a member of the Executive Committee of Arkema, responsible for the High-Performance Materials activity.

He joined the TOTAL Group on September 1, 2016, and was appointed President of the Refining & Chemicals segment and a member of the Group's Executive Committee.



Philippe Sauquet

President, Gas, Renewables & Power
Member of the TOTAL's Executive Committee

Born on September 20, 1957 (French)

Member of the Executive Committee since October 29, 2014

Business address: TOTAL S.A. 2 place Jean Millier, La Défense 6, 92400 Courbevoie France

Biography & Professional Experience

Philippe Sauquet is a graduate of l'École Polytechnique, l'École Nationale des Ponts et Chaussées and of the University of California, Berkeley, United States. He started his career in 1981 as a civil engineer at the French Ministry of Infrastructure, then at the French Ministry of the Economy and Finance. He joined the Orkem Group in 1988 as the sales manager of the Acrylic Materials division. He joined TOTAL in 1990 as Vice President, Anti-Corrosion Paints, before being nominated Chemicals Strategy Vice President.

In 1997, he joined Gas & Power, where he was successively Vice President, Americas, Vice President, International, Senior Vice President, Strategy and Renewable Energies, Senior Vice President, Trading & Marketing, Gas & Power, based in London. On July 1, 2012, he was appointed President of Gas & Power, and became a member of the Group's Management Committee at the same time.

On October 29, 2014, he took charge of the Refining & Chemicals segment and joined the Group Executive Committee. On April 15, 2016, he also became interim President of New Energies. On September 1, 2016, he was appointed President of the newly created Gas, Renewables & Power segment.



Jean-Pierre Sbraire

Chief Financial Officer of TOTAL S.A.
Member of the TOTAL's Executive Committee

Born on October 28, 1965 (French)

Member of the Executive Committee since August 1, 2019

Business address: TOTAL S.A. 2 place Jean Millier, La Défense 6, 92400 Courbevoie France

Biography & Professional Experience

Jean-Pierre Sbraire began his career at TOTAL in 1990 in the Trading & Shipping Division. In 1995, he joined Exploration & Production, holding various positions in Paris and Nigeria in finance, economics and business development.

In 2005, he was appointed General Secretary and Finance Manager for TOTAL in Venezuela. In 2009, within the Group's Financial Division, he became Senior Vice President, E&P Subsidiaries Financial Operations.

In 2012, he was appointed Vice President, Equity Crude Acquisitions in Trading & Shipping. From September 2016 to September 2017, he served as Group Treasurer. He then accepted the position of Deputy Chief Financial Officer. In 2019, he was appointed Chief Financial Officer and Executive Committee member.

Jean-Pierre Sbraire is a graduate of ENSTA ParisTech engineering school and has a master's degree from IFP School.



Namita Shah

President, People & Social Responsibility
Member of the TOTAL's Executive Committee

Born on August 21, 1968 (French)

Member of the Executive Committee since September 1, 2016

Business address: TOTAL S.A. 2 place Jean Millier, La Défense 6, 92400 Courbevoie France

Biography & Professional Experience

Namita Shah is a graduate of Delhi University, New Delhi and has a postgraduate degree in Law from the New York University School of Law, USA. She began her career as an Associate Attorney at Shearman & Sterling, a New York-based law firm, where she spent eight years. She supervised transactions including those involving financings of pipeline and power plant companies.

She joined TOTAL in 2002 as a Legal Counsel in the E&P mergers and acquisitions team. In 2008, she joined the New Business team where she was responsible for business development in Australia and Malaysia. She held this position until 2011 when she moved to Yangon as General Manager, Total E&P, Myanmar.

On July 1, 2014, she was appointed Senior Vice President, Corporate Affairs, Exploration & Production.

On September 1, 2016, she was appointed President People & Social Responsibility and member of the Executive Committee.



Alexis Vovk

President, Marketing & Services and member of the TOTAL's Executive Committee since January 1, 2020

Born on October 11, 1964 (French)

Member of the Executive Committee since January 1, 2020

Business address: TOTAL S.A. 2 place Jean Millier, La Défense 6, 92400 Courbevoie France

Biography & Professional Experience

Alexis Vovk began his career at TOTAL in 1991 in the UK, in the division in charge of Refining and Marketing activities.

Following a first position in France, he pursues an international career with several technical and commercial positions in Turkey and Tunisia.

After a position at the division's Strategy department, he is appointed Managing Director for TOTAL in Zambia in 2007, followed by similar positions in Kenya from 2010 and in Nigeria between 2013 and 2016.

In 2016, he becomes Senior Vice President France and President of Total Marketing France, in charge of operational activities in France, notably overseeing the Group's service-stations' network in the country. He additionally joins the Marketing & Services Management Committee in 2019.

On January 1, 2020, Alexis Vovk is appointed President, Marketing & Services and a TOTAL Executive Committee member.

Alexis Vovk is a graduate of ESSEC Business School (1988).

4.1.6 Shares held by the administration and management bodies

As of December 31, 2019, based on statements by the concerned persons and the share register listing registered shares, all of the members of the Board of Directors and the Group's executive officers⁽¹⁾ held less than 0.5% of the share capital:

- members of the Board of Directors⁽²⁾: 196,499 shares and 11,095.78 units of the collective investment fund ("FCPE") invested in Total shares;
- Chairman and Chief Executive Officer: 172,113 shares and 9,477.68 units of the collective investment fund ("FCPE") invested in Total shares;
- members of the Executive Committee⁽³⁾: 325,292 shares and 103,617.39 units of the collective investment fund ("FCPE") invested in Total shares;
- executive officers: 634,740 shares and 133,319.88 units of the collective investment fund ("FCPE") invested in Total shares.

By decision of the Board of Directors:

- Executive directors are required to hold a number of Total shares

equal in value to two years of the fixed portion of their annual compensation; and

- members of the Executive Committee are required to hold a number of Total shares equal in value to two years of the fixed portion of their annual compensation. These shares must be acquired within three years of their appointment to the Executive Committee.

The number of Total shares to be considered is comprised of Total shares and units of FCPEs invested in Total shares.

Summary of transactions in the Company's securities (Article L. 621-18-2 of the French Monetary and Financial Code)

The following table presents transactions, of which the Company has been informed, in the Company's shares or related financial instruments carried out in 2019 by the individuals referred to in paragraphs a), b)⁽⁴⁾ and c) of Article L. 621-18-2 of the French Monetary and Financial Code:

2019		Acquisition	Subscription	Transfer	Exchange	Exercise of options
Patrick Pouyanné ^(a)	Total Shares	42,000	2,496	(10,000)	–	10,000
	Units in FCPE and other related financial instruments ^(b)	1,978.27 ^(c)	115.78	(1,547.75) ^(c)	–	–
Patrick Artus ^(a)	Total Shares	–	–	–	–	–
	Units in FCPE and other related financial instruments ^(b)	–	–	–	–	–
Patricia Barbizet ^(a)	Total Shares	10,000	–	–	–	–
	Units in FCPE and other related financial instruments ^(b)	–	–	–	–	–
Marie-Christine Coisne-Roquette ^(a)	Total Shares	87	–	–	–	–
	Units in FCPE and other related financial instruments ^(b)	–	–	–	–	–
Lise Croteau ^(a) Director since May 29, 2019	Total Shares	1,000	–	–	–	–
	Units in FCPE and other related financial instruments ^(b)	–	–	–	–	–
Mark Cutifani ^(a)	Total Shares	–	–	–	–	–
	Units in FCPE and other related financial instruments ^(b)	–	–	–	–	–
Valérie Della Puppa Tibi ^(a) Director since May 29, 2019	Total Shares	–	–	–	–	–
	Units in FCPE and other related financial instruments ^(b)	–	130.26	(121.12)	–	–
Maria van der Hoeven ^(a)	Total Shares	–	–	–	–	–
	Units in FCPE and other related financial instruments ^(b)	–	–	–	–	–
Anne-Marie Idrac ^(a)	TOTAL Shares	135	–	–	–	–
	Units in FCPE and other related financial instruments ^(b)	–	–	–	–	–
Gérard Lamarche ^(a) Director until May 29, 2019	Total Shares	–	–	–	–	–
	Units in FCPE and other related financial instruments ^(b)	–	–	–	–	–
Jean Lemierre ^(a)	Total Shares	–	–	–	–	–
	Units in FCPE and other related financial instruments ^(b)	–	–	–	–	–

(1) The Group's executive officers include the members of the Executive Committee (including the Chairman and Chief Executive Officer), the four Senior Vice Presidents of the four central Group functions (HSE, Communications, Legal, Investor Relations) and the Treasurer.

(2) Including the Chairman and Chief Executive Officer, the director representing employee shareholders and the director representing employees.

(3) Excluding the Chairman and Chief Executive Officer.

(4) The individuals referred to in paragraph b) of Article L.621-18-2 of the French Monetary and Financial Code include the members of the Executive Committee.

2019		Acquisition	Subscription	Transfer	Exchange	Exercise of options
Renata Perycz ^(a) Director until May 29, 2019	Total Shares	-	-	-	-	-
	Units in FCPE and other related financial instruments ^(b)	-	-	-	-	-
Carlos Tavares ^(a)	Total Shares	-	-	-	-	-
	Units in FCPE and other related financial instruments ^(b)	-	-	-	-	-
Christine Renaud ^(a)	Total Shares	220	-	(100)	-	-
	Units in FCPE and other related financial instruments ^(b)	1,436.58	-	(1,486.27)	-	-
Arnaud Breuillac ^(a)	Total Shares	19,250	1,312	-	-	1,000
	Units in FCPE and other related financial instruments ^(b)	277.81	15,973.58	(7,585.56)	-	-
Helle Kristoffersen ^(a) Executive Committee member since August 19, 2019	Total Shares	-	-	-	-	-
	Units in FCPE and other related financial instruments ^(b)	182.20	33.53	-	-	-
Patrick de La Chevardière ^(a) Executive Committee member until July 31, 2019	Total Shares	26,600	-	-	-	-
	Units in FCPE and other related financial instruments ^(b)	274.52	23,800.29	(11,375.80)	-	-
Momar Nguer ^(a)	Total Shares	17,500	-	(3,450)	-	-
	Units in FCPE and other related financial instruments ^(b)	1,423.93	15,406.91	(8,132.71)	-	-
Bernard Pinate ^(a)	Total Shares	10,500	362	-	-	-
	Units in FCPE and other related financial instruments ^(b)	237.69	10,524.04	(5,071.36)	-	-
Philippe Sauquet ^(a)	Total Shares	19,250	632	-	-	-
	Units in FCPE and other related financial instruments ^(b)	895.24	10,448.31	(5,058.73)	-	-
Jean-Pierre Sbraire ^(a) Executive Committee member since August 1, 2019	Total Shares	-	-	-	-	-
	Units in FCPE and other related financial instruments ^(b)	202.40	24.76	-	-	-
Namita Shah ^(a)	Total Shares	10,500	-	-	-	-
	Units in FCPE and other related financial instruments ^(b)	744.65	10,175.60	(5,071.36)	-	-

(a) Including related parties within the meaning of the provisions of Article R. 621-43-1 of the French Monetary and Financial Code.

(b) FCPE primarily invested in Total shares.

(c) The sale of 1,547.75 units in FCPE correspond to a recorelation of the asset value with the share value implemented by the FCPE manager, to which corresponds an acquisition of 1,570.26 units in FCPE for a net balance of 0.05 €.

4.2 Statement regarding corporate governance

For many years, TOTAL has taken an active approach to corporate governance and at its meeting on November 4, 2008, the Board of Directors decided to refer to the AFEP-MEDEF Code of Corporate Governance for publicly traded companies (available on the AFEP and MEDEF websites).

Pursuant to Article L. 225-37-4 of the French Commercial Code, the following table sets forth the recommendation made in the AFEP-MEDEF Code that the Company has opted not to follow as at March 18, 2020, as well as the reasons for such decision.

RECOMMENDATION NOT FOLLOWED

Supplementary pension plan (point 25.6.2 of the Code)

Supplementary pension schemes with defined benefits must be subject to the condition that the beneficiary must be a director or employee of the company when claiming his or her pension rights pursuant to the applicable rules.

EXPLANATION – PRACTICE FOLLOWED BY TOTAL

It appeared justified not to deprive the relevant beneficiaries of the benefit of the pension commitments made by the Company in the particular cases of the disability or departure of a beneficiary over 55 years of age at the initiative of the Group. In addition, it should be noted that the supplementary pension plan set up by the Company was declared to URSSAF in 2004, in accordance with Articles L. 137-11 and R. 137-16 of the French Social Security Code. In accordance with the ordinance 2019-697 published on July 4, 2019, this pension plan is closed to all new participant as from July 4, 2019.

In recent years, the Company's practices have evolved in two areas concerning the recommendations made in the AFEP-MEDEF Code.

First, a meeting of directors not attended by the executive directors has been held annually since 2017. The recommendation made in the AFEP-MEDEF Code (point 11.3) stating that "It is recommended that at least one meeting not attended by the executive officers should be organized each year" is thus followed.

Second, concerning the recommendation made in the AFEP-MEDEF Code concerning the composition of the Compensation Committee that "one of its members should be an employee director" (point 18.1 of the Code), the Board of Directors approved, on February 8, 2017, the proposal of the Governance and Ethics Committee to appoint Ms. Renata Perycz as a member of the Compensation Committee at the end of the Shareholders' Meeting of May 26, 2017. Since Ms. Perycz's office expired at the end of the Annual Shareholders' Meeting of May 29, 2019, the Board of Directors decided to appoint Ms. Christine Renaud, the director representing employees, as a member of the Compensation Committee at the end of said Meeting.

4.3 Compensation for the administration and management bodies

4.3.1 Board members' compensation

4.3.1.1 Board members' compensation policy

Aggregate amount of directors' compensation due to their directorships

In accordance with the provisions of Article L. 225-45 of the French Commercial Code, the conditions applicable to Board members' compensation are defined by the Board of Directors on the proposal of the Governance and Ethics Committee, under the conditions provided for by Article L. 225-37-2 of the French Commercial Code and within the limit of an annual fixed amount determined by the Annual Shareholders' Meeting.

The Annual Shareholders' Meeting held on May 17, 2013 set at €1.4 million the maximum amount of the annual fixed amount to be allocated to board members for their activity. This maximum amount has remained unchanged since this Shareholders' Meeting.

In view of the expected increase in the number of directors as well as in the number per year of meetings of the Board of Directors for exceptional transactions and of the Strategy & CSR Committee the competencies of which have been extended to the social and environmental challenges, including those in relation to climate, it will be proposed to the Shareholders' Meeting to be held on May 29, 2020 to set, as from the fiscal year 2020, the annual fixed amount to be allocated to board members as compensation due to their activity at €1.75 million.

At its meeting of March 18, 2020, the Board of Directors decided that the allocation rules of the directors' compensation and their payment conditions defined by the Board at its meeting of July 26, 2017, will remain the same. The annual maximum amount for the compensation of the activity of the directors will thus be allocated among the directors in the strict respect of the principles set by the Rules of procedures of the Board and the compensation policy for directors as presented below.

Rules for allocating directors' compensation due to their directorships

The compensation due to directors' by virtue of their directorships are allocated according to a formula comprised of fixed compensation and variable compensation based on fixed amounts per meeting, which makes it possible to take into account each director's actual attendance at the meetings of the Board of Directors and its Committees, subject to the conditions below:

- a fixed annual portion of €20,000 per director⁽¹⁾;
- a fixed annual portion of €30,000 for the Chairman of the Audit Committee⁽²⁾;
- a fixed annual portion⁽¹⁾ of €25,000 for the Audit Committee members⁽²⁾;
- a fixed annual portion⁽¹⁾ of €25,000 for the Chairman of the Governance and Ethics Committee and for the Chairman of the Compensation Committee⁽²⁾;
- an additional fixed annual portion⁽¹⁾ of €30,000 for the Lead Independent Director (beyond amounts above);
- an amount of €7,500 per director for each Board of Directors' meeting actually attended;
- an amount of €3,500 per director for each Governance and Ethics Committee, Compensation Committee or Strategy and CSR Committee meeting actually attended;
- an amount of €7,000 per director for each Audit Committee meeting actually attended; and

- a premium of €4,000 in respect for the travel from outside France to attend a Board of Directors' or Committee meetings.

The Chairman and Chief Executive Officer does not receive directors' compensation for his work on the Board and Committees of TOTAL S.A.

The total amount paid to each director is determined after taking into consideration the director's actual presence at each Board of Directors' or Committee's meeting and, if appropriate, since the decision by the Board of Directors on February 9, 2012, after prorating the amount set for each director such that the overall amount paid remains within the maximum limit set by the Shareholders' Meeting. Directors' compensation for each fiscal year are paid following a decision by the Board of Directors, on the proposal of the Governance and Ethics Committee, at the beginning of the following fiscal year.

The director representing employee shareholders and the director representing employees receive directors' compensation according to the same terms and conditions as any other director.

Moreover, there is no service contract between a director and TOTAL S.A. or any of its controlled companies that provides for the grant of benefits under such a contract.

4.3.1.2 Compensation paid to directors during fiscal year 2019 or allocated during the same fiscal year

At its meeting of February 5, 2020, the Board of Directors, on the proposal of the Governance and Ethics Committee, set the aggregate amount of compensation (formerly fees) allocated to board members due to their directorships in TOTAL S.A., for fiscal year 2019.

This amount was determined by applying the principles presented in the directors' compensation policy (point 4.3.1.1 of this chapter), and set for each director, after taking into account his/her actual attendance at each meeting of the Board or of the Committees (refer to point 4.1.2.2 of this chapter – table of the directors' attendance at Board and Committees meetings).

Regarding the number of meetings of the Board and the Committees held in fiscal year 2019, the amount determined for each director was prorated, under the Board of Directors' decision of February 9, 2012, so that the aggregate paid amount remains within the limit of the maximum cap set by the Shareholders' Meeting of May 17, 2013 (i.e. €1.4 million).

The aggregate amount of compensation allocated to Board members due to their directorships for fiscal year 2019 was thus set at €1.4 million, after prorata. The amount of the directors' compensation resulting from the allocation rules presented above, before prorata, would have amounted to €1,605,500, i.e. an amount above the cap voted by the Shareholders' Meeting of May 17, 2013.

The directors representing employee shareholders and the director representing employees benefited from their compensation by virtue of their directorships in the same conditions and under the same basis as the other directors. Ms. Renaud and Ms. Della Puppa Tibi chose to pay, for the entire term of their directorship, all their directors' compensation to their respective trade union membership organizations.

(1) Calculated on a pro rata basis, in the event of change in the course of the year.

(2) To be substituted to the €20,000 fixed annual portion per director. In case of accumulation of the functions of director and/or Audit Committee member and/or Chairman of a Committee (Audit, Governance and Ethics, Compensation), the difference between the fixed annual portion per director and the fixed annual portion of the other functions is added.

4 Report on corporate governance

Compensation for the administration and management bodies

During the past two years, the directors currently in office have not received any compensation or in-kind benefits from TOTAL S.A. or from its controlled companies other than those mentioned in the table below.

No exceptional compensation was allocated.

Ms. Christine Renaud, the director representing employees since May 26, 2017, as well as Ms. Valérie Della Puppa Tibi, the director representing employee shareholders since May 29, 2019, benefit from the internal defined contribution pension plan applicable to all

TOTAL S.A. employees, known as RECO SUP (*Régime collectif et obligatoire de retraite supplémentaire à cotisations définies*), governed by Article L. 242-1 of the French Social Security Code. The Company's commitment is limited to its share of the contribution paid to the insurance company that manages the plan. For fiscal year 2019, this pension plan represented an expense accounted for TOTAL S.A. in favor of Ms. Renaud of €682, and in favor of Ms. Della Puppa Tibi of €735.

The table below presents the total compensation paid to directors during fiscal year 2019 or allocated for the same fiscal year.

Compensation paid to directors during fiscal year 2019 or allocated for the same fiscal year

Gross amount (€)		Fiscal year 2018		Fiscal year 2019	
		Amounts allocated	Amounts paid	Amounts allocated	Amounts paid
Patrick Pouyanné	Compensation by virtue of his directorship	None	None	None	None
	Other compensation	(a)	(a)	(a)	(a)
Patrick Artus	Compensation by virtue of his directorship	138,696	128,000	136,032	138,696
	Other compensation	-	-	-	-
Patricia Barbizet	Compensation by virtue of her directorship	137,391	128,534	146,461	137,391
	Other compensation	-	-	-	-
Marie-Christine Coisne-Roquette	Compensation by virtue of her directorship	149,130	154,000	158,705	149,130
	Other compensation	-	-	-	-
Lise Croteau	Compensation by virtue of her directorship ^(b)	n/a	n/a	104,025	n/a
	Other compensation	n/a	n/a	-	n/a
Mark Cutifani	Compensation by virtue of his directorship	106,522	53,500	96,356	106,522
	Other compensation	-	-	-	-
Valérie Della Puppa Tibi	Compensation by virtue of her directorship ^(b)	n/a	n/a	49,125	n/a
	Other compensation	n/a	n/a	70,032	70,032
Maria van der Hoeven	Compensation by virtue of her directorship	194,348	148,500	191,405	194,348
	Other compensation	-	-	-	-
Anne-Marie Idrac	Compensation by virtue of her directorship	94,348	91,500	104,204	94,348
	Other compensation	-	-	-	-
Gérard Lamarche	Compensation by virtue of his directorship ^(c)	201,304	181,000	82,183	201,304
	Other compensation	-	-	-	-
Jean Lemierre	Compensation by virtue of his directorship	94,348	88,000	104,204	94,348
	Other compensation	-	-	-	-
Renata Perycz	Compensation by virtue of her directorship ^(c)	129,130	120,000	69,468	129,130
	Other compensation	60,681	60,681	62,890	62,890
Christine Renaud	Compensation by virtue of her directorship	91,739	53,000	91,996	91,739
	Other compensation	63,471	63,471	67,204	67,204
Carlos Tavares	Compensation by virtue of his directorship	63,043	42,000	65,836	63,043
	Other compensation	-	-	-	-
TOTAL		1,524,151	1,312,186	1,600,126	1,600,125

(a) Refer to the summary tables presented in point 4.2.3 of this chapter.

(b) Director since May 29, 2019.

(c) Director until May 29, 2019.

4.3.2 Chairman and Chief Executive Officer's compensation

4.3.2.1 Compensation of Mr. Patrick Pouyanné for fiscal year 2019

At its meeting of March 18, 2020, the Board of Directors set, on the proposal of the Compensation Committee, the Chairman and Chief Executive Officer's compensation in respect for fiscal year 2019, by applying the principles and criteria set in the compensation policy of the Chairman and Chief Executive Officer for fiscal year 2019 submitted by the Board of Directors to the Ordinary Shareholders' Meeting of May 29, 2019 and approved by the latter at 94.08% (11th resolution). For the setting of the compensation policy, the Board of Directors had decided, at its meeting of March 13, 2019, on the proposal of the Compensation Committee, to align the criteria of the Chairman and Chief Executive Officer's compensation with the key criteria reflecting the Group's strategy evolution as underscored to investors, in particular in February 2019, thus allowing a convergence with the long-term performances of the Company.

In accordance with Article L. 225-37-3 of the French Commercial Code, the information presented below reports on the total compensation and benefits of all kinds, paid to Mr. Patrick Pouyanné by virtue of his mandate as Chairman and Chief Executive Officer of TOTAL S.A. for fiscal year 2019 or allocated by virtue of this mandate in respect for the same fiscal year⁽¹⁾ as well as all the other information provided for in this Article L. 225-37-3.

It makes the distinction between the fixed, variable and extraordinary components of the total compensation and benefits, as well as the criteria used to calculate them or the circumstances due to which they were attributed. This report also mentions all the commitments of all kinds made by the Company in favor of the Chairman and Chief Executive Officer corresponding to the components of compensation, indemnities or benefits due or likely to be due upon acceptance, termination or change in duties or after the discharge thereof, in particular pension commitments and other annuities.

It is reminded that the payment to the Chairman and Chief Executive Officer of the annual variable component for fiscal year 2019 is conditional upon the approval of the Ordinary Shareholders' Meeting on May 29, 2020, of the fixed, variable and extraordinary components of the total compensation and the benefits of all kinds paid during fiscal year 2019 to the Chairman and Chief Executive Officer or allocated to the latter during the same fiscal year, in accordance with Article L. 225-100 of the French Commercial Code. The Ordinary Shareholders' Meeting to be held on May 29, 2020, will be convened on to approve the total compensation and the benefits of all kinds paid during fiscal year 2019 or attributed to the Chairman and Chief Executive Officer for the same fiscal year, in accordance with Article L. 225-100 of the French Commercial Code.

Table summarising the compensation, options and shares awarded to executive officer

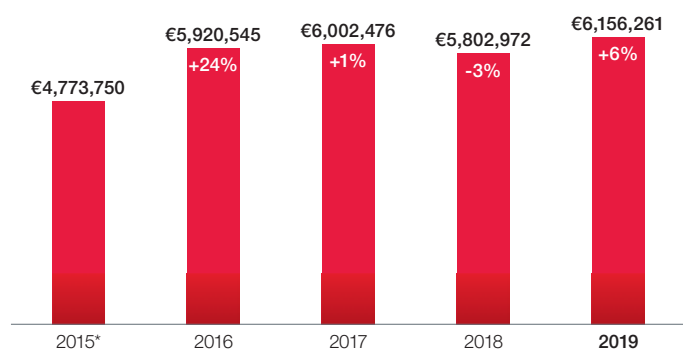
Table No. 1 – AFEP-MEDEF Code

(€, except the number of shares)	Fiscal year 2019	Fiscal year 2018
Patrick Pouyanné <i>Chairman and Chief Executive Officer</i>		
Compensation awarded in respect of the financial year (detailed in table 2)	3,845,925	3,195,132
Valuation of the stock options awarded during the financial year (detailed in table 4)	-	-
Valuation of the performance shares awarded during the financial year (detailed in table 6)	2,310,336 ^(a)	2,607,840 ^(b)
<i>Number of performance shares awarded during the financial year</i>	72,000	72,000
Valuation of the other long-term compensation plans	-	-
TOTAL	6,156,261	5,802,972
Variation Fiscal year 2019/Fiscal Year 2018	+6%	

Note: The valuations of the options and performance shares correspond to a valuation performed in accordance with IFRS 2 (see Note 9 to the Consolidated Financial Statements) and not to any compensation actually received during the fiscal year. Entitlement to performance shares is subject to the fulfillment of performance conditions assessed over a three-year period.

- (a) In accordance with the accounting of the performance shares for fiscal year 2019 in accordance with IFRS 2 which takes into account an award rate hypothesis of 80% at the end of the acquisition period, this amount corresponds to the 72,000 shares awarded in 2019, valued on the basis of a unit fair value of €40.11.
 (b) This amount corresponds to the 72,000 shares awarded in 2018, valued based on a unit fair value of €36.22.

Evolution of the compensation of Mr. Patrick Pouyanné, Chairman and Chief Executive Officer (fiscal years 2015-2019)



* In 2015, Mr. Patrick Pouyanné was Chief Executive Officer until December 18, 2015, and then Chairman and Chief Executive Officer as from December 19, 2015.

(1) Including attributions in the form of stock, securities or rights giving access to the company's share capital or rights to the attribution of securities of the Company or of the companies mentioned in Articles L. 228-13 and L. 228-93 of the French Commercial Code.

Table of the compensation of the Chairman and Chief Executive Officer

Table No. 2 – AFEP-MEDEF Code

(en €)	Fiscal year 2019		Fiscal year 2018	
	Amount due for the fiscal year	Amount paid during the fiscal year ^(a)	Amount due for the fiscal year	Amount paid during the fiscal year ^(a)
Patrick Pouyanné <i>Chairman and Chief Executive Officer</i>				
Fixed compensation	1,400,000	1,400,000	1,400,000	1,400,000
Annual variable compensation	2,378,300	1,725,900	1,725,900	2,400,300
Multi-year variable compensation	–	–	–	–
Extraordinary compensation	–	–	–	–
Compensation due to his directorship as a director	–	–	–	–
In-kind benefits ^(b)	67,625	67,625	69,232	69,232
TOTAL	3,845,925	3,193,525	3,195,132	3,869,532

(a) Variable portion paid for the prior fiscal year.

(b) Company car and the life insurance and health care plans paid for by the Company.

Summary of the multi-annual variable compensation paid to the executive officer

Table n° 10 – AFEP-MEDEF Code

Patrick Pouyanné Non
Chairman and Chief Executive Officer

Table No. 11 – AFEP-MEDEF Code

Executive directors	Employment contract	Supplementary pension plan	Payments or benefits due or likely to be due upon termination or change in duties	Benefits related to a non-compete agreement
Patrick Pouyanné <i>Chairman and Chief Executive Officer</i> Start of term of office: December 19, 2015 End of term of office: Shareholders' Meeting of 2021 to approve the financial statements for fiscal year 2020	NO	YES Internal supplementary defined benefit pension plan ^(a) and defined contribution pension plan known as RECOSUP	YES ^(a) Severance benefit and retirement benefit	NO

(a) Payment subject to a performance condition under the terms approved by the Board of Directors on March 18, 2020. Details of these commitments are provided below. The retirement benefit cannot be combined with the severance benefit.

Summary table of the components of the compensation for Mr. Patrick Pouyanné, Chairman and Chief Executive Officer of TOTAL S.A., paid during fiscal year 2019 or allocated in respect of the same fiscal year

Components of compensation submitted for vote	Amount paid during fiscal year 2019	Amount awarded in respect of fiscal year 2019 or accounting valuation	Presentation
Fixed compensation	€1,400,000	€1,400,000 (amount paid in 2019)	<p>The fixed compensation awarded to Mr. Pouyanné in respect for fiscal year 2019 by virtue of his duties as Chairman and Chief Executive Officer amounted to €1,400,000 (unchanged compared to fiscal year 2018). This fixed compensation was paid to Mr. Pouyanné in 2019.</p> <p>This fixed compensation represents 37% of the total cash compensation awarded in respect for fiscal year 2019 (i.e., excluding performance shares and benefit in kind).</p>
Annual variable compensation	€1,725,900 (amount awarded in respect for fiscal year 2018 and paid in 2019)	€2,378,300 (amount awarded in respect for fiscal year 2019 and to be paid in 2020)	<p>The variable portion of Mr. Pouyanné's compensation allocated in respect for fiscal year 2019 by virtue of his duties as Chairman and Chief Executive Officer has been set at €2,378,300. This corresponds to 169.88% (of a maximum of 180%) of his fixed annual compensation based on results of the economic parameters and the evaluation of the personal contribution of the Chairman and Chief Executive Officer.</p> <p>This annual variable compensation corresponds to 63% of the total cash compensation allocated in respect for fiscal year 2019 (i.e., excluding performance shares and benefit in kind).</p> <p>The payment to the Chairman and Chief Executive Officer of the annual variable portion allocated in respect for fiscal year 2019 is subject to the approval by the Ordinary Shareholders' Meeting to be held on May 29, 2020 of the fixed, variable and extraordinary components of the total compensation and the benefit-in-kind paid during fiscal year 2019 to the Chairman and Chief Executive Officer or allocated to the latter during the same fiscal year, in accordance with Article L. 225-100 of the French Commercial Code.</p> <p>The variable portion of Mr. Pouyanné's compensation allocated in respect for fiscal year 2018 by virtue of his duties as Chairman and Chief Executive Officer and paid in 2019 (after the approval by the Ordinary Shareholders' Meeting of May 29, 2019 of the fixed, variable and extraordinary components of the total compensation and the benefit-in-kind paid in respect for fiscal year 2018) was set at €1,725,900, corresponding to 123.28% (of a maximum of 180%) of his fixed annual compensation based on results of the economic parameters and the evaluation of his personal contribution.</p> <p>For the setting of the variable portion of Mr. Pouyanné's compensation awarded in respect for fiscal year 2019 due to his duties as Chairman and Chief Executive Officer, the Board of Directors reviewed, at its meeting on March 18, 2020, the level of achievement of the economic parameters based on the quantifiable targets set by the Board of Directors at its meeting on March 13, 2019. The Board of Directors also assessed the Chairman and Chief Executive Officer's personal contribution on the basis of the target criteria set during its meeting on March 13, 2019, to qualitatively assess his management.</p>

Components of compensation submitted for vote	Amount paid during fiscal year 2019	Amount awarded in respect of fiscal year 2019 or accounting valuation	Presentation
Annual variable compensation allocated in respect of fiscal year 2019 (expressed as a percentage of the base salary)			
			Maximum percentage Percentage allocated
Economic parameters (quantifiable targets)			140% 129.88%
HSE			30% 27.68%
a) Safety			20% 17.68%
– TRIR			8% 8%
– FIR, comparative			4% 1.68%
– Evolution of the number of Tier 1 + Tier 2 incidents			8% 8%
b) Evolution of greenhouse gas (GHG) emissions			10% 10%
– Return on equity (ROE)			30% 22.2%
– Net-debt-to-equity ratio			30% 30%
– Pre-dividend organic cash breakeven			30% 30%
– Return on average capital employed (ROACE), comparative			20% 20%
Personal contribution (qualitative criteria)			40% 40%
– Steering of the strategy and successful strategic negotiations with producing countries – achievement of production and reserve targets			15% 15%
– Performance and outlook with respect to Downstream activities (Refining & Chemicals/Marketing & Services) – the Group's gas-electricity-renewables growth strategy			10% 10%
– Corporate Social Responsibility (CSR) performance			15% 15%
TOTAL			180% 169.88%

The Board of Directors assessed achievement of the targets set for the **economic parameters** as follows:

- The **safety criterion** was assessed for a maximum of 20% of the base salary through (i) the achievement of the annual TRIR (Total Recordable Injury Rate) target, (ii) the number of accidental deaths per million hours worked, FIR (Fatality Incident Rate) compared to those of the four large competitor oil companies (ExxonMobil, Royal Dutch Shell, BP and Chevron), as well as (iii) through change in the Tier 1 + Tier 2 indicator⁽¹⁾.

These three sub-criteria were assessed based on the elements set out in the 2019 compensation policy for the Chairman and Chief Executive Officer, as approved by the Shareholders' Meeting of May 29, 2019, and providing that:

- the maximum weighting of the TRIR criterion is 8% of the base salary. The maximum weighting is reached if the TRIR is less than 0.85; the weighting of the criterion is zero if the TRIR is greater than or equal to 1.4. The interpolations are linear between these points of reference;
- the maximum weighting of the FIR criterion is 4% of the base salary. The maximum weighting is reached if the FIR is the best of the majors' panel; it is zero if the FIR is the worst of the panel. The interpolations are linear between these points of reference;
- the maximum weighting of the evolution of the number of incidents Tier 1 + Tier 2 criterion is 8% of the base salary. The maximum weighting is reached if the number of incidents Tier 1 + Tier 2 is equal to or less than 100, it is zero if the number of incidents Tier 1 + Tier 2 is greater than or equal to 180. The interpolations are linear between these points of reference.

Concerning the 2019 fiscal year, the following elements were noted:

- the TRIR was 0.81, which is below the target of 0.85. The result of this criterion was thus set at 8%;

(1) Tier 1 and Tier 2: indicator of the number of loss of primary containment events, with more or less significant consequences, as defined by the API 754 (for downstream) and IOGP 456 (for upstream) standards. Excluding acts of sabotage and theft.

Components of compensation submitted for vote	Amount paid during fiscal year 2019	Amount awarded in respect of fiscal year 2019 or accounting valuation	Presentation
			<ul style="list-style-type: none"> – the FIR rate is 0.857, which is between the maximum FIR of 1.323 of the majors' panel and the minimum FIR of 0.214 of the majors' panel. The result of this criterion was thus fixed at 42% of its maximum i.e. 1.68%; – the number of Tier 1 + Tier 2 incidents was 72, which is below the target of 100. The result of this criterion was set at 8%. <p>The result of the criterion related to the safety performance was thus set at 17.68%.</p> <ul style="list-style-type: none"> – The criterion linked to the greenhouse gas (GHG) emissions on operated oil & gas facilities was assessed for a maximum weighting of 10% of the base salary, through the achievement of a GHG (Scope 1 and Scope 2) reduction emission target from 46 Mt CO₂e in 2015 to 40 Mt CO₂e in 2025, corresponding to a reduction of 600 kt CO₂e/y, i.e. a target of 43.6 Mt CO₂e for 2019. <p>This criterion was assessed based on the elements set out in the 2019 compensation policy for the Chairman and Chief Executive Officer, as approved by the Shareholders' Meeting of May 29, 2019, and providing that:</p> <ul style="list-style-type: none"> – the maximum weighting of the GHG criterion, i.e. 10% of the base salary, is reached if the GHG Scope 1 and Scope 2 emission on the operated oil & gas facilities are below 43.6 Mt CO₂e in 2019; – the weighting of the criterion is zero if the emissions remain stable or increase compared to those in 2015 (46 Mt CO₂e); – the interpolations are linear between these points of reference. <p>The Board noted that the GHG Scope 1 and Scope 2 emissions on operated oil & gas facilities amounted to 41.5 Mt CO₂e in 2019. The result of this criterion was thus set at its maximum of 10%.</p> <ul style="list-style-type: none"> – The return on equity (ROE) criterion, as published by the Group on the basis of its balance sheet and consolidated statement of income was assessed for a maximum of 30% of the base salary, based on the elements set out in the 2019 compensation policy of the Chairman and Chief Executive Officer, as approved by the Shareholders' Meeting of May 29, 2019, and providing that: <ul style="list-style-type: none"> – the maximum weighting of the criterion is reached if the ROE is greater than or equal to 13%; – the weighting of the criterion is zero if the ROE is less than or equal to 6%; – the weighting of the criterion is at 50% of the maximum, i.e., 15%, for an ROE of 8%; – the interpolations are linear between these three points of reference. <p>The Board noted that the ROE for fiscal year 2019 was 10.40%, i.e., below the limit of 13% corresponding to the maximum weighting. The result of this criterion was thus set at 74% of the maximum, i.e. 22.2%.</p> – The net-debt-to-equity ratio criterion was assessed for a maximum of 30% of the base salary, based on the elements set out in the compensation policy of the Chairman and Chief Executive Officer for 2019, as approved by the Shareholders' Meeting of May 29, 2019 and providing that: <ul style="list-style-type: none"> – the maximum weighting of the criterion is reached for a net-debt-to-equity ratio equal to or less than 20%; – the weighting of the criterion is zero for a net-debt-to-equity ratio equal to or greater than 30%; – the interpolations are linear between these two points of reference. <p>It should be noted that the Board of Directors of March 13, 2019, had agreed that, in the event of a significant change in the Group affecting the calculation of the economic perimeters for the Group (change in accounting standard, significant patrimonial transaction approved by the Board of Directors...), the Board may calculate the parameters <i>mutatis mutandis</i>, i.e., excluding exogenous extraordinary elements.</p> <p>The new IFRS 16 standard, applicable as from January 1, 2019, led the Group to consolidate from this date all leases in the balance sheet and as counterpart to record the corresponding financial debts as a liability in the balance sheet (before January 1, 2019, only finance leases were consolidated). The entry into force of this new accounting standard resulted in the increase of the net-debt-to-equity ratio of 3.1% as of January 1, 2019.</p>

Components of compensation submitted for vote	Amount paid during fiscal year 2019	Amount awarded in respect of fiscal year 2019 or accounting valuation	Presentation
			<p>The Board thus noted that the net-debt-to-equity ratio (excluding all leases debts) at 2019 year-end set at 16.7%, i.e. 3.3% below the 20%-threshold.</p> <p>The Board thus decided to assess the net-debt-to-equity ratio criterion without taking into consideration the financial debt corresponding to leases. As a result, the Board of Directors decided that the result obtained for this criterion should be set at its maximum, i.e. 30%.</p> <ul style="list-style-type: none"> - the pre-dividend organic cash breakeven was assessed at a maximum of 30% of the base salary according to components set in the compensation policy of the Chairman and Chief Executive Officer for 2019, as approved by the Shareholders' Meeting of May 29, 2019, and providing that: <ul style="list-style-type: none"> - the maximum weighting of the criterion is reached, i.e. the breakeven is below or equal to 30\$/b; - the weighting of the criterion is zero if the breakeven is above or equal to 40\$/b; - the interpolations are linear between these two points of reference. <p>The pre-dividend organic cash breakeven is defined as the Brent price for which the operating cash flow before working capital changes⁽¹⁾ (MBA) covers the organic investments⁽²⁾. The ability of the Group to resist to the variations of the Brent barrel price is measured by this parameter.</p> <p>Regarding fiscal year 2019, the Board noted that the pre-dividend organic cash breakeven set at \$25.1/b, which is below \$30/b. The result of this criterion was thus set at its maximum of 30%.</p> - the return on average capital employed (ROACE) criterion, by comparison, assessed as a maximum weighting of 20% of the base salary. TOTAL's ROACE, as published from the consolidated balance sheet and the income statement, was compared to the ROACE average of each of the four peers (ExxonMobil, Royal Dutch Shell, BP and Chevron). The ROACE is equal to the net adjusted operating income⁽³⁾ divided by the average of the capital employed (at replacement costs, net of deferred income tax and non-current liabilities) of the start and end of the fiscal year. <p>This criterion was assessed based on the elements set out in the 2019 compensation policy for the Chairman and Chief Executive Officer, as approved by the Shareholders' Meeting of May 29, 2019, and providing that:</p> <ul style="list-style-type: none"> - the maximum weighting of the criterion is reached, i.e. 20% of the base salary, if TOTAL's ROACE is above 2% or more compared to the average of the 4 peers' ROACE; - the weighting of the criterion is zero if the TOTAL's ROACE is under 2% or more compared to the average of the peers' ROACE; - the interpolations are linear between these two points of reference. <p>For fiscal year 2019, the Board noted that TOTAL's ROACE is 3% above the average of the ROACEs of the four peers. The result of this criterion was thus set to 100% of the maximum weighting of this criterion, i.e. 20%.</p> <p>The personal contribution of the Chairman and Chief Executive Officer was assessed at its maximum of 40% of the base salary based on the three criteria in the compensation policy of the Chairman and Chief Executive Officer for 2019, as approved by the Shareholders' Meeting of May 29, 2019:</p> <ul style="list-style-type: none"> - steering of the strategy and successful strategic negotiations with producing countries, and achievement of production and reserve targets, for up to 15%. <p>The Board of Directors set the result of this criterion to its maximum, i.e. 15% because of the following elements observed during the past fiscal year:</p> <ul style="list-style-type: none"> - the ramp-up of FPSO Kaombo Sul in Angola, - the signing by TOTAL (operator of Block 17) and its partners of an agreement with the national company Sonangol and the National Agency for Oil, Gas and Biofuels in order to extend the production licenses of the consortium until 2045, - the acquisition of Blocks 20 and 21 in Angola, composing a new production unit, - the signing of an agreement with Occidental Petroleum for the acquisition of Anadarko's assets in Africa,

(1) The operating cash flow before working capital changes is defined as cash flow from operating activities before changes in capital at replacement cost.

(2) Organic investments: net investments excluding acquisitions, asset sales and other operations with non-controlling interests.

(3) Adjustments items include special items, the inventory effect and the impact for change for fair value.

Components of compensation submitted for vote	Amount paid during fiscal year 2019	Amount awarded in respect of fiscal year 2019 or accounting valuation	Presentation
			<ul style="list-style-type: none"> – the start of Culzean field in the North Sea, – the ramp-up of Johan Sverdrup field in Norway, – the start of Iara project in Brazil. <p>The Board of Directors also noted an increase in hydrocarbon production of 8.6% in 2019 compared to 2018 reaching 3.0 Mboe/d and the rate of renewal of reserves recorded at 12/31/2019 which is established at +157% (with an average price passing from \$71.43/b in 2018 to \$62.74/b in 2019).</p> <ul style="list-style-type: none"> – Performance and outlook with respect to Downstream activities (Refining & Chemicals/Marketing & Services) and the Group's gas-electricity-renewables growth strategy for a maximum of 10%. <ul style="list-style-type: none"> The Board of Directors set the result of this criterion to its maximum, i.e., 10% because of the following components which were observed during past fiscal year: <ul style="list-style-type: none"> – an agreement concluded with Saudi Aramco to increase a network of service stations, – the acquisition of Synova, French leader of recycled polypropylene production, – the start of the biorefinery of La Mède, – the putting into service of high-power charging stations for electric cars at the Limours-Janvry service-station, the first in the Group to be equipped with them, – the inauguration of the thousandth solarized service station of the Group, – the creation by Saft of a partnership with Tianneng to develop the offer on electrical mobility and energy storage, – the start of production of the Cameron LNG terminal in the United States, – the start of Miyako, a solar power plant in Japan, – the signing of the final investment decision of Arctic LNG 2 in Russia, – the extension by TOTAL of its partnership with Adani in India. – CSR performance, notably taking into account the climate into the Group's Strategy, the Group's reputation in the domain of Corporate Social Responsibility as well as the policy concerning all aspects of diversity, for a maximum of 15%. <ul style="list-style-type: none"> The Board of Directors set the result of this criterion at its maximum i.e., 15% because of the following elements observed in the past fiscal year: <ul style="list-style-type: none"> – Concerning the Group's reputation in the field of societal policy: <ul style="list-style-type: none"> – the adherence to the B-Team principles for a sustainable taxation, – the designation of Mr. Patrick Pouyanné as co-Chairman of PACI (partnering against corruption initiative) dedicated to fighting corruption, – the actions taken in the context of the Total Foundation program: <ul style="list-style-type: none"> – the significant increase in the commitment to citizen action, – the further development of Industreet with the laying of the foundation stone, – the deployment of the employee engagement Program <i>Action!</i> launched 2018 in 28 countries, – the renewal of TOTAL in 2019 as LEAD company in the Global Compact (recognition of the Group as one of the members most committed in the integration of the 10 principles), – the confirmation of the Gold status of TOTAL in 2019 in its rating by EcoVadis for four commercial entities of the Group (Total Direct Energie, Total Marketing & Services, Total Raffinage Chimie, SAFT) and Silver status for its Total Gas Power Europe entity, – TOTAL's ranking in the "Global 100 index" of Corporate Knights of the most sustainable company in the world in the 57th position (TOTAL being one of only two oil and gas companies to have distinguished itself in 2019), – The road safety actions that have been rewarded by the Prize "Prix Jean Todt pour la sécurité routière". – Regarding non-financial rating agencies: <ul style="list-style-type: none"> – maintaining TOTAL in the Dow Jones Sustainability Indexes (New York Stock Exchange) – DJSI World and Europe indices, – maintaining TOTAL in the FTSE4Good index ("footsie for good") – London Stock Exchange, – the retention of TOTAL's A rating with the MSCI non-financial rating agency (on a scale from AAA to C),

Components of compensation submitted for vote	Amount paid during fiscal year 2019	Amount awarded in respect of fiscal year 2019 or accounting valuation	Presentation
			<ul style="list-style-type: none"> - the increase of one grade to B rating of TOTAL with the non-financial rating agency ISS-oekom (renamed ISS ESG), on a scale from A + to D, and maintain its "Prime" status (value recommended to socially responsible investors), - TOTAL's ranking in the Corporate Human Rights Benchmark being 11th in the extractive sector and 5th Oil & Gas company, with 53.5/100 (increased compared to 2018). - Taking into account the climate into the Group's strategy: <ul style="list-style-type: none"> - the setting of a target to reduce the greenhouse gas emissions Scope 1 and Scope 2, - the creation of a task force dedicated to the reduction of CO₂ emissions of operated facilities (CO₂ Fighter Squad) and of an entity dedicated to investments in natural carbon sinks (NBS), - the CDP valuation on climate change: ranking of A-, - Regarding sustainable lobbying: <ul style="list-style-type: none"> - the public position paper on climate consideration by the main professional associations of which TOTAL is a member (exit from the AFPM), - the official position to defend the regulation on methane emission in the United States (<i>recognition</i> of the Rothschild Fondation), - the participation in a CEOs consortium encouraging the United States not to withdraw from the Paris Agreement. - Environment: <ul style="list-style-type: none"> - The creation of the Alliance to End Plastic Waste of which TOTAL is a founding member. - Diversity policy: <ul style="list-style-type: none"> - Results on diversity policy and in particular: <ul style="list-style-type: none"> - the increase in the proportion of women (25.7%) and of non-French individuals (20.3%) among the 74 of the second and third top managers into the chain of command of the Chairman & CEO (excluding secondees), - the appointment of a woman President Strategy & Innovation in the Executive Committee in 2019, - the increase in the proportion of women within the G70 (22% in 2019 compared to 18% in 2018) and the Group Performance management Committee (+2 women in 2019), - the achievement in 2019 of the target of 20% of women members on Management Committees of branches and large functional divisions, - the increase in women senior executives (23%) and non-French individuals (34%) in 2019. - Professional integration of young people: <ul style="list-style-type: none"> - 1st year of High School internships: continuation of the commitment made in 2018 in Ile de France (50% of internships for High School (first year) reserved to young people from disadvantaged areas in the Paris region) and development in the other regions of France, - alternates: Group's confirmation of its commitment to hire alternates corresponding to 5% of the French workforce per year. - Results of the policy on Disability: <ul style="list-style-type: none"> - the continuation of international expansion of the Disability approach (41 subsidiaries involved) within the framework of the ILO's "Business and Disability" global Network Charter, - the signing, in February 2019, of an agreement within the "Socle Social Commun" for the employment of people with disabilities, - the signing, in October 2019, of the charter of the UNEA (<i>Union Nationale des Entreprises Adaptées</i>) aiming at improving job creation and promoting adapted companies (<i>entreprises adaptées</i>), - the signing, in November 2019, of the "Manifesto for the Inclusion of People with Disabilities in Economic Life" (<i>Manifeste pour l'inclusion des personnes handicapées dans la vie économique</i>). <p>Being that all the objectives were considered as largely met, the personal contribution of the Chairman and Chief Executive Officer was thus determined at its maximum, i.e., 40% of the fixed compensation.</p>
Multi-year variable compensation	n/a	n/a	The Board of Directors has not granted any multi-year or deferred variable compensation.

Components of compensation submitted for vote	Amount paid during fiscal year 2019	Amount awarded in respect of fiscal year 2019 or accounting valuation	Presentation
Extraordinary compensation	n/a	n/a	The Board of Directors has not granted any extraordinary compensation.
Compensation due to his directorship	n/a	n/a	Mr. Pouyanné does not receive compensation due to his directorship in TOTAL S.A. Mr. Pouyanné does not receive compensation from companies TOTAL S.A. controls.
Stock options (SO), performance shares (PS) or all other forms of long-term compensation		SO: None PS: €2,310,336 ⁽¹⁾ (accounting valuation)	<p>On March 13, 2019, Mr. Pouyanné was granted 72,000 existing shares of the Company pursuant to the authorization of the Company's Combined Shareholders' Meeting of June 1, 2018 (nineteenth resolution) subject to the conditions set out below. These shares were granted under a broader share plan approved by the Board of Directors on March 13, 2019, relating to 0.24% of the share capital in favor of more than 11,000 beneficiaries.</p> <p>The definitive number of shares is subject to the beneficiary's continued presence within the Group during the vesting period and to performance conditions as described below. The definitive number of shares granted will be based on the comparative TSR (Total Shareholder Return), the annual variation in net cash flow per share expressed in dollars, as well as the pre-dividend organic cash breakeven for fiscal years 2019, 2020 and 2021 and applied as follows:</p> <ul style="list-style-type: none"> – for 1/3 of the shares, the Company will be ranked against its peers (ExxonMobil, Royal Dutch Shell, BP and Chevron) each year during the three vesting years (2019, 2020 and 2021), based on the TSR criterion of the last quarter of the year in question, the dividend being considered reinvested based on the closing price on the ex-dividend date. – for 1/3 of the shares, the Company will be ranked each year against its peers (ExxonMobil, Royal Dutch Shell, BP and Chevron) during the three vesting years (2019, 2020 and 2021) using the annual variation in net cash flow criterion expressed in dollar. <p>Based on the ranking, a grant rate will be determined for each year for these first two criteria: 1st: 180% of the grant; 2nd: 130% of the grant; 3rd: 80% of the grant; 4th and 5th: 0%.</p> <ul style="list-style-type: none"> – for 1/3 of the shares, the pre-dividend organic cash breakeven criterion will be assessed during the three acquisition years (2019, 2020 and 2021) as follows. The pre-dividend organic cash breakeven is defined as the Brent price for which the operating cash flow before working capital changes (MBA) covers the organic investments. The ability of the Group to resist to the variations of the Brent barrel price is measured by this parameter. <ul style="list-style-type: none"> – the maximum weighting of the criterion is reached, i.e. the breakeven is below or equal to 30\$/b; – the weighting of the criterion is zero if the breakeven is above or equal to 40\$/b; – the interpolations are linear between these two points of reference. <p>A grant rate will be determined for each year.</p> <p>For each of these three criteria, the average of the three grant rates obtained (for each of the three fiscal years for which the performance conditions are assessed) will be rounded to the nearest 0.1 whole percent (0.05% being rounded to 0.1%) and capped at 100%.</p> <p>Each criterion will have a weight of 1/3 in the definitive grant rate. The definitive grant rate will be rounded to the nearest 0.1 whole percent (0.05% being rounded to 0.1%). The number of shares definitively granted, after confirmation of the performance conditions, will be rounded to the nearest whole number of shares in case of a fractional lot.</p> <p>In application of Article L. 225-197-1 of the French Commercial Code, Mr. Pouyanné will, until the end of his term, be required to retain in the form of registered shares, 50% of the gains on the granted shares net of tax and national insurance contributions related to the shares granted in 2019. When Mr. Pouyanné holds⁽²⁾ a volume of shares representing five times the fixed portion of his gross annual compensation, this percentage will be equal to 10%. If this condition is no longer met, the above-mentioned 50% holding requirement will again apply.</p>

(1) In accordance with the accounting of the performance shares for fiscal year 2019 in accordance with IFRS 2 which takes into account an award rate hypothesis of 80% at the end of the acquisition period, this amount corresponds to the 72,000 shares awarded in 2019, valued on the basis of a unit fair value of €40.11.

(2) In the form of shares or units of mutual funds invested in shares of the Company.

Components of compensation submitted for vote	Amount paid during fiscal year 2019	Amount awarded in respect of fiscal year 2019 or accounting valuation	Presentation
			<p>In addition, the Board of Directors has noted that, pursuant to the Board's Rules of Procedure applicable to all directors, the Chairman and Chief Executive Officer is not allowed to hedge the shares of the Company or any related financial instruments and has taken note of Mr. Pouyanné's commitment to abstain from such hedging operations with regard to the performance shares granted.</p> <p>The grant of performance shares to Mr. Pouyanné is subject to the same requirements applicable to the other beneficiaries of the performance share plan as approved by the Board at its meeting on March 13, 2019. In particular, these provisions stipulate that the shares definitively granted at the end of the three-year vesting period will, after confirmation of fulfillment of the presence and performance conditions, be automatically recorded as pure registered shares on the start date of the two-year holding period and will remain non-transferable and unavailable until the end of the holding period.</p>
Payment for assuming a position	n/a	n/a	Mr. Pouyanné was not granted any payment for assuming his position.
In-kind benefits		€67,625 (accounting valuation)	<p>The Chairman and Chief Executive Officer is entitled to a company vehicle.</p> <p>He is covered by the following life insurance plans provided by various life insurance companies:</p> <ul style="list-style-type: none"> – An “incapacity, disability, life insurance” plan applicable to all employees, partly paid for by the Company, that provides for two options in case of death of a married employee: either the payment of a lump sum equal to 5 times the annual compensation up to 16 times the PASS, corresponding to a maximum of €3,290,880 in 2020, plus an additional amount if there is a dependent child or children, or the payment of a lump sum equal to three times the annual compensation up to 16 times the PASS, plus a survivor's pension and education allowance; – A second “disability and life insurance” plan, fully paid by the Company, applicable to executive officers and senior executives whose annual gross compensation is more than 16 times the PASS. This contract, signed on October 17, 2002, amended on January 28 and December 16, 2015, guarantees the beneficiary the payment of a lump sum, in case of death, equal to two years of compensation (defined as the gross annual fixed reference compensation (base France), which corresponds to 12 times the monthly gross fixed compensation paid during the month prior to death or sick leave, to which is added the highest amount in absolute value of the variable portion received during one of the five previous years of activity), which is increased to three years in case of accidental death and, in case of accidental permanent disability, a lump sum proportional to the degree of disability. Death benefits are increased by 15% for each dependent child. <p>Payments due under this contract are made after the deduction of any amount paid under the above-mentioned plan applicable to all employees.</p> <p>The Chairman and Chief Executive Officer also benefits from the health care plan applicable to all employees.</p>
Severance benefit	None	None	<p>The Chairman and Chief Executive Officer is entitled to a benefit equal to two years of his gross compensation in the event of a forced departure related to a change of control or strategy. The calculation is based on the gross compensation (fixed and variable) of the 12 months preceding the date of termination or non-renewal of his term of office.</p> <p>The severance benefit will only be paid in the event of a forced departure related to a change of control or strategy. It will not be due in case of gross negligence or willful misconduct or if the Chairman and Chief Executive Officer leaves the Company of his own volition, accepts new responsibilities within the Group or may claim full retirement benefits within a short time period.</p> <p>Receipt of this severance benefit is contingent upon a performance-related condition applicable to the beneficiary, which is deemed to be fulfilled if at least two of the following criteria are met:</p> <ul style="list-style-type: none"> – the average ROE (return on equity) for the three years preceding the year in which the Chairman and Chief Executive Officer leaves is at least 10%; – the average net-debt-to-equity ratio for the three years preceding the year in which the Chairman and Chief Executive Officer leaves is less than or equal to 30%; and

Components of compensation submitted for vote	Amount paid during fiscal year 2019	Amount awarded in respect of fiscal year 2019 or accounting valuation	Presentation
			<ul style="list-style-type: none"> – growth in TOTAL's oil and gas production is greater than or equal to the average growth rate of four oil companies (ExxonMobil, Royal Dutch Shell, BP and Chevron) during the three years preceding the year in which the Chairman and Chief Executive Officer leaves.
Retirement benefit	None	None	<p>The Chairman and Chief Executive Officer is entitled to a retirement benefit equal to those available to eligible members of the Group under the French National Collective Bargaining Agreement for the Petroleum Industry. This benefit is equal to 25% of the fixed and variable annual compensation received during the 12 months preceding retirement.</p> <p>Receipt of this retirement benefit is contingent upon a performance-related condition applicable to the beneficiary, which is deemed to be fulfilled if at least two of the following criteria are met:</p> <ul style="list-style-type: none"> – the average ROE (return on equity) for the three years preceding the year in which the Chairman and Chief Executive Officer retires is at least 10%; – the average net-debt-to-equity ratio for the three years preceding the year in which the Chairman and Chief Executive Officer retires is less than or equal to 30%; – growth in TOTAL's oil and gas production is greater than or equal to the average growth rate of four oil companies (ExxonMobil, Royal Dutch Shell, BP and Chevron) during the three years preceding the year in which the Chairman and Chief Executive Officer retires. <p>The retirement benefit cannot be combined with the severance benefit described above.</p>
Non-compete compensation		n/a	Mr. Pouyanné has not received any non-compete compensation.
Supplementary pension plan		None	<p>Pursuant to applicable legislation, the Chairman and Chief Executive Officer is eligible for the basic French Social Security pension and for pension benefits under the ARRCO and AGIRC supplementary pension plans.</p> <p>He also participates in the internal defined contribution pension plan applicable to all TOTAL S.A. employees, known as RECO SUP (<i>Régime collectif et obligatoire de retraite supplémentaire à cotisations définies</i>), covered by Article L. 242-1 of the French Social Security Code. The Company's commitment is limited to its share of the contribution paid to the insurance company that manages the plan. For fiscal year 2019, this pension plan represented a booked expense to TOTAL S.A. in favor of the Chairman and Chief Executive Officer of €2,431.</p> <p>The Chairman and Chief Executive Officer also participates in a supplementary defined benefit pension plan, covered by Article L. 137-11 of the French Social Security Code, set up and financed by the Company and approved by the Board of Directors on March 13, 2001, for which management is outsourced to two insurance companies effective January 1, 2012. In accordance with the ordinance 2019-697 published on July 4, 2019, this plan is closed to any new participant as from July 4, 2019 and, for participants as of July 4, 2019 and retiring as from January 1, 2020, the amount of supplementary pension provided for in this plan is calculated on the basis of number of years of service as at December 31, 2019 and up to a maximum of 20 years.</p> <p>This plan applies to all TOTAL S.A. employees whose compensation exceeds eight times the annual ceiling for calculating French Social Security contributions (PASS), set at €40,524 for 2019 (i.e., €324,192), and above which there is no conventional pension plan.</p> <p>To be eligible for this supplementary pension plan, participants must have served for at least five years, be at least 60 years old and exercised his or her rights to retirement from the French Social Security. The benefits under this plan are subject to a presence condition under which the beneficiary must still be employed at the time of retirement. However, the presence condition does not apply if a beneficiary aged 55 or older leaves the Company at the Company's initiative or in case of disability.</p> <p>The length of service acquired by Mr. Pouyanné as a result of his previous salaried duties held at the Group since January 1, 1997, has been maintained for the benefit of this plan.</p>

Components of compensation submitted for vote	Amount paid during fiscal year 2019	Amount awarded in respect of fiscal year 2019 or accounting valuation	Presentation
			<p>The compensation taken into account to calculate the supplementary pension is the average gross annual compensation (fixed and variable portion) over the last three years. This pension plan provides a pension for its beneficiaries equal to 1.8% of the portion of the compensation falling between 8 and 40 times the PASS and 1% for the portion of the compensation falling between 40 and 60 times the PASS, multiplied by the number of years as at December 31, 2019 of service up to a maximum of 20 years.</p> <p>The sum of the annual supplementary pension plan benefits and other pension plan benefits (other than those set up individually and on a voluntary basis) may not exceed 45% of the average gross compensation (fixed and variable portion) over the last three years. In the event that this percentage is exceeded, the supplementary pension is reduced accordingly. The amount of the supplementary pension determined in this way is indexed to the ARRCO pension point.</p> <p>The supplementary pension includes a clause whereby 60% of the amount will be paid to beneficiaries in the event of death after retirement.</p> <p>The Board noted that Mr. Pouyanné can no longer acquire additional pension rights under this plan given the rules for determining pension rights set out in the plan and the 20 years of service of Mr. Pouyanné as of December 31, 2016.</p> <p>The conditional rights granted to Mr. Patrick Pouyanné for the period from January 1, 1997, to December 31, 2016 (inclusive), are now equal to a reference rate of 36% for the portion of the base compensation falling between 8 and 40 times the PASS and 20% for the portion of the base compensation falling between 40 and 60 times the PASS.</p> <p>Based on Mr. Pouyanné's seniority at the Company, capped at 20 years on December 31, 2016, the commitments made by TOTAL S.A. to the Chairman and Chief Executive Officer in terms of supplementary defined benefits and similar pension plans represented, at December 31, 2019, a gross annual retirement pension estimated at €628,932. It corresponds to 16.65% of Mr. Pouyanné's gross annual compensation consisting of the annual fixed portion for 2019 (i.e., €1,400,000) and the variable portion paid in 2020⁽¹⁾ for fiscal year 2019 (i.e., €2,378,300).</p> <p>Nearly the full amount of TOTAL S.A.'s commitments under these supplementary and similar retirement plans (including the retirement benefit) is outsourced for all beneficiaries to insurance companies and the non-outsourced balance is evaluated annually and adjusted through a provision in the accounts. The amount of these commitments as of December 31, 2019, is €21.8 million for the Chairman and Chief Executive Officer (€21.9 million for the Chairman and Chief Executive Officer and the executive and non-executive directors covered by these plans). These amounts represent the gross value of TOTAL S.A.'s commitments to these beneficiaries based on the estimated gross annual pensions as of December 31, 2019 as well as the statistical life expectancy of the beneficiaries.</p> <p>The total amount of all the pension plans in which Mr. Pouyanné participates represents, at December 31, 2019, a gross annual pension estimated at €734,889, corresponding to 19.45% of Mr. Pouyanné's gross annual compensation defined above (annual fixed portion for 2019 and variable portion paid in 2020 for fiscal year 2019).</p> <p>In line with the principles for determining the compensation of executive directors as set out in the AFEP-MEDEF Code which the Company uses as a reference, the Board of Directors took into account the benefit accruing from participation in the pension plans when determining the Chairman and Chief Executive Officer's compensation.</p>
Approval by the Shareholders' Meeting	-		The commitments made to the Chairman and Chief Executive Officer regarding the pension and insurance plans, the retirement benefit and the severance benefit (in the event of forced departure related to a change of control or strategy) were authorized by the Board of Directors on March 14, 2018, and approved by the Shareholders' Meeting on June 1, 2018.

(1) Subject to approval by the Ordinary Shareholders' Meeting on May 29, 2020.

Compensation ratios – Annual trend of the compensation, of performances of the Company and of the ratios

In accordance with Article L. 225-37-3, 6° and 7° of the French Commercial Code, below are indicated the ratios between the level of compensation of the Chairman and Chief Executive Officer and the average and median compensation of TOTAL S.A.⁽¹⁾ employees, as well as the annual trend of the compensation, of performances of the Company, of the average compensation of the Company's employees and of the ratios during the last five fiscal years.

The compensation ratios were calculated based on the following elements:

- The retained compensation for the **executive directors** corresponds to the compensation **paid** during fiscal year N (excluding in-kind benefits). It is composed of the fixed and variable components paid during fiscal year N in respect for fiscal year N-1, of performance shares awarded during fiscal year N⁽²⁾.

- **For employees**, the retained compensation corresponds to the compensation **paid** during fiscal year N (excluding in-kind benefits). It is composed of the full time equivalent fixed portion, of the variable portion paid during fiscal year N in respect for fiscal year N-1, of the incentive and profit-sharing compensation paid during fiscal year N in respect for N-1, of performance shares awarded during fiscal year N.

Mr. Patrick Pouyanné has been the Chairman and Chief Executive Officer of TOTAL S.A. since December 19, 2015, when the positions of Chairman of the Board of Directors and of Chief Executive Officer of TOTAL S.A. were combined (refer to point 4.1.5.1 of this chapter). Before that date, the positions of Chairman of the Board of Directors and of Chief Executive Officer were not combined.

Chairman and Chief Executive Officer since 12/19/2015	2015	2016	2017	2018	2019
Compensation ratio compared to the average compensation of TOTAL S.A. employees	n/a	42	47	51	46
Variation (N/N-1) in %			+12.1%	+8.7%	-10.6%
Compensation ratio compared to the median compensation of TOTAL S.A. employees	n/a	55	61	66	59
Variation (N/N-1) in %			+10%	+8.8%	-10.7%

	2016/15	2017/16	2018/17	2019/18
Evolution of the compensation of the Chairman and Chief Executive Officer	n/a	+11.3%	+12.5%	-7.7%
Evolution of the average compensation of TOTAL S.A. employees	+2.5%	-0.7% ⁽³⁾	+3.5%	+3.3%
Evolution of the net adjusted result ⁽⁴⁾	-21%	+28%	+28%	-13%
Evolution of the operating cash flow before working capital changes ⁽⁵⁾	-12%	+24%	+16%	+8%

After the death of the former Chairman and Chief Executive Officer, Mr. de Margerie, the Board of Directors had decided on October 22, 2014, in order to ensure the best continuity of the transition process of the general management, to combine the management positions and to appoint Mr. Desmarest, Chairman of the Board of Directors for a mandate to be ended on December 18, 2015, and Mr. Pouyanné, Chief Executive Officer. It had been announced that the duties of Chairman and Chief Executive Officer would be combined in December 2015.

In this context, Mr. Desmarest had not wished to be paid for his duties as Chairman of the Board of Directors and had received in 2015 only his fees due to his directorship amounting to 101,500 euros.

For his duties as Chief Executive Officer, Mr. Pouyanné received in 2015, a fixed compensation of 1,200,000 euros and an annual variable compensation paid in 2015 in respect for fiscal year 2014 amounting to 295,469 euros (for the period from October 22 2014 to December 18, 2015). In respect for fiscal year 2015, performance shares awarded to Mr. Pouyanné as Chief Executive officer were valued at 1,206,072 euros).

Based on these elements, the ratios between the Chief Executive Officer and the average and median compensation of TOTAL S.A. employees amount for 2015 to 25% and 33% respectively.

Furthermore, below are presented the ratios between the level of compensation of the Chairman and Chief Executive Officer and the average and median compensation of employees within the "Socle Social Commun (SSC)" as well as the annual trend of the compensation, of performances of the Company, of the average compensation of the Company's employees and of the ratios during the last five fiscal years.

The *Socle Social Commun*, which gather the three economic and social units (Upstream – Global Services – Holding, Refining-Petrochemicals, Marketing-Services), is the perimeter covering negotiations regarding annual wage measures driven by the management of TOTAL S.A. The Socle Social Commun gather workforce of subsidiaries in France (more than 15,000 employees in 2019).

Chairman and Chief Executive Officer since 12/19/2015	2015	2016	2017	2018	2019
Compensation ratio compared to the average compensation of SSC employees	n/a	54	60	66	58
Variation (N/N-1) in %			+12.1%	+8.7%	-10.6%
Compensation ratio compared to the median compensation of SSC employees	n/a	72	80	87	77
Variation (N/N-1) in %			+11.8%	+9.3%	-12.1%

(1) TOTAL S.A., the Group parent company, employs more than 5,000 employees (full time equivalent employees and present as of December 31 for each fiscal year of the considered period).

(2) Performance shares valued on the basis of their unit fair value, in accordance with their accounting in accordance with IFRS 2, taking into account an award rate hypothesis of 70% for years 2015 to 2017 and 80% for 2018 and 2019 at the end of the acquisition period.

(3) The 2017 change compared to 2016 is mainly explained by the 16% drop in the profit-sharing paid in 2017 compared to that paid in 2016 given the change in the parameters taken into account as well as, for TOTAL S.A., by the decision to assign the managers of TOTAL S.A. in the various companies of the Common Social Base according to their functions within the Group.

(4) Net adjusted result (Group share published in the consolidated financial statements in respect for the considered fiscal year).

(5) Operating cash flow before working capital changes published in the consolidated financial statements in respect of the considered fiscal year.

	2016/15	2017/16	2018/17	2019/18
Evolution of the compensation of the Chairman and Chief Executive Officer	n/a	+11.3%	+12.5%	-7.7%
Evolution of the average compensation of SSC employees	+2.9%	+0.1% ⁽¹⁾	+3.2%	+4.5%
Evolution of the net adjusted result ⁽²⁾	-21%	+28%	+28%	-13%
Evolution of the operating cash flow before working capital changes ⁽³⁾	-12%	+24%	+16%	+8%

4.3.2.2 Compensation policy of the Chairman and Chief Executive Officer

The compensation policy of the Chairman and Chief Executive Officer for fiscal year 2020 was set by the Board of Directors, at its meeting of March 18, 2020, on the proposal of the Compensation Committee, in accordance with the provisions of Article L. 225-37-2 of the French Commercial Code.

For its determination, the Board of Directors wished to maintain the orientations decided in 2019 and follow the alignment of the criteria of the Chairman and Chief Executive Officer's compensation on the key

criteria reflecting the Group's strategy, enabling to continue to ensure the convergence of the compensation with long-term performances of the Company.

The Board of Directors also relied on the general principles for determining the compensation of the executive directors described below and considered the compensation's and employment's conditions of employees of the Company.

General principles for determining the compensation of the executive directors

The general principles for determining the compensation and other benefits granted to the executive directors of TOTAL S.A. are as follows.

- Compensation as well as benefits for the executive directors are set by the Board of Directors on the proposal of the Compensation Committee. Such compensation must be reasonable and fair. Compensation for the executive directors is based on the market, the work performed, the results obtained and the responsibilities assumed.
- Compensation for the executive directors includes a fixed portion and a variable portion. Only highly specific circumstances may warrant the award of extraordinary compensation (for example, due to their importance for the corporation, the involvement they demand and the difficulties they present). Justified reasons for the payment of this extraordinary compensation must be given, and the realisation of the event that gave rise to the payment must be explained.
- The fixed portion is reviewed with a periodicity that cannot be below two years.
- The amount of the variable portion is reviewed each year and may not exceed a stated percentage of the fixed portion. Variable compensation is determined based on pre-defined quantifiable and qualitative criteria that are periodically reviewed by the Board of Directors. Quantifiable criteria are limited in number, objective, measurable and adapted to the Company's strategy.
- The variable portion rewards short-term performance and the progress made toward paving the way for medium-term development. It is determined in a manner consistent with the annual performance review of the executive directors and the Company's medium-term strategy.
- The Board of Directors monitors the change in the fixed and variable portions of the executive directors' compensation over several years in light of the Company's performance.
- There is no specific pension plan for the executive directors. They are eligible for retirement benefits and pension plans available to certain employee categories in the Group under conditions determined by the Board.
- In line with the principles for determining the compensation of executive directors as set out in the AFEP-MEDEF Code which the Company uses as a reference, the Board of Directors takes into account the benefit accruing from participation in the pension plans when determining the compensation policy of the executive directors.
- Stock options and performance shares are designed to align the interests of the executive directors with those of the shareholders over the long term.

The grant of options and performance shares to the executive directors is reviewed in light of all the components of compensation of the person in question. No discount is applied when stock options are granted.

The exercise of options and the definitive grant of performance shares to which the executive directors are entitled are subject to conditions of presence in the Company and performance that must be met over several years. The departure of executive directors from the Group results in the inapplicability of share options and the rights to the definitive attribution of performance shares. Under exceptional circumstances, the Board of Directors can decide to maintain the share options and the rights to the definitive attribution of performance shares after the executive beneficiary's departure, if the decision of the Board of Directors is specially justified and taken in the Company's interest.

The Board of Directors determines the rules related to holding a portion of the shares resulting from the exercise of options as well as the performance shares definitively granted, which apply to the executive directors until the end of their term of office.

The executive directors cannot be granted stock options or performance shares when they leave office.

- After three years in office, the executive directors are required to hold at least the number of Company shares set by the Board.
- The components of compensation of the executive directors are made public after the Board of Directors' meeting at which they are approved.
- The executive directors do not take part in any discussions or deliberations of the corporate bodies regarding items on the agenda of Board of Directors' meetings related to the assessment of their performance or the determination of the components of their compensation.
- When a new executive director is nominated, the Board of Directors decides on his or her compensation as well as benefits, further to a proposal by the Compensation Committee, and in accordance with the above general principles for determining the compensation of the executive directors. Exceptional compensation or specific benefits when taking office are forbidden, unless the Board of Directors decides otherwise for particular reasons, in the Company's interest and within the limits of the exceptional circumstances.

(1) The 2017 change compared to 2016 is mainly explained by the 16% drop in the profit-sharing paid in 2017 compared to that paid in 2016 given the change in the parameters taken into account.

(2) Net adjusted result (Group share published in the consolidated financial statements in respect for the considered fiscal year).

(3) Operating cash flow before working capital changes published in the consolidated financial statements in respect of the considered fiscal year.

Compensation policy for the Chairman and Chief Executive Officer for fiscal year 2020

Base salary of the Chairman and Chief Executive Officer (fixed compensation)

The Board of Directors decided to maintain Mr. Patrick Pouyanné's annual base salary (fixed compensation) for his duties as Chairman and Chief Executive Officer for fiscal year 2020 at €1,400,000 (the same as the fixed portion due for fiscal year 2019).

The level of the Chairman and Chief Executive Officer's fixed compensation was set based on the responsibilities assumed and the compensation levels applied for executive directors of comparable companies (particularly CAC 40 companies).

Annual variable portion of the Chairman and Chief Executive Officer's compensation

The Board of Directors also decided to maintain the maximum amount of the variable portion that could be paid to the Chairman and Chief Executive Officer for fiscal year 2020 at 180% of his base salary (the same percentage as in fiscal year 2019). This ceiling was set based on the level applied by a benchmark sample of companies operating in the energy sectors.

As in 2019, the formula for calculating the variable portion of the Chairman and Chief Executive Officer's compensation for fiscal year 2020 uses economic parameters that refer to quantifiable targets reflecting the Group's performance as well as the Chairman and Chief Executive Officer's personal contribution allowing a qualitative assessment of his management.

The Board wished to maintain the alignment of some criteria determination of the variable portion of the Chairman and Chief Executive Officer with the key criteria of the Group's strategy, which is promoted to shareholders.

Thus, in addition to the ROE, the Board maintained the criterion of the pre-dividend organic cash breakeven with a target set since 2017 at a level below \$30/b, which is essential in the management of the Company and which summarizes simultaneously all the discipline of the Group in connection with its cost reduction program, the choice of its investments and the policy of management of the Group's portfolio. The Board also maintained the net-debt-to-capital ratio that is among the key objectives announced to the shareholders. Furthermore, the Board considered it desirable to maintain the criterion of the comparative ROACE of the majors since the Group has announced that it aims to be the most profitable among the majors. Finally, in addition to safety criteria, taking into account the climate change-related challenges, the Board maintained the quantitative criterion on the reduction of greenhouse gas emissions of the Group's operated oil & gas facilities with the objective of reducing them from 46 Mt CO₂e in 2015 to less than 40 Mt CO₂e in 2025.

The weighting of the assessment criteria of the personal contribution of the Chairman and Chief Executive Officer was adjusted in order to reinforce the weighting of the criterion in relation to the development of the low-carbon Business (Integrated Gas, Renewables & Power perimeter), which is in line with the Group's strategy.

Annual variable compensation due for fiscal year 2020 (expressed as a percentage of the base salary)

	Maximum percentage
Economic parameters (quantifiable targets)	140%
– HSE	30%
a) Safety	20%
– TRIR	8%
– FIR, comparative	4%
– Evolution of the number of Tier 1 + Tier 2 incidents	8%
b) Evolution of greenhouse gas (GHG) emissions	10%
– Return on equity (ROE)	30%
– Net-debt-to-capital ratio	30%
– Pre-dividend organic cash breakeven	30%
– Return on average capital employed (ROACE), comparative	20%
Personal contribution (qualitative criteria)	40%
– steering of the hydrocarbon strategy (successful strategic negotiations with producing countries and achievement of production and reserve targets) and performance and outlook with respect to Downstream activities (Refining & Chemicals/Marketing & Services)	15%
– development of the low-carbon Businesses (Integrated Gas, Renewables & Power perimeter)	10%
– Corporate Social Responsibility (CSR) performance, notably the integration of climate issues in the Group's Strategy, the Group's reputation in the domain of Corporate Social Responsibility, as well as the policy concerning all aspects of diversity	15%
TOTAL	180%

The parameters used include:

- change in **safety**, for up to 20% of the base salary, assessed through the achievement of an annual TRIR (Total Recordable Injury Rate) target and the number of accidental deaths per million hours worked, FIR (Fatality Incident Rate) compared to those of four large competitor oil companies (ExxonMobil, Royal Dutch Shell, BP and Chevron), as well as through changes in the Tier 1 + Tier 2 indicator⁽¹⁾:
 - the maximum weighting of the TRIR criterion is 8% of the base salary. The maximum weighting will be reached if the TRIR is

below 0.80 (compared to 0.85 in 2019). The weighting of the criterion will be zero if the TRIR is above or equal to 1.3 (compared to 1.4 in 2019). The interpolations are linear between these points of reference;

- the maximum weighting of the FIR criterion is 4% of the base salary. The maximum weighting will be reached if the FIR is the best of the panel of the majors. It will be zero if the FIR is the worst of the panel. The interpolations are linear between these two points and depend on the ranking;

(1) Tier 1 and Tier 2: indicator of the number of loss of primary containment events, with more or less significant consequences, as defined by the API 754 (for downstream) and IOGP 456 (for upstream) standards. Excluding acts of sabotage and theft.

- the maximum weighting of the changes in the number of Tier 1 + Tier 2 incidents is 8% of the base salary. The maximum weighting will be reached if the number of Tier 1 + Tier 2 incidents equals or below 70 (compared to equal or below 100 in 2019). The weighting of the parameter will be zero if the number of Tier 1 + Tier 2 incidents is equal to or higher than 125 (compared to 180 in 2019). The interpolations are linear between these two points of reference.
- change in **GHG emission on operated oil & gas facilities**, assessed through the achievement of a GHG (Scope 1 and Scope 2) reduction emission target from 46 Mt CO₂e in 2015 to 40 Mt CO₂e in 2025, corresponding to a reduction of 600 kt CO₂e/y, i.e. a target of 43 Mt CO₂e for 2020. The maximum weighting of the GHG criterion is 10% of the base salary:
 - the maximum weighting of the criterion is reached, i.e. 10% of the base salary, if the GHG Scopes 1 and 2 emission on the operated oil & gas facilities reaches the target set at 43 Mt CO₂e in 2020 (compared to 43.6 Mt CO₂e in 2019);
 - the weighting of the criterion is zero if the emissions are 1 Mt CO₂e above the set target;
 - the interpolations are linear between these points of reference.
- the **return on equity (ROE)** as published by the Group on the basis of its balance sheet and consolidated statement of income assessed as follows. The maximum weighting of the ROE criterion will be 30% of the base salary:
 - the maximum weighting of the criterion is reached, i.e. 30% of the base salary, if the ROE is higher than or equal to 13%;
 - the weighting of the criterion is zero if the ROE is lower than or equal to 6%;
 - the weighting of the criterion is 50% of the maximum, i.e. 15% of the base salary, if the ROE is 8%;
 - the interpolations are linear between these three points of reference.
- the **net-debt-to-capital ratio**. The maximum weighting of the net-debt-to-capital ratio criterion is 30% of the base salary:
 - the maximum weighting of the criterion, i.e. 30% of the base salary, is reached for a net-debt-to-capital ratio equal to or below 20%;
 - the weighting of the criterion is zero if the net-debt-to-capital ratio is equal or above 30%;
 - the interpolations are linear between these two points of reference.

The new IFRS 16 accounting standard, applicable as of January 1, 2019, led the Group to consolidate as from this date all leases in the balance sheet and as counterpart to record the corresponding financial debts as a liability in the balance sheet (before January 1, 2019, only finance leases were consolidated).

The entry into force of this new accounting standard led to increase the net-debt-to-capital ratio by 3.1% as of January 1, 2019.

As the Group discloses a net-debt-to-capital ratio with and without the consideration of the financial debt corresponding to leases, the Board of Directors decided to assess the net-debt-to-capital ratio without considering the financial debt corresponding to the leases.

- the **pre-dividend organic cash breakeven**, assessed as follows. The maximum weighting of this criterion is 30% of the base salary. The pre-dividend organic cash breakeven is defined as the Brent price for which the operating cash flow before working capital changes⁽¹⁾ (MBA) covers the organic investments⁽²⁾. The ability of the Group to resist to the variations of the Brent barrel price is measured by this parameter:
 - the maximum weighting of the criterion is reached, i.e. 30% of the base salary, if the breakeven is below or equal to 30\$/b;
 - the weighting of the criterion is zero if the breakeven is above or equal to 40\$/b;
 - the interpolations are linear between these two points of reference.

- the **return on average capital employed (ROACE)**, by comparison, assessed as follows. The maximum weighting of the ROACE criterion will be 20% of the base salary. TOTAL's ROACE, as published from the consolidated balance sheet and the income statement, will be compared to the ROACE average of each of the four peers (ExxonMobil, Royal Dutch Shell, BP and Chevron). The ROACE is equal to the net adjusted operating income⁽³⁾ divided by the average of the capital employed (at replacement costs, net of deferred income tax and non-current liabilities) of the start and end of the fiscal year.
 - the maximum weighting of the criterion is reached, i.e. 20% of the base salary, if TOTAL's ROACE is above 2% or more compared to the average of the 4 peers' ROACE;
 - the weighting of the criterion is zero if the TOTAL's ROACE is under 2% or more compared to the average of the peers' ROACE;
 - the interpolations are linear between these two points of reference.

The Chairman and Chief Executive Officer's **personal contribution**, which may represent up to 40% of the base salary, is evaluated based on the following criteria:

- steering of the hydrocarbon strategy (successful strategic negotiations with producing countries, achievement of production and reserve targets) and performance and outlook with respect to Downstream activities (Refining & Chemicals/Marketing & Services) for up to 15%;
- development of the low-carbon Businesses (Integrated Gas, Renewables & Power perimeter) for up to 10%;
- CSR performance, notably the integration of climate issues in the Group's Strategy, the Group's reputation in the domain of Corporate Social Responsibility, as well as the policy concerning all aspects of diversity, for up to 15%.

The Board decided to adapt for 2020 the assessment of the personal contribution of the Chairman and Chief Executive Officer, by introducing a specific criterion to the low-carbon strategy implemented by the Group, with a maximum weighting set at 10%. This criterion is a separate one from the first performance criterion which remains relating to the hydrocarbon strategy, but which include from now the performance and the outlook for Downstream activities, with a maximum weighting remaining at 15%. The third criterion, relating to the CSR performance, remained assessed similarly, with a maximum weighting of 15%.

In the event of a significant change in the Group affecting the calculation of the economic perimeters for the Group (change in accounting standard, change in the policy of rating agencies, significant patrimonial transaction approved by the Board of Directors...), the Board reserves the right to calculate the parameters *mutatis mutandis* with justification of the changes i.e., excluding exogenous extraordinary elements.

Furthermore, the Board of Directors may exercise its discretionary powers regarding the determination of the compensation of the Chairman and Chief Executive Officer, pursuant to Articles L. 225-47, paragraph 1 and L. 225-53, paragraph 3 of the French Commercial Code, and according to Articles L. 225-37-2 and L. 225-100 of the French Commercial Code, in the event of particular circumstances that could justify that the Board of Directors adjusts, exceptionally and both on the upside and the downside, one or more of the criteria that make up his compensation to ensure that the results of the application of the criteria described above reflect both the performance of the Chairman and Chief Executive Officer and the performance of the Group either in absolute terms or relative to the four peers of the Group, for the economic criteria measured in comparison with these four peers.

This adjustment would be made to the variable compensation of the Chairman and Chief Executive Officer by the Board of Directors on the proposal of the Compensation Committee, within the limit of the variable compensation cap of 180% of the fixed compensation, after the Board of Directors ensured that the interests of the Company and of its shareholders are aligned with those of the executive director.

(1) The operating cash flow before working capital changes is defined as cash flow from operating activities before changes in capital at replacement cost.

(2) Organic investments: net investments excluding acquisitions, asset sales and other operations with non-controlling interests.

(3) Adjustments items include special items, the inventory effect and the impact for change for fair value.

Pursuant to Article L. 225-100 of French Commercial Code, the payment of this annual variable portion is subject to the approval of the Shareholders' Meeting convened to approve in 2021 the fiscal year 2020.

Components of long-term compensation

The granting of performance shares to the Chairman and Chief Executive Officer corresponds to the long-term component of his global compensation. It is structured over a five-year period: a three-year vesting period, followed by a two-year holding period. The definitive grant of shares is subject to a presence condition and performance conditions assessed at the end of the three-year vesting period.

Performance shares are granted to the Chairman and Chief Executive Officer each year as part of plans that are not specific to him and concern more than 10,000 employees, a large majority of which are non-executive employees.

It is noted that at its meeting on March 14, 2018, the Board of Directors decided that the annual number of performance shares granted to the Chairman and Chief Executive Officer would remain the same for the duration of his mandate as Chairman and Chief Executive Officer, which was renewed by the Shareholders' Meeting held on June 1, 2018, i.e. until the Shareholders' Meeting to be held in 2021 on the financial statements of fiscal year 2020.

It is also noted that the Board of Directors decided at its meeting on March 13, 2019 to grant 72,000 performance shares to the Chairman and Chief Executive Officer under the 2019 plan, i.e. the same number of shares as in 2018. The 2019 plan approved by the Board of Directors in March 2019 granted a 6% higher volume of performance shares compared with the 2018 plan. More than 10,000 employees were concerned by this plan, over 97% of whom are non-senior executives. The Board of Directors adopts this proactive policy in an effort to strengthen the sense of belonging to the Group of the beneficiaries of performance shares, to involve them more closely in its performance and encourage their investment in the Company's share capital.

The compensation policy proposed for fiscal year 2020 thus includes the granting of performance shares.

In this context, on the proposal of the Compensation Committee, the Board of Directors decided at its meeting on March 18, 2020, to grant 72,000 performance shares to the Chairman and Chief Executive Officer (the same number of shares as in 2019), as part of a 2020 plan that is not specific to him. The definitive granting of performance shares is subject to a presence condition and performance conditions assessed at the end of the three-year vesting period.

The definitive number of granted shares will be based on the TSR (Total Shareholder Return), the annual variation of the net cash flow by share in dollars, the pre-dividend organic cash breakeven, as well as the change in the greenhouse gas emission on operated oil & gas facilities for fiscal years 2020, 2021 and 2022, applied as follows:

- For 1/4 of the shares, the Company will be ranked against its peers (ExxonMobil, Royal Dutch Shell, BP and Chevron) each year during the three vesting years (2020, 2021 and 2022) based on the TSR criterion of the last quarter of the year in question, the dividend being considered reinvested based on the closing price on the ex-dividend date.
- For 1/4 of the shares, the Company will be ranked each year against its peers (ExxonMobil, Royal Dutch Shell, BP and Chevron) each year during the three vesting years (2020, 2021 and 2022) using the annual variation in net cash flow per share criterion expressed in dollar.

Based on the ranking, a grant rate will be determined for each year for these two first criteria: 1st: 180% of the grant; 2nd: 130% of the grant; 3rd: 80% of the grant; 4th and 5th: 0%.

- For 1/4 of the shares, the pre-dividend organic cash breakeven criterion will be assessed during the three vesting years (2020, 2021 and 2022) as follows. The pre-dividend organic cash breakeven is defined as the Brent price for which the operating cash flow before working capital changes⁽¹⁾ (MBA) covers the organic investments⁽²⁾. The ability of the Group to resist to the variations of the Brent barrel price is measured by this parameter.
 - the maximum grant rate will be reached if the breakeven is less than or equal to \$30/b,
 - the grant rate will be zero if the breakeven is greater than or equal to \$40/b,
 - the interpolations will be linear between these points of reference.
- For 1/4 of the shares, the change in the greenhouse gas emissions (GHG) on operated oil & gas facilities will be assessed each year as regard to the achievement of target to reduce the GHG emissions set for fiscal years 2020, 2021 and 2022 and corresponding to 43 Mt CO₂e for 2020, 42.4 Mt for 2021 and 41.8 Mt for 2022.
 - the maximum grant rate will be reached if the GHG emissions (Scope 1 and Scope 2) target have been achieved,
 - the grant rate will be zero if the GHG emissions of the year considered are 1 Mt CO₂e above the set target,
 - the interpolations will be linear between these points of reference.

For each of the four criteria, the average of the three grant rates obtained (for each of the three fiscal years for which the performance conditions are assessed) will be rounded to the nearest 0.1 whole percent (0.05% being rounded to 0.1%) and capped at 100%. Each criterion will have a weight of 1/4 in the definitive grant rate. The definitive grant rate will be rounded to the nearest 0.1 whole percent (0.05% being rounded to 0.1%). The number of shares definitively granted, after confirmation of the performance conditions, will be rounded up to the nearest whole number of shares in case of a fractional share.

At the end of the three-year acquisition period, shares that have been definitively granted could not be disposed of before the end of a two-year holding period.

Commitments made by the Company to the Chairman and Chief Executive Officer

The commitments made by the Company to the Chairman and Chief Executive Officer relate to the pension plans, the retirement benefit and the severance benefit to be paid in the event of forced departure related to a change of control or strategy, as well as the life insurance and health care benefits. They were approved by the Board of Directors on March 14, 2018, and by the Annual Shareholders' Meeting on June 1, 2018, in accordance with the provisions of Article L. 225-42-1 of the French Commercial Code, since abrogated.

It should be noted that Mr. Pouyanné already benefited from all these provisions when he was an employee of the Company, except for the commitment to pay severance benefits in the event of forced departure related to a change of control or strategy. It should also be noted that Mr. Pouyanné, who joined the Group on January 1, 1997, ended the employment contract that he previously had with TOTAL S.A. through his resignation at the time of his appointment as Chief Executive Officer on October 22, 2014.

Pension plans

Pursuant to applicable legislation, the Chairman and Chief Executive Officer is eligible for the basic French Social Security pension and for pension benefits under the ARRCO and AGIRC supplementary pension plans.

(1) The operating cash flow before working capital changes is defined as cash flow from operating activities before changes in capital at replacement cost.

(2) Organic investments: net investments excluding acquisitions, asset sales and other operations with non-controlling interests.

He also participates in the internal defined contribution pension plan applicable to all TOTAL S.A. employees, known as RECO SUP (Régime collectif et obligatoire de retraite supplémentaire à cotisations définies), covered by Article L. 242-1 of the French Social Security Code. The Company's commitment is limited to its share of the contribution paid to the insurance company that manages the plan. For fiscal year 2019, this pension plan represented a booked expense to TOTAL S.A. in favor of the Chairman and Chief Executive Officer of €2,431.

The Chairman and Chief Executive Officer also participates in a supplementary defined benefit pension plan, covered by Article L. 137-11 of the French Social Security Code, set up and financed by the Company and approved by the Board of Directors on March 13, 2001, for which management is outsourced to two insurance companies effective January 1, 2012. In accordance with the ordinance 2019-697 published on July 4, 2019, this plan is closed to any new participant as from July 4, 2019 and, for participants as of July 4, 2019 and retiring as from January 1, 2020, the amount of supplementary pension provided for in this plan is calculated on the basis of number of years of service as at December 31, 2019 and up to a maximum of 20 years.

This plan applies to all TOTAL S.A. employees whose compensation exceeds eight times the annual ceiling for calculating French Social Security contributions (PASS), set at €40,524 for 2019 (i.e., €324,192), and above which there is no conventional pension plan.

To be eligible for this supplementary pension plan, participants must have served for at least five years, be at least 60 years old and exercised his or her rights to retirement from the French Social Security. The benefits under this plan are subject to a presence condition under which the beneficiary must still be employed at the time of retirement. However, the presence condition does not apply if a beneficiary aged 55 or older leaves the Company at the Company's initiative or in case of disability.

The length of service acquired by Mr. Pouyanné as a result of his previous salaried duties held at the Group since January 1, 1997, has been maintained for the benefit of this plan.

The compensation taken into account to calculate the supplementary pension is the average gross annual compensation (fixed and variable portion) over the last three years. The amount paid under this plan is equal to 1.8% of the compensation falling between 8 and 40 times the PASS and 1% for the portion of the compensation falling between 40 and 60 times this ceiling, multiplied by the number of years of service as of December 31, 2019, up to a maximum of 20 years.

The sum of the annual supplementary pension plan benefits and other pension plan benefits (other than those set up individually and on a voluntary basis) may not exceed 45% of the average gross compensation (fixed and variable portion) over the last three years. In the event that this percentage is exceeded, the supplementary pension is reduced accordingly. The amount of the supplementary pension determined in this way is indexed to the ARRCO pension point.

The supplementary pension includes a clause whereby 60% of the amount will be paid to beneficiaries in the event of death after retirement.

The Board noted that Mr. Pouyanné is no longer able to acquire additional pension rights under this plan given the rules for determining pension rights set out in the plan and Mr. Pouyanné's 20 years of service as of December 31, 2016.

The conditional rights granted to Mr. Patrick Pouyanné for the period from January 1, 1997, to December 31, 2016 (inclusive), are now equal to a reference rate of 36% for the portion of the base compensation falling between 8 and 40 times the PASS and 20% for the portion of the base compensation falling between 40 and 60 times the PASS.

Based on Mr. Pouyanné's seniority at the Company, capped at 20 years on December 31, 2016, the commitments made by TOTAL S.A. to the Chairman and Chief Executive Officer in terms of supplementary defined benefits and similar pension plans represented, at December 31, 2019, a gross annual retirement pension estimated at €628,932. It corresponds to 16.65% of Mr. Pouyanné's gross annual compensation consisting of the annual fixed portion for 2019 (i.e., €1,400,000) and the variable portion paid in 2020⁽¹⁾ for fiscal year 2019 (i.e., €2,378,300).

Nearly the full amount of TOTAL S.A.'s commitments under these supplementary and similar retirement plans (including the retirement benefit) is outsourced for all beneficiaries to insurance companies and the non-outsourced balance is evaluated annually and adjusted through a provision in the accounts. The amount of these commitments as of December 31, 2019, is €21.8 million for the Chairman and Chief Executive Officer (€21.9 million for the Chairman and Chief Executive Officer and the executive and non-executive directors covered by these plans). These amounts represent the gross value of TOTAL S.A.'s commitments to these beneficiaries based on the estimated gross annual pensions as of December 31, 2019 as well as the statistical life expectancy of the beneficiaries.

The total amount of all the pension plans in which Mr. Pouyanné participates represents, at December 31, 2019, a gross annual pension estimated at €734,889, corresponding to 19.45% of Mr. Pouyanné's gross annual compensation defined above (annual fixed portion for 2019 and variable portion paid in 2020 for fiscal year 2019).

Retirement benefit

The Chairman and Chief Executive Officer is entitled to a retirement benefit equal to those available to eligible members of the Group under the French National Collective Bargaining Agreement for the Petroleum Industry. This benefit is equal to 25% of the fixed and variable annual compensation received during the 12 months preceding retirement.

The receipt of this retirement benefit is contingent upon a performance-related condition applicable to the beneficiary. The Board of Directors decided on March 18, 2020, to introduce a new criterion relating to the pre-dividend organic cash breakeven which is followed by investors, by replacing the previous criterion relating to the hydrocarbon production growth which is no longer relevant as regards the adaptation of the Group's strategy to the climate change challenges.

As a result, the conditions linked to the beneficiary's performance are considered as fulfilled when at least two of the criteria defined below are satisfied:

- the average ROE (return on equity) for the three years preceding the year in which the Chairman and Chief Executive Officer retires is at least 10%;
- the average net-debt-to-equity ratio for the three years preceding the year in which the Chairman and Chief Executive Officer retires is less than or equal to 30%; and
- the pre-dividend organic cash breakeven of the three years preceding the year in which the Chairman and Chief Executive Officer retires is below or equal to \$30/b (new criterion).

The retirement benefit cannot be combined with the severance benefit described below.

Severance benefit

The Chairman and Chief Executive Officer is entitled to a benefit equal to two years of his gross compensation in the event of a forced departure related to a change of control or strategy. The calculation is based on the gross compensation (fixed and variable) of the 12 months preceding the date of termination or non-renewal of his term of office.

The severance benefit will only be paid in the event of a forced departure related to a change of control or strategy. It will not be due in case of gross negligence or willful misconduct or if the Chairman and Chief Executive Officer leaves the Company of his own volition, accepts new responsibilities within the Group or may claim full retirement benefits within a short time period.

Receipt of this severance benefit is contingent upon a performance-related condition applicable to the beneficiary. The Board of Directors decided on March 18, 2020, to introduce a new criterion relating to the pre-dividend organic cash breakeven which is followed by investors, by replacing the previous criterion relating to the hydrocarbon production growth which is no longer relevant as regards the adaptation of the Group's strategy to the climate change challenges.

As a result, the conditions linked to the beneficiary's performance are considered as fulfilled when at least two of the criteria defined below are satisfied:

- the average ROE (return on equity) for the three years preceding the year in which the Chairman and Chief Executive Officer leaves is at least 10%;
- the average net-debt-to-equity ratio for the three years preceding the year in which the Chairman and Chief Executive Officer leaves is less than or equal to 30%; and
- the pre-dividend organic cash breakeven of the three years preceding the year in which the Chairman and Chief Executive Officer retires is below or equal to \$30/b (new criterion).

4.3.3 Executive officers' compensation

The Group's executive officers include the members of the Executive Committee, the four Senior Vice Presidents of the central Group functions who are members of the Group Performance Management Committee (HSE, Communications, Legal, Investor Relations) and the Treasurer.

As of December 31, 2019, the list of the Group's executive officers was as follows (13 people, the same number as at December 31, 2018):

- Patrick Pouyanné, Chairman and Chief Executive Officer and President of the Executive Committee;
- Arnaud Breuillac, President, Exploration & Production, member of the Executive Committee;
- Helle Kristoffersen, President of Group Strategy-Innovation, member of the Executive Committee;
- Momar Nguer, President, Marketing & Services, member of the Executive Committee;
- Bernard Pinatel, President, Refining & Chemicals, member of the Executive Committee;
- Philippe Sauquet, President, Gas, Renewables & Power, member of the Executive Committee;

4.3.4 Stock option and free share grants

4.3.4.1 General policy

In addition to its employee shareholding development policy, TOTAL S.A. has implemented a policy to involve employees and senior executives in the Group's future performance which entails granting free performance shares each year. TOTAL S.A. also granted stock options until 2011. These shares are granted under selective plans based on a review of individual performance at the time of each grant.

Life insurance and health care plans

The Chairman and Chief Executive Officer is covered by the following life insurance plans provided by various life insurance companies:

- an "incapacity, disability, life insurance" plan applicable to all employees, partly paid for by the Company, that provides for two options in case of death of a married employee: either the payment of a lump sum equal to five times the annual compensation up to 16 times the PASS, corresponding to a maximum of €3,290,880 in 2020, plus an additional amount if there is a dependent child or children, or the payment of a lump sum equal to three times the annual compensation up to 16 times the PASS, plus a survivor's pension and education allowance;
- a second "disability and life insurance" plan, fully paid by the Company, applicable to executive officers and senior executives whose annual gross compensation is more than 16 times the PASS. This contract, signed on October 17, 2002, amended on January 28 and December 16, 2015, guarantees the beneficiary the payment of a lump sum, in case of death, equal to two years of compensation (defined as the gross annual fixed reference compensation (base France), which corresponds to 12 times the monthly gross fixed compensation paid during the month prior to death or sick leave, to which is added the highest amount in absolute value of the variable portion received during one of the five previous years of activity), which is increased to three years in case of accidental death and, in case of accidental permanent disability, a lump sum proportional to the degree of disability. Death benefits are increased by 15% for each dependent child.

Payments due under this contract are made after the deduction of any amount paid under the above-mentioned plan applicable to all employees.

The Chairman and Chief Executive Officer also has the use of a company car and is covered by the health care plan available to all employees.

- Jean-Pierre Sbraire, Chief Financial Officer, member of the Executive Committee;
- Namita Shah, President, People & Social Responsibility, member of the Executive Committee;
- Xavier Bontemps, Senior Vice President Health, Safety Environment;
- Ladislav Paszkiewicz, Senior Vice President, Investor Relations;
- Jacques-Emmanuel Saulnier, Senior Vice President Communication;
- Aurélien Hamelle, Senior Vice President Legal;
- Antoine Larenaudie, Treasurer.

In 2019, the aggregate amount paid directly or indirectly by the Group's French and foreign companies as compensation to the Group's executive officers in office as of December 31, 2019 (13 people, the same number as at December 31, 2018) was €13.27 million (compared to €14.86 million in 2018), including €10.62 million paid to the members of the Executive Committee (eight people). The variable component (based on economic, HSE performance and personal contribution criteria) represented 45.41% of this global amount of €13.27 million.

The stock option and free share plans offered by TOTAL S.A. concern only Total shares and no free shares of the Group's listed subsidiaries or options on them are granted by TOTAL S.A.

All grants are approved by the Board of Directors, on the proposal of the Compensation Committee. For each plan, the Compensation

4 Report on corporate governance

Compensation for the administration and management bodies

Committee recommends a list of beneficiaries, the conditions as well as the number of options or shares granted to each beneficiary. The Board of Directors then gives final approval for this list and the grant conditions.

– Grant of free performance shares

Grants of free performance shares under selective plans become definitive only at the end of a three-year vesting period, subject to the fulfillment of applicable presence and performance conditions. At the end of the vesting period, and provided that the conditions are met, the Total shares are definitively granted to the beneficiaries, who must then hold them for at least two years (holding period). The presence condition applies to all shares.

For beneficiaries employed by a non-French company on the grant date, the vesting period for free shares may be increased to four years, in which case there is no mandatory holding period. Since 2011, all shares granted to senior executives have been subject to performance conditions.

– Stock options

Stock options were agreed until 2011 with a term of eight years, with a strike price set at the average of the closing Total share prices on Euronext Paris during the 20 trading days preceding the grant date, without any discount. Exercise of the options granted between 2007 and 2011 was subject to a presence condition and performance conditions, notably related to the Group's return on equity (ROE), and variable depending on the plan and category of beneficiary.

Since the 2011 plan, the Board of Directors has not granted any new Total stock options, and all the stock option plans prior to the 2011 plan have since expired. In addition, the authorization granted by the Extraordinary Shareholders' Meeting held on May 24, 2016 to grant stock options in the Company, for a term of 38 months, expired.

It will be proposed to the Extraordinary Shareholders' Meeting to be held on May 29, 2020, to authorize the Board of Directors to grant stock options in favor of beneficiaries it will determine among the employees and executives directors of the Company and of companies or "groupements d'intérêt économique" related to it under the conditions provided for in Article L. 225-180 of the French Commercial Code.

4.3.4.2 Monitoring of grants to the executive directors

Stock options

No stock options have been granted since September 14, 2011. Until that date, the Company's executive directors in office at the time of the decision were granted stock options as part of broader grant plans approved by the Board of Directors for certain Group employees and senior executives. The options granted to the executive directors were subject to the same requirements applicable to the other beneficiaries of the grant plans.

For the options granted between 2007 and 2011, the Board of Directors made the exercise of the options granted to the executive directors in office contingent upon a presence condition and performance conditions based on the Group's ROE and ROACE. The grant rate of the performance-related options was 60% for the 2008 Plan, and 100% for the 2009, 2010 and 2011 plans.

As of December 31, 2019, Mr. Pouyanné did not hold any Total stock options, since all the options granted under the 2011 plan had been exercised.

Stock options granted in 2019 to each executive director by the issuer and by any Group company (AMF position-recommendation No. 2009-16 – AMF Table No. 4)

Executive directors	Plan No. and date	Type of options (purchase or subscription)	Valuation of options (€) ^(a)	Number of options granted during the fiscal year	Strike price	Exercise period
Patrick Pouyanné Chairman and Chief Executive Officer since December 19, 2015	–	–	–	–	–	–

(a) According to the method used for the Consolidated Financial Statements.

Stock options exercised in fiscal year 2019 by each executive director (AMF position-recommendation No. 2009-16 – AMF Table No. 5)

	Plan No. and date	Number of options exercised during the fiscal year	Strike price
Patrick Pouyanné Chairman and Chief Executive Officer since December 19, 2015	2011 Plan – 09/14/2011	10,000	€33.00

Grant of free performance shares

Mr. Pouyanné is granted performance shares as part of the broader grant plans approved by the Board of Directors for certain Group employees. The performance shares granted to him are subject to the same requirements applicable to the other beneficiaries of the grant plans.

Summary tables

Free shares granted to each director^(a) in fiscal year 2019 by the issuer and by any Group company (AMF position-recommendation No. 2009-16 – AMF Table No. 6)

Executive and non-executive directors	Plan No. and date	Number of shares granted during the fiscal year	Valuation of the shares (€) ^(b)	Acquisition date	Date of transferability	Performance conditions
Patrick Pouyanné Chairman and Chief Executive Officer	2019 Plan 03/13/2019	72,000	2,310,336	03/14/2022	03/15/2024	The performance conditions are based for: – 1/3 of the Company's shares will be ranked against those of its peers ^(c) each year during the three vesting years (2019, 2020 and 2021) based on the TSR criterion of the last quarter of the year in question, the dividend being considered reinvested based on the closing price on the ex-dividend date;
Valérie Della Puppa Tibi Director representing employee shareholders since May 29, 2019	2019 Plan 03/13/2019	n/a	n/a	n/a	n/a	– 1/3 of the shares, on the Company's ranking against its peers ^(c) completed each year during the three years of vesting using the annual variation in net cash flow per share expressed in dollars criterion;
Renata Perycz Director representing employee shareholders from May 24, 2016 to May 29, 2019	2019 Plan 03/13/2019	280	8,984.64	03/14/2022	03/15/2024	– 1/3 of the shares, depending on the level of the pre-dividend organic cash breakeven criterion during the three vesting years. For this criterion, the maximum grant rate will be reached if the breakeven is less than or equal to \$30/b, the allocation rate will be zero if the breakeven is greater than or equal to \$40/b and the interpolations will be linear between these two points of reference.
Christine Renaud Director representing employees since May 26, 2017	2019 Plan 03/13/2019	-	-	03/14/2022	03/15/2024	
TOTAL		72,280	2,319,320.64			

(a) List of executive and non-executive directors who had this status during fiscal year 2019.

(b) In accordance with the accounting of the performance shares for fiscal year 2019 in accordance with IFRS 2 which takes into account an award rate hypothesis of 80% at the end of the acquisition period, this amount corresponds to the shares awarded in 2019, valued on the basis of a unit fair value of €40.11.

(c) ExxonMobil, Royal Dutch Shell, BP and Chevron.

Granted free shares that have become transferable for each director^(a) (AMF position-recommendation No. 2009-16 – AMF Table No. 7)

Executive and non-executive directors	Plan No. and date	Number of shares that became transferable during the fiscal year	Vesting conditions
Patrick Pouyanné Chairman and Chief Executive Officer	2016 Plan 07/27/2016	42,000	The performance conditions are based for: – 50% of the performance shares granted, on the Company's ranking against its peers ^(b) completed each year during the three vesting years (2016, 2017 and 2018) based on the TSR criterion of the last quarter of the year in question, the dividend being considered reinvested based on the closing price on the ex-dividend date; and
Valérie Della Puppa Tibi Director representing employee shareholders since May 29, 2019	2016 Plan 07/27/2016	-	– 50% of the performance shares granted, on the Company's ranking against its peers ^(b) completed each year during the three years of vesting (2016, 2017 and 2018) using the annual variation in net cash flow per share expressed in dollars criterion.
Renata Perycz Director representing employee shareholders from May 24, 2016 to May 29, 2019	2016 Plan 07/27/2016	n/a	
Christine Renaud Director representing employees since May 26, 2017	2016 Plan 07/27/2016	220	

(a) List of executive and non-executive directors who had this status during fiscal year 2019.

(b) ExxonMobil, Royal Dutch Shell and Chevron.

For the 2016 plan, the acquisition rate of shares granted, subject to performance conditions, linked to the TSR criterion and the annual change in net cashflow per share, was 70%.

4.3.4.3 Follow-up of Total stock option plans as of December 31, 2019

Breakdown of Total stock option grants by category of beneficiary

The breakdown of Total stock options granted by category of beneficiary (executive officers, other senior executives and other employees) for the sole plan in effect during fiscal year 2019 is as follows:

		Number of beneficiaries	Number of notified options	Percentage	Average number of options per beneficiary
2011 Plan^(a):	Executive officers ^(b)	29	846,600	55.7%	29,193
Subscription options	Senior executives	177	672,240	44.3%	3,798
Decision of the Board of Directors of September 14, 2011. Strike price: €33.00; discount: 0.0%	Other employees	-	-	-	-
	TOTAL	206	1,518,840	100%	7,373

(a) For the 2011 plan, the granting of all the share subscription options was subject to a performance condition. The grant rate of performance-related options was 100% for the 2011 plan.

(b) Members of the Executive Committee and the Management Committee and the Treasurer, as of the date of the Board meeting granting the TOTAL share subscription options.

Since the 2011 plan, the Board of Directors has not granted any new TOTAL stock options, and the stock option plans prior to the 2011 plan have since expired.

Breakdown of TOTAL stock option plans

History of stock option grants – Information on stock options (AMF position-recommendation No. 2009-16 – AMF Table No. 8)

	2011 Plan	Total
Type of options	Subscription options	
Date of the Shareholders' Meeting	05/21/2010	
Date of the Board meeting/grant date ^(a)	09/14/2011	
Total number of options granted by the Board of Directors, including to:	1,518,840	1,518,840
Executive and non-executive directors ^(b)	30,400	30,400
– P. Pouyanné	30,400	30,400
– V. Della Puppa Tibi	n/a	n/a
– R. Perycz	n/a	n/a
– C. Renaud	n/a	n/a
Date as of which the options may be exercised:	09/15/2013	
Expiry date	09/14/2019	
Strike price (€) ^(c)	33.00	
Cumulative number of options exercised as of December 31, 2019	1,513,440	1,513,440
Cumulative number of options canceled as of December 31, 2019	5,400	5,400
Number of options:		
– Outstanding as of January 1, 2019	265,230	265,230
– Granted in 2019	-	-
– Canceled in 2019 ^(d)	1,000	1,000
– Exercised in 2019	264,230	264,230
OUTSTANDING AS OF DECEMBER 31, 2019	-	-

(a) The grant date is the date of the Board meeting granting the options.

(b) List of executive and non-executive directors who had this status during fiscal year 2019. Ms. Della Puppa Tibi is a TOTAL S.A. employee and a TOTAL S.A. director representing employee shareholders since May 29, 2019. Ms. Perycz is an employee of Total Polska sp. Z.o.o. and was a TOTAL S.A. director representing employee shareholders until May 29, 2019. Ms. Renaud is a TOTAL S.A. employee and a TOTAL S.A. director representing employees since May 26, 2017.

(c) The strike price is the average closing price of Total's share on Euronext Paris during the 20 trading days preceding the option grant date, without any discount.

(d) The 1,000 share subscription options canceled in 2019 correspond to unexercised options before the expiration date of the 2011 plan that had expired on September 14, 2019.

Stock options granted to the ten employees (other than executive or non-executive directors) receiving the largest number of options/Stock options exercised by the ten employees (other than executive or non-executive directors) exercising the largest number of options (AMF position-recommendation No. 2009-16 – AMF Table No. 9)

	Total number of options granted/ exercised	Weighted average strike price (€)	2011 Plan 09/14/2011
Options granted in fiscal year 2019 by TOTAL S.A. and its affiliates ^(a) to the 10 employees of TOTAL S.A. and its affiliates (other than executive or non-executive directors) receiving the largest number of options (aggregate – not individual information)	–	–	–
Options held on TOTAL S.A. and its affiliates ^(a) and exercised in fiscal year 2019 by the 10 employees of TOTAL S.A. and its affiliates (other than executive or non-executive directors at the date of the exercises) who purchased or subscribed for the largest number of shares (aggregate – not individual information)	48,400	33.00	48,400

(a) Pursuant to the conditions of Article L. 225-180 of the French Commercial Code.

4.3.4.4 Follow-up of Total free share grants as of December 31, 2019

Breakdown history of Total performance share grants by category of beneficiary

The following table gives a breakdown of Total performance share grants by category of beneficiary (executive officers, other senior executives and other employees):

	Number of beneficiaries	Number of notified shares	Percentage	Nombre moyen d'actions par bénéficiaire
2015 Plan^(a)				
Decision of the Board of Directors of July 28, 2015				
Executive officers ^(b)	13	264,600	5.6%	20,354
Senior executives	290	1,132,750	23.8%	3,906
Other employees	10,012	3,364,585	70.6%	336
TOTAL	10,315	4,761,935	100%	462
2016 Plan^(a)				
Decision of the Board of Directors of July 27, 2016				
Executive officers ^(b)	12	269,900	4.8%	22,492
Senior executives	279	1,322,300	23.4%	4,739
Other employees ^(c)	10,028	4,047,200	71.8%	404
TOTAL	10,319	5,639,400	100%	547
Plan 2017				
Decision of the Board of Directors of July 26, 2017				
Executive officers ^(b)	12	266,500	4.7%	22,208
Senior executives	277	1,321,200	23.3%	4,770
Other employees ^(c)	10,288	4,092,249	72.0%	398
TOTAL	10,577	5,679,949	100%	537
Plan 2018				
Decision of the Board of Directors of March 14, 2018				
Executive officers ^(b)	13	301,000	5.0%	23,154
Senior executives	288	1,443,900	23.7%	5,014
Other employees ^(c)	10,344	4,338,245	71.3%	419
TOTAL	10,645	6,083,145	100%	571
Plan 2019				
Decision of the Board of Directors of March 13, 2019				
Executive officers ^(b)	13	326,500	5.1%	25,115
Senior executives	290	1,514,000	23.5%	5,221
Other employees ^(c)	10,730	4,606,569	71.5%	429
TOTAL	11,033	6,447,069	100%	584

(a) For the 2015 plan, the share acquisition rate related to a comparison of ROE and ANI was 81% for the executive director and 82% for the other beneficiaries. For the 2016 plan, the acquisition rate of shares granted, subject to performance conditions, linked to the TSR criterion and the annual change in net cashflow per share, was 70%.

(b) The executive officers as of the date of the Board meeting authorizing the grant.

(c) Ms. Della Puppa Tibi is a TOTAL S.A. employee and a TOTAL S.A. director representing employee shareholders since May 29, 2019. Ms. Perycz, an employee of Total Polska sp. Z.o.o. and a TOTAL S.A. director representing employee shareholders from May 24, 2016 to May 29, 2019, was granted 160 shares under the 2016 plan, 260 shares under the 2017 plan and 280 shares under the 2018 and 2019 plans. Ms. Renaud, an employee of TOTAL S.A. and a TOTAL S.A. director representing employees since May 26, 2017, was not granted any shares under the 2017, 2018 or 2019 plans.

The performance shares, which were previously bought back by the Company on the market, are definitively granted to their beneficiaries at the end of a three-year vesting period from the grant date.

The definitive grant of performance shares is subject to a presence condition and performance conditions.

For the 2019 plan, the applicable performance conditions are the following:

- for 1/3 of the shares, the Company will be ranked against its peers⁽¹⁾ each year during the three vesting years (2019, 2020 and 2021) based on the TSR criterion of the last quarter of the year in question, the dividend being considered reinvested based on the closing price on the ex-dividend date;
- for 1/3 of the shares, the Company will be ranked each year against its peers during the three vesting years (2019, 2020 and 2021) using the annual variation in net cash flow per share criterion expressed in dollar.

Based on the ranking, a grant rate will be determined for each year for these two first criteria: 1st: 180% of the grant; 2nd: 130% of the grant; 3rd: 80% of the grant; 4th and 5th: 0%.

- For 1/3 of the shares, the pre-dividend organic cash breakeven criterion will be assessed during the three vesting years (2019, 2020 and 2021) as follows:
 - the maximum grant rate will be reached if the breakeven is less than or equal to \$30/b,
 - the grant rate will be zero if the breakeven is greater than or equal to \$40/b,
 - the interpolations will be linear between these two points of reference.

The pre-dividend organic cash breakeven is defined as the Brent price for which the operating cash flow before working capital changes) covers the organic investments. The ability of the Group to resist to the variations of the Brent barrel price is measured by this parameter.

In addition, shares that have been definitively granted cannot be disposed of before the end of a mandatory two-year holding period.

Breakdown history of Total performance share plans

History of Total performance share grants – Information on performance shares granted (AMF position-recommendation No. 2009-16 – AMF Table No. 10)

	2015 Plan	2016 Plan	2017 Plan	2018 Plan	2019 Plan
Date of the Shareholders' Meeting	05/16/2014	05/24/2016	05/24/2016	05/24/2016	06/01/2018
Date of Board meeting/grant date	07/28/2015	07/27/2016	07/26/2017	03/14/2018	03/13/2019
Closing price on grant date	€43.215	€42.685	€43.220	€47.030	€51.210
Average purchase price per share paid by the Company	€45.15	€46.01	€48.20	n/a	n/a
Total number of performance shares granted, including to:	4,761,935	5,639,400	5,679,949	6,083,145	6,447,069
Executive and non-executive directors ^(a)	48,000	60,160	60,260	72,280	72,280
– P. Pouyanné	48,000	60,000	60,000	72,000	72,000
– V. Della Puppa Tibi	n/a	n/a	n/a	n/a	n/a
– R. Perycz	n/a	160	260	280	280
– C. Renaud	n/a	n/a	–	–	–
Start of the vesting period	07/28/2015	07/27/2016	07/26/2017	03/14/2018	03/13/2019
Definitive grant date, subject to the conditions set (end of the vesting period)	07/29/2018	07/28/2019	07/27/2020	03/15/2021	03/14/2022
Acquisition rate after determination of the performance conditions					
– Executive director	81%	70%	n/a	n/a	n/a
– Employees	82%	70%	n/a	n/a	n/a
Total number of performance shares definitively granted ^(b) at the end of the acquisition period, including:	4,078,287	4,279,388	n/a	n/a	n/a
– P. Pouyanné	38,880	42,000	n/a	n/a	n/a
Disposal possible from (end of the holding period)	07/29/2020	07/29/2021	07/28/2022	03/16/2023	03/15/2024
Number of free shares granted:					
– Outstanding as of January 1, 2019	–	5,543,220	5,650,919	6,070,795	–
– Notified in 2019	–	–	–	–	6,447,069
– Canceled in 2019	–	(1,267,392)	(41,220)	(41,260)	(39,246)
– Definitively granted in 2019	–	(4,275,828)	(1,840)	(1,100)	(180)
OUTSTANDING AS OF DECEMBER 31, 2019	–	–	5,607,859	6,028,435	6,407,643

(a) List of executive and non-executive directors who had this status during fiscal year 2019. Ms. Della Puppa Tibi, a TOTAL S.A. employee and a TOTAL S.A. director representing employee shareholders since May 29, 2019. Ms. Perycz is an employee of Total Polska sp. Z.o.o. employee and a TOTAL S.A. director representing employee shareholders until May 29, 2019. Ms. Renaud, a TOTAL S.A. employee and a TOTAL S.A. director representing employees since May 26, 2017.

(b) Shares definitively granted include early grants following the death of the beneficiaries of shares for the respective plan.

If all the performance shares outstanding at December 31, 2019 were definitively granted, they would represent 0.69%⁽²⁾ of the Company's share capital on that date.

(1) ExxonMobil, Royal Dutch Shell, BP and Chevron.

(2) Based on share capital divided into 2,601,881,075 shares.

Performance shares granted to the 10 employees (other than executive and non-executive directors) receiving the largest number of performance shares

	Number of performance shares notified/ definitively granted	Award date	Date of the final award (end of the vesting period)	Date of transferability (end of the holding period)
Free performance share grants approved by the Board of Directors at its meeting on March 13, 2019, to the ten employees of TOTAL S.A. and its affiliates (other than executive or non-executive directors at the date of the exercises) who purchased or subscribed for the largest number of shares ^(a)	254,000	03/13/2019	03/14/2022	03/15/2024
Performance shares definitively granted in fiscal year 2019 to the 10 employees of TOTAL S.A. and its affiliates (other than executive and non-executive directors on the date of the decision) receiving the largest number of performance shares	141,050	07/27/2016	07/28/2019	07/29/2021

(a) These shares will be definitively granted to their beneficiaries at the end of a three-year vesting period, i.e., on March 14, 2022, subject to three performance conditions being met. The free shares that have been definitively granted cannot be disposed of before the end of a two-year holding period, i.e., March 15, 2024.

4.4 Additional information about corporate governance

4.4.1 Regulated agreements and undertakings and related-party transactions

Procedure implemented by the Company pursuant to paragraph 2 of Article L. 225-39 of the French Commercial Code

The French Commercial Code introduced a control procedure of regulated agreements intended to prevent possible conflicts of interest between companies, their executive and non-executive directors or their shareholders with more than a 10% share of the voting rights. The legal framework is defined by Articles L. 225-38 et seq. of the French Commercial Code for limited liability companies. The regulation excludes intragroup agreements with a 100%-owned subsidiary, on the one hand, and ordinary agreements finalized under normal conditions, on the other, from the control procedure in Article L. 225-38 mentioned above.

In application of Article L. 225-39 of the French Commercial Code, amended by the PACTE Law n°2019-486 of May 22, 2019, at its meeting on February 5, 2020 and after examination by the Governance and Ethics Committee, the Board of Directors approved a procedure intended to specify the methodology and the applicable criteria for the qualification of these agreements and to regularly assess whether the agreements pertaining to current operations finalized under normal conditions by the Company properly meet these conditions.

The assessment procedure is based primarily on a declarative process. Once a year, every employee with a delegation of power completes and signs a declaration to certify and to confirm that all the agreements they have finalized or renewed in the name of and on the behalf of the Company in the past year, with one of the persons covered by the regulation, or a company, association, foundation or group, of which one of the said persons is a director, or with a company consolidated by global integration that is not 100%-owned by the Company, pertain to current operations and were finalized under normal conditions. All the declarations are collected and checked by the Audit & Internal Control Division.

In parallel to this declarative process, the Audit & Internal Control Division conducts an annual examination of a sample of agreements selected from the entries in the accounts of the elapsed year, and on the basis of the declarations made by the holders of delegated powers, to make sure

that the selected agreements actually pertain to current operations and were finalized under normal conditions.

This examination is made according to criteria defined in the procedure that, on the one hand, qualify an agreement as an ordinary agreement finalized under normal conditions and, on the other, qualify the policies and measures deployed in the Group to oversee the conclusion of agreements. In particular, these measures include the purchasing policy (compulsory calls for tender, whenever certain thresholds are exceeded), the anti-corruption measures, the declaratory measures to prevent conflicts of interest, the fiscal policy for transfer prices and the invoicing rules applicable to Group operations.

The Audit & Internal Control Division publishes a written report of this examination of their work.

The Audit Committee annually examines the results of the controls carried out and verifies the relevance of the criteria specified in the procedure that are used to qualify agreements as ordinary agreements finalized under normal conditions. It reports to the Board of Directors on their work.

Based on this information, every year, the Board of Directors checks that the agreements on current operations finalized under normal conditions actually meet these conditions. The directors who are directly or indirectly involved in one or more of these agreements do not take part in their assessment.

Regulated agreements and undertakings

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

In addition, to TOTAL's knowledge, there exists no agreement, other than the agreements related to its ordinary course of business and signed under normal conditions, engaged, directly or through an intermediary, between, on the one hand, any director or shareholder holding more

than 10% of TOTAL S.A.'s voting rights and, on the other hand, a company controlled by TOTAL S.A within the meaning of Article L. 233-3 of the French Commercial Code.

Related-party transactions

Details of related-party transactions as specified by the regulations

adopted under EC regulation 1606/2002, entered into by the Group companies during fiscal years 2017, 2018 or 2019, are provided in Note 8 of the notes to the Consolidated Financial Statements (refer to point 8.7 of chapter 8).

These transactions primarily concern equity affiliates and non-consolidated companies.

4.4.2 Delegations of authority and powers granted to the Board of Directors with respect to share capital increases and authorization for share cancellation

Table compiled in accordance with Article L. 225-37-4 3° of the French Commercial Code summarizing the use of delegations of authority and powers granted to the Board of Directors with respect to share capital increases as of December 31, 2019

Type	Cap on par value, or number of shares or expressed as % of share capital	Use in 2019 by value or number of shares	Available balance as of 12/31/2019 by value or number of shares	Date of delegation of authority or authorization by the Extraordinary Shareholders' Meeting (ESM)	Expiry date and term of authorization granted to the Board of Directors	
Maximum cap for the issuance of securities granting immediate or future rights to share capital	Securities representing debt securities giving rights to a portion of share capital	–	€10 Bn	June 1, 2018 (13 th , 14 th , 15 th and 17 th resolutions)	August 1, 2020 26 months	
	Nominal share capital	An overall cap of €2.5 Bn (i.e., a maximum of 1,000 million shares issued with a preemptive subscription right), from which can be deducted:	28 million shares ^(a)	€2.43 Bn (i.e. 972 million shares)	June 1, 2018 (13 th resolution)	August 1, 2020 26 months
		1/ a specific cap of €625 million, i.e., a maximum of 250 million shares for issuances without a preferential subscription right (with potential use of an extension clause), including in compensation with securities contributed within the scope of a public exchange offer, provided that they meet the requirements of Article L. 225-148 of the French Commercial Code, from which can be deducted:	–	€625 million	June 1, 2018 (14 th and 16 th resolutions)	August 1, 2020 26 months
		1a/ a sub-cap of €625 million with a view to issuing, through an offer as set forth in Article L. 411-2-II of the French Monetary and Financial Code ^(b) , shares and securities resulting in a share capital increase, without a shareholders' preemptive subscription right	–	€625 million	June 1, 2018 (15 th and 16 th resolutions)	August 1, 2020 26 months
		1b/ a sub-cap of €625 million through in-kind contributions when the provisions of Article L. 225-148 of the French Commercial Code are not applicable	–	€625 million	June 1, 2018 (17 th resolution)	August 1, 2020 26 months
	2/ a specific cap of 1.5% of the share capital on the date of the Board ^(c) decision for share capital increases reserved for employees participating in a Company savings plan	28 million shares ^(d)	11.0 million shares	June 1, 2018 (18 th resolution)	August 1, 2020 26 months	
Stock options granted to Group employees and to executive directors	0.75% of share capital ^(e) on the date of the Board decision to grant options	–	19.5 million shares	May 24, 2016 (25 th resolution)	July 24, 2019 38 months	
Free shares granted to Group employees and to executive directors	1% of share capital ^(e) on the date of the Board decision to grant the shares	6.5 million shares ^(e)	19.6 million shares	June 1, 2018 (19 th resolution)	August 1, 2021 38 months	

(a) The number of shares authorized under the 13th resolution of the ESM held on June 1, 2018, cannot exceed 1,000 million shares. Pursuant to the 18th resolution of the ESM held on June 1, 2018, the Board of Directors decided on September 19, 2018, to proceed with a share capital increase reserved for Group employees or former employees, members of a company or Group savings plan, which took place on June 6, 2019 (see Note (d) below). Pursuant to the same resolution, the Board of Directors decided on September 18, 2019, to proceed with a share capital increase reserved for Group employees or former employees, members of a company or Group savings plan, in 2020 (see Note (d) below). As a result, the available balance under this authorization amounts to 971,952,663 shares as of December 31, 2019.

(b) Became Article L. 411-2, point 1 of the French Monetary and Financial Code.

(c) Based on share capital as of December 31, 2019, divided into 2,601,881,075 shares.

- (d) The number of shares authorized under the 18th resolution of the ESM held on June 1, 2018 may not exceed 1.5% of the share capital on the date when the Board of Directors decides to use the delegation. Following the subscription requests made by employees, the Chairman and Chief Executive Officer, acting pursuant to the powers delegated by the Board of Directors on September 19, 2018, noted on June 6, 2019 the completion of the capital increase reserved for employees by issuing 10,047,337 shares. The meeting of the Board of Directors of September 18, 2019, decided to proceed with a share capital increase in 2020 with a cap of 18,000,000 shares (subscription to the shares under this operation is planned for the second quarter of 2020, subject to the decision of the Chairman and Chief Executive Officer). As a result, the available balance under this authorization amounts to 10,980,879 shares as of December 31, 2019.
- (e) The number of shares that may be granted under the 19th resolution of the ESM held on June 1, 2018 may not exceed 1% of the share capital on the date of the Board of Directors' decision. The Board of Directors decided to grant (i) on March 13, 2019, 6,447,069 shares and (ii) on May 29, 2019, 5,932 shares in respect of the matching contribution as part of the capital increase reserved for employees carried out in 2019 (see footnote (d) above). Thus, the number of shares likely to be granted as of December 31, 2019 is 19,565,809 shares. In addition, the shares granted pursuant to the attendance and performance conditions to the Executive Directors under the 19th resolution of the EGM held on June 1, 2018 may not exceed 0.01% of the capital existing on the date of the Board meeting that decided on the grant. Taking into account the 72,000 existing shares granted under attendance and performance conditions to the Chairman and Chief Executive Officer by the Board of Directors on March 13, 2019, the remaining number of shares that may be granted to executive directors stands at 188,188 shares.

Authorization to cancel shares of the Company

Pursuant to the terms of the 13th resolution of the Shareholders' Meeting held on May 26, 2017, the Board of Directors is authorized to cancel shares of the Company up to a maximum of 10% of the share capital of the Company existing as of the date of the operation within a 24-month period. This authorization is effective until the Shareholders' Meeting held to approve the financial statements for the year ending December 31, 2021.

On December 11, 2019, the Board of Directors, pursuant to this authorization, canceled 65,109,435 shares representing 2.44% of the share capital on that date. This cancellation, combined with the

cancellation of 44,590,699 Total shares on December 12, 2018, brings the number of Total shares canceled in the last 24 months to 109,700,134, i.e. 4.22% of the share capital immediately available after the capital reduction of December 11, 2019.

Based on the 2,601,881,075 shares outstanding on December 31, 2019, the Company could, after taking into account the shares canceled on December 11, 2019, cancel 150,487,973 further shares, before reaching the cancellation threshold of 10% of share capital canceled over a 24-month period.

4.4.3 Provisions of the bylaws governing shareholders' participation in Shareholders' Meetings

The Board of Directors decided to propose to the Annual Shareholders' Meeting to be held on May 29, 2020 a plan to convert TOTAL S.A. into a European company (*Societas Europaea* or SE). The Company's bylaws amended as a result of this transformation project will be submitted for approval to the Shareholders' Meeting to be held on May 29, 2020. The statutory provisions of TOTAL S.A. presented below are those resulting from the bylaws of TOTAL S.A.

4.4.3.1 Calling of shareholders to Shareholders' Meetings

Shareholders' Meetings are convened and conducted under the conditions provided for by law.

The Ordinary Shareholders' Meeting is convened to take any decisions that do not modify the Company's bylaws. It is held at least once a year within six months of the closing date of each fiscal year to approve the financial statements of that year. It may only deliberate, at its first meeting, if the shareholders present, represented or participating by remote voting hold at least one fifth of the shares that confer voting rights. No quorum is required at its second meeting. Since the entry into force of Law No. 2019-744 of July 19, 2019, the Ordinary Shareholders' Meeting rules by a majority of the votes cast by the shareholders present or represented. The votes cast do not include those attached to shares in which the shareholder did not take part in the vote, abstained, or returned a blank or invalid vote.

Only the Extraordinary Shareholders' Meeting is authorized to modify the bylaws. It may not, however, increase shareholders' commitments. It may only deliberate, at its first meeting, if the shareholders present, represented or participating by remote voting hold at least one quarter, and, at the second meeting, one fifth of the shares that confer voting rights. Since the entry into force of Law No. 2019-744 of July 19, 2019, the Extraordinary Shareholders' Meeting rules by a majority of two-thirds of the votes cast by the shareholders present or represented. The votes cast do not include those attached to shares in which the shareholder did not take part in the vote, abstained, or returned a blank or invalid vote.

One or several shareholders holding a certain percentage of the Company's share capital (calculated using a decreasing scale based on the share capital) may ask for items or draft resolutions to be added to the agenda of a Shareholders' Meeting under the terms and conditions and within the deadlines set forth by the French Commercial Code. Requests to add items or draft resolutions to the agenda must be sent no later than 20 days after the publication of the notice of meeting that the Company must publish in the French official journal of legal notices (*Bulletin des annonces légales obligatoires*, BALO). Any request to add an item to the agenda must be justified. Any request to add a draft resolution must be accompanied by the draft resolution text and brief summary of the grounds for this request. Requests made by shareholders must be accompanied by a proof of their share ownership as well as their ownership of the portion of capital as required by the regulations. Review of the item or draft resolution filed pursuant to regulatory conditions is subject to those making the request providing a new attestation justifying the shares being recorded in a book-entry form in the same accounts on the second business day preceding the date of the meeting.

The Central Social and Economic Committee (formerly the Central Works Council) may also request the addition of draft resolutions to the meeting agendas under the terms and conditions and within the deadlines set by the French Labor Code. In particular, requests to add draft resolutions must be sent within 10 business days following the date on which the notice of meeting was published.

4.4.3.2 Admission of shareholders to Shareholders' Meetings

Participation in any form in Shareholders' Meetings is subject to registration of the shares, either in the registered account maintained by the Company (or its securities agent) or recorded in bearer form in a securities account maintained by a financial intermediary. Proof of this registration is obtained under a certificate of participation (*attestation de participation*) delivered to the shareholder. Registration of the shares must be effective no later than midnight (Paris time) on the second business day preceding the date of the Shareholders' Meeting. If the shares are sold or transferred prior to this record date, the certificate of participation will be canceled, and the votes sent by mail and proxies sent to the Company will be canceled accordingly. If shares are sold or transferred after this record date, the certificate of participation will remain valid and votes cast or proxies granted will be taken into account.

4.4.4 Information regarding factors likely to have an impact in the event of a public takeover or exchange offer

In accordance with Article L. 225-37-5 of the French Commercial Code, information relating to factors likely to have an impact in the event of a public offering is provided below.

– Structure of the share capital

The structure of the Company's share capital as well as the interests that the Company is aware of pursuant to Articles L. 233-7 and L. 233-12 of the French Commercial Code are presented in points 6.4.1 to 6.4.3 in chapter 6.

– Restrictions on the exercise of voting rights and transfers of shares provided in the bylaws – Clauses of the agreements of which the Company has been informed in accordance with Article L. 233-11 of the French Commercial Code

The provisions of the bylaws relating to shareholders' voting rights are mentioned in point 7.2.4 of chapter 7. The Company has not been informed of any clauses as specified in paragraph 2 of Article L. 225-37-4 of the French Commercial Code.

– Holders of securities conferring special control rights

Article 18 of the bylaws stipulates that double voting rights are granted to all the registered shares held in the name of the same shareholder for at least two years. Subject to this condition, there are no securities conferring special control rights as specified in paragraph 4 of Article L. 225-37-5 of the French Commercial Code.

– Control mechanisms provided for in an employee shareholding system

The rules relating to the exercise of voting rights within the Company collective investment funds are presented in point 6.4.2 of chapter 6.

– Shareholder agreements of which the Company is aware and that could restrict share transfers and the exercise of voting rights

The Company is not aware of any agreements between shareholders as specified in paragraph 6 of Article L. 225-37-5 of the French Commercial Code which could result in restrictions on the transfer of shares and exercise of the voting rights of the Company.

– Rules applicable to the appointment and replacement of members of the Company's Board of Directors and amendment of the bylaws

No provision of the bylaws or agreement made between the Company and a third party contains a specific provision relating to the appointment and/or replacement of the Company's directors that is likely to have an impact in the event of a public offering.

– Powers of the Board of Directors in the event of a public offering

The delegations of authority or authorizations granted by the Shareholders' Meeting that are currently in effect limit the powers of the Board of Directors during public offering on the Company's shares. Such delegations expire during a public offering.

– Agreements to which the Company is party and which are amended or terminated in the event of a change of control of the Company – Agreements providing for the payment of compensation to members of the Board of Directors or employees in the event of their resignation or dismissal without real and serious grounds or if their employment were to be terminated as a result of a public offering

Although a number of agreements made by the Company contain a change in control clause, the Company believes that there are no agreements provided for in paragraph 9 of Article L. 225-37-5 of the French Commercial Code. The Company also believes that there are no agreements provided for in paragraph 10 of Article L. 225-37-5 of the French Commercial Code. For commitments made for the Chairman and Chief Executive Officer in the event of a forced departure owing to a change of control or strategy, refer to point 4.3.2 of this chapter.

4.4.5 Statutory auditors

4.4.5.1 Auditor's term of office

Statutory auditors

ERNST & YOUNG Audit

1/2, place des Saisons,
92400 Courbevoie – Paris-La Défense, Cedex 1, France

Appointed: May 14, 2004
Appointment renewed on May 24, 2016, for a six-fiscal year term

Laurent Vitse, Céline Eydiou-Boutté

KPMG S.A.

Tour EQHO, 2 avenue Gambetta, CS 60055,
92066 Paris-La Défense Cedex

Appointed: May 13, 1998
Appointment renewed on May 24, 2016, for a six-fiscal year term

Jacques-François Lethu, Éric Jacquet

Alternate auditors

Cabinet Auditex

1/2, place des Saisons,
92400 Courbevoie – Paris-La Défense, Cedex 1

Appointed: May 21, 2010
Appointment renewed on May 24, 2016, for a six-fiscal year term

KPMG Audit IS

Tour EQHO, 2 avenue Gambetta, CS 60055,
92066 Paris-La Défense Cedex

Appointed: May 21, 2010
Appointment renewed on May 24, 2016, for a six-fiscal year term

French law provides that the statutory and alternate auditors are appointed for renewable six-fiscal year terms. The terms of office of the statutory auditors and of the alternate auditors will expire at the end of the Shareholders' Meeting convened in 2022 to approve the financial statements for fiscal year 2021.

4.4.5.2 Fees received by the statutory auditors (including members of their networks)

	ERNST & YOUNG Audit				KPMG S.A.			
	Amount in M\$ (excluding VAT)		%		Amount in M\$ (excluding VAT)		%	
	2019	2018	2019	2018	2019	2018	2019	2018
Audit								
Statutory auditors, certification, examination of the parent company and consolidated accounts	28.9	26.3	74.4	77.3	22.1	20.8	81.6	76.7
TOTAL S.A.	3.5	3.5	9.0	10.3	3.9	3.5	14.5	12.9
Fully Consolidated subsidiaries	25.4	22.8	65.4	67.0	18.2	17.3	67.1	63.8
Services other than statutory audit – audit related services	5.5	3.2	14.1	9.4	2.9	4.2	10.6	15.5
TOTAL S.A.	2.1	0.2	5.4	0.6	0.7	0.7	2.5	2.6
Fully Consolidated subsidiaries	3.4	3.0	8.7	8.8	2.2	3.5	8.1	12.9
SUBTOTAL	34.4	29.5	88.5	86.7	25.0	25.0	92.2	92.2
Other services provided by the networks to fully Consolidated subsidiaries								
Legal, tax, labor law	4.0	3.9	10.3	11.5	1.9	1.9	7.0	7.0
Other	0.5	0.6	1.2	1.8	0.2	0.2	0.8	0.8
SUBTOTAL	4.5	4.5	11.5	13.3	2.1	2.1	7.8	7.8
TOTAL	38.9	34.0	100	100	27.1	27.1	100	100

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[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

5 Non-financial performance

An ambition for the Company: to become the responsible energy major

Chapter 5 of this Universal Registration Document constitutes the consolidated statement of non-financial performance as per Article L. 225-102-1 of the French Commercial Code, and discloses how the Company and the entities included in the scope of consolidation, in accordance with Article L. 233-16 of the French Commercial Code, take into account the social and environmental consequences of their activities, as well as the effects of those activities with regard to respect for human rights and fighting corruption and tax evasion.

Pursuant to the above mentioned Article L. 225-102-1, this statement also includes information about the impact on climate change of the Company's activity and the use of the goods and services that it produces, its societal commitments in order to promote sustainable development, the circular economy, the collective agreements in place within the Company and their impacts on the Company's economic

performance as well as on employees' working conditions, the actions aimed at fighting discrimination and promoting diversity, and the measures taken in favor of people with disabilities⁽¹⁾.

This statement of non-financial performance was prepared with the assistance of several of the Company's corporate functional divisions, in particular the Finance, Legal, Audit & Internal Control and People & Social Responsibility Divisions. The statement was reviewed by the Audit Committee and was thereafter approved by the Board of Directors.

The data presented in the statement of non-financial performance are provided on a current-scope basis. The reporting scopes and method concerning the information in this chapter are presented in point 5.11 of this chapter.

5.1 An ambition for the Company: to become the responsible energy major

TOTAL is present in more than 130 countries. The nature of its activities and its geographical footprint in complex environments place the Group at the junction of a range of society's concerns relating to people, the environment or business ethics. Faced with these challenges, TOTAL's ambition is to become the responsible energy major.

This ambition is embodied by the *One Total* Company project, which unites the various activities of the Group, its entities and all of its employees around a Company's evolution process with the aim to supply energy to an ever-growing population, taking into account the challenges of climate change and new energy production and consumption patterns. This ambition is based on the values restated and shared by all, (Safety, Respect for Each Other, Pioneer Spirit, Stand Together and Performance-Minded). These values guide the Group's actions.

TOTAL's Code of Conduct sets forth the principles to be applied during day-to-day operations. It states the Group's commitments and expectations of each of its stakeholders and serves as a reference for employees and any other person working on behalf of the Group.

The Group employs a continuous process of identifying and mapping risks in order to develop sector-specific policies that reflect the desired level of control. The Group manages its activities through internal management systems implemented at the different levels of the company (headquarters, subsidiaries and sites). The Group thus performs regular assessments, following different modalities, of the risks and impacts of its activities in the areas of industrial safety, security, the environment, climate, workers' and local residents' protection, and business ethics. These assessments are generally carried out:

- prior to investment decisions in the Group's industrial projects (safety and security studies, impact assessments, particularly environmental and societal), acquisition and divestiture;
- during operations;
- prior to placing new substances on the market (toxicological and ecotoxicological studies, life cycle analyses).

These assessments incorporate the regulatory requirements of the countries where the Group operates and generally accepted professional practices. In addition, internal control systems are structured and regularly adjusted to align with the specific features of certain areas and the corporate strategic orientations set by the Board of Directors and General Management.

TOTAL intends to conduct its activities following a CSR (Corporate Social Responsibility) approach that responds to the United Nations' Sustainable Development Goals (SDGs) to which the Group has committed to contribute since 2016.

As part of its statement of non-financial performance, TOTAL has identified the main challenges linked to its activities. These are listed in the introduction to the sections relating to social information, health, safety, the environment, climate, human rights, the fight against corruption and tax evasion, its societal approach and contractors and suppliers relationships.

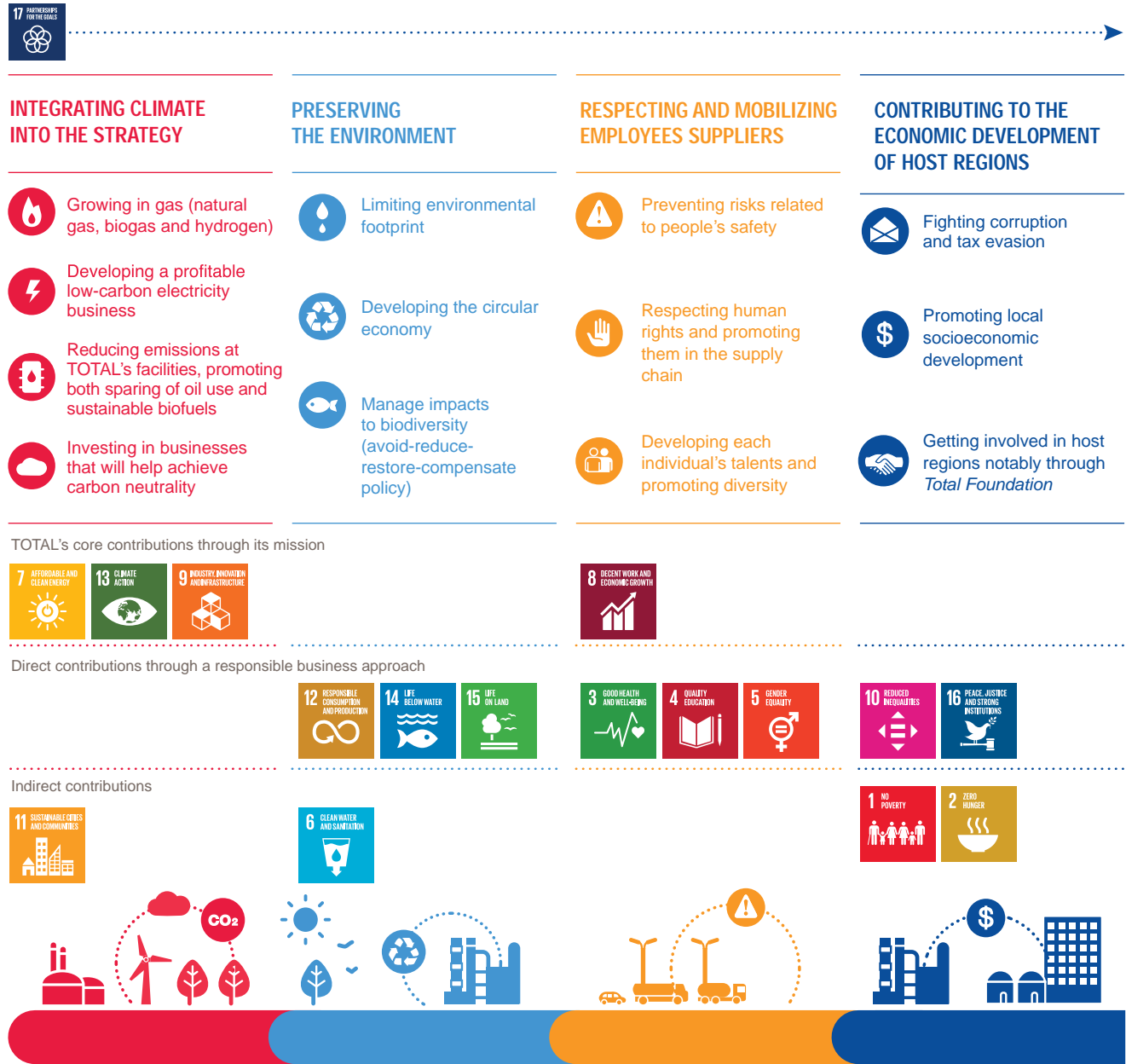
For its reporting, TOTAL refers to the GRI (Global Reporting Initiative) and to the TCFD (Task Force on Climate-related Financial Disclosures) recommendations on climate. It also relates to the IPIECA guidance for environmental and societal issues. Detailed information on these reporting guidelines is available on the Group's website (sustainable-performance.total.com). The Group's contributions to the SDGs are illustrated below in the form of icons.

In 2019, TOTAL was again recognized as a "LEAD Company" by the Global Compact of the United Nations for its entire commitment to sustainability.

TOTAL also monitors its stakeholders' perception of its non-financial performance. The Group intends to organize its action through a lasting approach of dialogue and transparency for its stakeholders. In terms of non-financial rating, TOTAL has been included continuously in the FTSE4Good index (London Stock Exchange) since 2001 and in the Dow Jones Sustainability World Index (DJSI – New York Stock Exchange) since 2004. TOTAL has been listed on DJSI Europe every year since 2005, except in 2015. In 2019, TOTAL received for all its commercial entities listed on the EcoVadis platform the Gold status for four of them (Total Direct Energie, Total Marketing & Services, Total Refining & Chemicals et Saft group) and the Silver status for Total Gas & Power Europe.

(1) The Group has not made any specific societal commitments in order to prevent food waste and food poverty or to promote animal welfare and responsible, fair and sustainable food, as these are not significant challenges with respect to the nature of the Group's activities.

TOTAL's CSR approach in relation to the sustainable development goals



5.2 Business model

The business model implemented by the Company and all of the entities included in the scope of consolidation in accordance with Article L. 233-16 of the French Commercial Code is set forth in the integrated

report (refer to chapter 1) and in the business overview (points 2.1 to 2.5 of chapter 2).

5.3 Social challenges



Since 2016, the Group has set the ambition of becoming the responsible energy major. Because a company is first and foremost a people-driven adventure, this ambition depends primarily on the women and men who work at TOTAL, both today and tomorrow. Becoming the responsible energy major also means being a responsible company for the Group's teams and, in particular, a company that offers its employees opportunities to develop and thrive professionally.

The Group has identified its main challenges to developing Human Resources:

- attracting and retaining talents in line with the key skills sought by the Group, based on the principle of non-discrimination and equal opportunity;
- maintaining employees' long-term employability by facilitating skills acquisition in order to keep up with the development of job sectors and technologies;
- ensuring a high level of commitment based on respect for each other and improving quality of life at work.

In 2019, the Group's Executive Committee launched a key component of the company project that embodies the Group's human ambitions: the *One Total, Better Together* project seeks to identify the workstreams to be launched as a priority so that the development of each Group employee is commensurate with the Group's business goals and lives up to the employee's expectations.

One Total, Better Together is structured around three main ambitions that are broken down into several implementation projects that concern all of the Group's subsidiaries⁽¹⁾.

"*One Total, Better Together* aims to attract and develop talents all over the world, promote a management style that can make the most of our knowledge and expertise, pass on our values and make the company a good place to work together."

Patrick Pouyanné, Chairman and Chief Executive Officer

To address its social challenges, TOTAL relies on the Group Human Resources division, which forms part of the People & Social Responsibility division, whose President is a member of the Executive Committee. In particular, the Group Human Resources division has the role of defining the Human Resources strategy and policies of the Group in accordance with the business challenges and the *One Total Company* project. In line with the multiple situations encountered in the field, it coordinates the promotion and roll-out of the new policies to support the various Human Resources departments in the Group's business segments.

5.3.1 Attracting and retaining talents



Attracting and retaining the talents that the Group needs is one of the key factors in the implementation of the Company project. To address these challenges, TOTAL notably uses an appropriate management of employees joining and leaving the Group, the provision of individual support to each employee, a responsible compensation policy for employees, and the development of employee shareholding.

5.3.1.1 Appropriate management of the Group's workforce

Group employees

As of December 31, 2019, the Group had 107,776 employees belonging to 321 employing companies located in 102 countries. At year-end 2019, the countries with the most employees were, in descending order, France, Mexico, Poland, the United States, Belgium, China and Germany.

The tables below present the breakdown of employees by business segment, region and age bracket, as well as the breakdown of managers or equivalent (≥ 300 Hay points⁽²⁾). The breakdown by gender and nationality is given in point 5.3.3.1 of this chapter.

Group registered headcount as of December 31	2019	2018	2017
Total number of employees	107,776	104,460	98,277
Breakdown by business segment			
Exploration & Production segment	12.3%	13.2%	14.3%
Integrated Gas, Renewables & Power segment	13.7%	11.6%	11.8%
Refining & Chemicals segment	47.7%	48.7%	49.8%
Refining & Chemicals	47.0%	48.1%	49.1%
Trading & Shipping	0.7%	0.6%	0.7%
Marketing & Services segment	23.5%	24.0%	21.6%
Corporate	2.8%	2.5%	2.5%

(1) Excluding Hutchinson and SunPower.

(2) The Hay method is a unique reference framework used to classify and assess job levels.

Group registered headcount as of December 31	2019	2018	2017
Breakdown by region			
Metropolitan France	33.7%	34.5%	32.1%
French overseas departments and territories	0.4%	0.4%	0.4%
Rest of Europe	27.4%	28.3%	26.1%
Africa	9.4%	9.4%	10.1%
North America	6.9%	6.7%	7.1%
Latin America	12.4%	11.8%	12.5%
Asia	8.9%	7.9%	10.5%
Middle East	0.8%	0.9%	1.0%
Oceania	0.1%	0.1%	0.2%
Breakdown by age bracket			
< 25 years	7.3%	6.6%	6.9%
25 to 34 years	25.6%	26.0%	26.4%
35 to 44 years	29.0%	29.5%	29.9%
45 to 54 years	24.3%	24.1%	23.5%
> 55 years	13.8%	13.8%	13.3%

The increase in the number of employees between 2018 and 2019 is 3.2% (3,316 employees). This is mainly due to the inclusion in the consolidation scope of SunPower subsidiaries, especially in Malaysia (1,614 employees) and the development of SunPower and Hutchison activities in Mexico.

Breakdown of managers or equivalent as of December 31	2019	2018	2017
Total number of managers	30,669	30,340	28,369

The table below presents the breakdown by business segment of the Group employees present⁽¹⁾.

Breakdown by business segment of the Group employees present as of December 31	2019	2018	2017
Exploration & Production segment	12,295	12,801	13,023
Integrated Gas, Renewables & Power segment	14,696	12,011	11,492
Refining & Chemicals segment	50,314	49,883	47,985
Refining & Chemicals	49,596	49,231	47,350
Trading & Shipping	718	652	635
Marketing & Services segment	24,858	24,630	20,932
Corporate	2,876	2,512	2,433

TOTAL's workforce movements

TOTAL implements a proactive policy of recruiting young people at the start of their career, regardless of their job sector or background. The Group gives them the opportunity to forge a variety of career paths through continuous, tailored training programs designed to improve long-term employability. This enables TOTAL to adapt to structural and job sector changes.

In addition, TOTAL hires more experienced profiles for positions requesting key skills, while offering them long-term career prospects within the Group.

Within an economic environment exposed to oil price volatility, hiring increased by 8.1% compared to 2018. This represents a total of 14,606 employees hired on a permanent contract within the consolidated scope.

The regions that hired the most employees were Latin America (45%), mainly Mexico and Brazil (taking into account the high turnover rate in these countries), Europe excluding France (15.6%), France (14.9%), and Asia (10.6%). With 50% of Group hires, the Refinery & Chemicals segment is the largest recruiter, mainly within Hutchinson activity, ahead of the Integrated Gas, Renewables & Power segment (29.7%).

As of December 31	2019	2018	2017
Total number hired on permanent contracts	14,606	13,506	12,141
Women	41.2%	39.5%	38.6%
Men	58.8%	60.5%	61.4%
French	14.2%	15.1%	9.7%
Other nationalities	85.8%	84.9%	90.3%

In 2019, the consolidated Group companies hired 12,768 employees on fixed-term contracts, compared with 11,650 in 2018. Almost 53% of employees hired on fixed-term contract were employed by Argedis, whose business is particularly seasonal (service stations) and which hires staff on temporary contracts.

As of December 31	2019	2018	2017
Total number of departures^(a)	13,050	12,458	13,111
Deaths	89	110	90
Resignations	8,012	8,259	7,379
Negotiated departures, dismissals	4,759	3,923	5,492
Ruptures conventionnelles (specific negotiated departures in France)	190	166	150
Total departures/total employees	12.1%	11.9%	13.3%

(a) Excluding retirements, transfers, early retirements, voluntary departures and expiration of fixed-term contracts.

5.3.1.2 A responsible compensation policy

The Group's compensation policy applies to all companies in which TOTAL S.A. holds the majority of voting rights. The aim of this policy is to ensure external competitiveness and internal fairness, reinforce the link to individual performance, increase employee share ownership and implement the Group's corporate social responsibility commitments.

A large majority of employees benefit from laws that guarantee a minimum wage, and, whenever this is not the case, the Group's policy ensures that compensation is above the minimum wage observed locally. Regular benchmarking is used to assess compensation based on the external market and the entity's competitive environment. Each entity's positioning relative to its reference market is assessed by the Human resources department of each business segment, which monitors evolutions in payroll, turnover and consistency with the market.

Fair treatment is ensured within the Group through the widespread implementation of a management job level evaluation (JL \geq 10)⁽²⁾ using the Hay method, which associates a salary range with each job level. Performance of the Group's employees (attainment of set targets, skills assessment, overall evaluation of job performance) is evaluated during an annual individual review and formalized in accordance with principles common to the entire Group.

(1) Employees present as defined in point 5.11.4 of this chapter.

(2) Job level of the position according to the Hay method. JL10 corresponds to junior manager (cadre débutant) (\geq 300 Hay points).

The compensation structure of the Group's employees is based on the following components, depending on the country:

- a **base salary**, which is subject to individual and/or general salary-raise campaigns each year. The merit-based salary-raise campaigns are intended to compensate employees' individual performance according to the targets set during the annual individual review, including at least one HSE (Health, Safety, Environment) target; and
- an **individual variable compensation** starting at a certain level of responsibility, which is intended to compensate individual performance (quantitative and qualitative attainment of previously set targets), managerial practices, if applicable, and the employee's contribution to collective performance evaluated, in particular, according to HSE targets set for each business segment, which represents up to 10% of the variable portion. In 2019, 86.6% of the Group's entities (WHRS scope) included HSE criteria in the variable compensation.

Complementary collective variable compensation programs are implemented in some countries, such as France, via incentives and profit-sharing that also incorporates HSE criteria. According to the agreement signed for 2018–2020 applicable to the oil and petrochemicals sector⁽¹⁾ in France (scope of about 17,700 employees in 2019), the amount available for employee profit-sharing is determined based on:

- financial parameters (the Group's return on equity as an absolute value and compared to four peers⁽²⁾);
- the attainment of safety targets (injury rate and accidental deaths in the oil and petrochemicals sector in France);
- criteria assessed at the level of the entity to which the employees belong, relating to employee commitment to priority areas identified by the *Action!* program, which is mainly driven by the corporate Foundation (Fondation d'entreprise) in France;
- criteria relating to the performance of the entity in question (production, sales volumes, gross margins, operating costs, etc.).

The Group provides **pension and employee benefit programs** (health and death) meeting the needs of the subsidiaries and the Group's standards with the aim that each employee can:

- benefit, in case of illness, from coverage that is at least equal to the median amount for the national industrial market;
- save or accumulate income substitution benefits for retirement;
- arrange for the protection of family members in case of the employee's death via insurance that provides for the payment of a benefit recommended to equal two years' gross salary.

These programs, which are regularly reviewed and, if necessary, adjusted, are rolled out by the subsidiaries and supplement those that may be provided for by local regulations.

5.3.1.3 A proactive policy to increase employee shareholding and employee savings

Employee shareholding, one of the pillars of the Group's Human Resources policy, is extended via three main mechanisms: the grant of performance shares, share capital increases reserved for employees, and employee savings. In this way, TOTAL wishes to encourage employee shareholding, strengthen their sense of belonging to the Group and give them a stake in the Group's performance by allowing them to benefit from their involvement.

Each year since 2005, TOTAL has granted performance shares to many of its employees (approximately 10,000 each year since 2009). The definitive granting of these shares depends on the fulfillment of performance conditions assessed at the end of a vesting period extended to three years in 2013 (refer to point 4.3.4 of chapter 4). The 2019 plan approved by the Board of Directors of TOTAL S.A. in March 2019 granted a 6% higher volume of performance shares compared with the 2018 plan. Over 40% of plan beneficiaries had not received performance shares the previous year. More than 10,000 employees were concerned by this plan, over 97% of whom are non-senior executives.

TOTAL also invites employees of companies more than 50% owned in terms of voting rights, and subscribing to the Shareholder Group Savings Plan (PEG-A) created in 1999 for this purpose, to subscribe to share capital increases reserved for employees. Share capital increases reserved for employees take place annually. As a result, more than 60% of the Group's employees are TOTAL shareholders. Depending on the offerings chosen and the employees' location, these operations are completed either through Company Savings Plans⁽³⁾ (FCPE) or by subscribing Total shares or American Depositary Receipts (ADRs) in the United States.

Pursuant to the authorization given by the Annual Shareholders' Meeting of June 1, 2018, the Board of Directors of TOTAL S.A. decided, at its meeting on September 18, 2019, a share capital increase reserved for employees to be completed in 2020 with a 20% discount. This operation will concern approximately 100 countries. Employees would receive a matching contribution of five free shares for the first five shares subscribed. The shares subscribed would give holders current dividend rights. The previous operation took place in 2019. Over 45,000 employees in 99 countries took part in this share capital increase, which resulted in the subscription of 9,845,111 shares at a price of €40.10 per share.

Employee savings are also fostered via the TOTAL Group Savings Plan (PEGT) and the Complementary Company Savings Plan (PEC), both open to employees of the Group's French companies that have subscribed to the plans under the agreements signed in 2002 and 2004 and their amendments. These plans allow investments in a wide range of mutual funds, including the Total Actionnariat France fund that is invested in Total shares.

A Collective Retirement Savings Plan (PERCO) is open to employees of the Group's French companies covered by the 2004 Group agreement on provisions for retirement savings. Other saving plans and PERCO are open in some French companies covered by specific agreements. Group employees can make discretionary contributions in the framework of these various plans, which their employer may supplement under certain conditions through a matching contribution. The Group's companies in France made gross matching contributions that totaled €71.1 million in 2019.

(1) Covers Total E&P France and the "socle social commun" scope, as defined in point 5.11 of this chapter.

(2) ExxonMobil, Royal Dutch Shell, BP and Chevron.

(3) Total Actionnariat France, Total France Capital+, Total Actionnariat International Capitalisation, Total Intl Capital.

5.3.2 Maintaining employees' long-term employability



The Group's international dimension creates a rich multicultural environment and a diverse range of jobs. Maintaining employees' long-term employability is another key factor in the successful implementation of the Company project. In order to manage this risk, the Group decided to invest in the development of employees by providing individual support and by implementing a tailored training policy that focuses on two areas: facilitating skills acquisition in order to keep up with the development of job sectors and technologies, and contributing to maintaining employees' long-term employability.

Aware of these challenges, the Group launched the *One Total – Better Together* project with the ambition of developing the talents of each employee by bringing more than 400 talent developers into the Group in 2019. The role of a talent developer is to assist each employee with his or her professional development while providing customized support. The professional development of employees stands at the heart of the Group's performance. It requires the drafting of an individual career plan. The Group enables all employees to take control of their professional development through a transparent and global system on which internal job offers are published (covering 90% of positions).

In addition, the technical and commercial know-how of employees and their ability to manage large projects underpin the Group's operational excellence and are essential for the Group's development. TOTAL therefore offers continuous, tailored training programs aimed at enhancing employees' skills and employability. These training courses form part of an approach based on improving skills and supporting careers, including for employees moving between business segments and/or geographical region.

The Group's policy in the field of training hinges on five major areas:

- sharing TOTAL's corporate values, particularly with respect to HSE, ethics, leadership, innovation and digital technology;
- supporting the development of existing activities and creating new ones in order to achieve the Group's ambitions;
- increasing key skills in all business areas to maintain a high level of operating performance;
- promoting employees' integration and career development through Group induction and training on management and personal development; and
- supporting the policy of mobility and diversity within the Group through language and intercultural training.

The Group offers all of its employees, when taking up a new position, an individual training plan that lays down the employees' training needs for the subsequent three years so that they have the resources necessary to be successful in the new position and can acquire new skills throughout the assignment. A catalog of more than 1,900 training courses is available.

In addition, the Group implements a management training course that enables managers to develop their skills from the moment they take up their position to the end of their careers. This course comprises a common training foundation and is a permanent part of each key stage in the manager's career in order to support managers in their role as manager-coaches.

The Group's training efforts remained strong in 2019, with 77% of employees having attended at least one on-site training during the year, compared to 75% in 2018 and a total budget of around €163 million, compared to €157 million in 2018. In 2019, there were 249,784 days of on-site training, an increase of 6.7% compared to 2018, mainly due to the scope evolution.

The average number of days of training per employee decreased by 0.2 due to the integration into the scope of 21 companies, such as ARGEDIS, Hutchinson SRO Rokycany, Saft America Inc and SunPower Philippines Ltd, with higher number of trained employees (79%), with shorter training duration particularly on remote training. Outside the scope of new companies, the average number of training per employee is stable.

5 Non-financial performance

Social challenges

For remote training, there were 29,307 people trained, compared to 30,128 in 2018.

Average number of training days/year per employee^(a) <i>(excluding "Companion" apprenticeships)</i>	WHRs 2019^(b)	WHRs 2018	WHRs 2017
On-site training	2.7	2.8	3
Remote training	0.4	0.5	0.5
Group average	3.1	3.3	3.5
Average number of days/years of training per employee^(a) (on-site and remote training, excluding "Companion" apprenticeships)			
By segment			
Exploration & Production segment	5.5	5.6	6.5
Integrated Gas, Renewables & Power segment	1.7	1.9	2.8
Refining & Chemicals segment	2.8	2.6	2.7
Refining & Chemicals	2.8	2.6	2.7
Trading & Shipping	1.8	1.7	2.3
Marketing & Services segment	3.2	3.4	3.3
Corporate	3.7	5.8	3.4
By area			
Africa	5.1	4.8	5.3
North America	3.8	4.0	4.1
Latin America	3.8	3.5	2.8
Asia-Pacific	3.1	4.2	4.4
Europe	2.6	2.7	3.1
Middle East	1.9	5.7	6.4
Oceania	3.9	3.6	0.5
French overseas departments and territories	0.0	0.8	2.7
Breakdown by type of training given (on-site training, excluding "Companion" apprenticeships and remote training)			
Technical	34%	35%	36%
Health, Safety, Environment, Quality (HSEQ)	26%	29%	28%
Language	6%	7%	7%
Other (management, personal development, intercultural, etc.)	34%	29%	28%

(a) This number is calculated using the number of training hours, where 7.6 hours equal one day.

(b) As an exception to the reporting principles described in point 5.11 of this chapter, the 2019 training reporting scope includes the subsidiary Gasket International and excludes the DMS, GreenFlex, Hutchinson Antivibration Systems, Hutchinson Tunisie, Total Mayotte, Total E&P UK and Total Austral subsidiaries for which training was not reported or not considered as reliable. The scope covers the reporting of 121 companies representing a total of 91,998 employees.

The change in the Group's e-learning system was an opportunity to carry out a complete overhaul of the training catalog with a new and finer distribution, implying that certain technical and HSEQ training are distributed to support function technical training. In 2019, the "Other" category is made up of 17% support function technical training, 5% in management, 5% in personal development, 3% in business and 4% in cross-functional training.

TOTAL has a technological training center, Oléum, which combines technical expertise with life-size technical learning platforms. The center operates on two sites in France (Dunkerque and La Mède), offering trainees a life-size Seveso environment and providing technical training notably in operations, maintenance, inspection, safety. Oléum welcomes interns from all sectors of activity of the Group worldwide, as well as partners and external customers. In 2018, a platform was introduced, enabling the delivery of the certified Basic Offshore Safety Induction and Emergency Training course. This certification is mandatory for all personnel working on offshore platforms.

5.3.3 Ensuring a high level of commitment based on respect for each other and improving quality of life at work



To ensure a high level of commitment from its employees, the Group promotes Human Resources development based on respect for each other and improving quality of life at work. TOTAL's approach is based on a number of levers. In addition to the organization of work and social dialogue, TOTAL aims to promote equal opportunities and diversity. It intends to ban all discrimination related to origin, gender, sexual orientation or identity, disability, age or affiliation with a political, labor or religious organization, or membership in a minority group.

5.3.3.1 Promoting equal treatment of employees and banning discrimination

Diversity is an integral part of the DNA and success of the Group, which is present in more than 130 countries. The Group has long been involved in promoting equal opportunities and diversity, and strives to promote an environment conducive to the expression and development of all employees' potential.

The diversity of its employees and management is crucial to the Group's competitiveness, innovative capacity, attractiveness and acceptability. TOTAL works to develop its employees' skills and careers while prohibiting any discrimination related to origin, gender, sexual orientation or identity, disability, age or affiliation with a political, labor or religious organization, or membership in a minority group.

This policy is supported at the highest level and promoted by the Diversity Council, which is chaired by a member of the Group's Executive Committee. The recruitment teams receive non-discrimination training. An internal guide entitled, *Recruiting without discriminating*, has also been implemented and is widely distributed. Initiatives aimed at raising employee and manager awareness of diversity are organized on a regular basis.

Each entity is responsible for creating a suitable work environment so that they offer all employees the same career opportunities and can benefit from all of the skills and diverse approaches they bring.

Promoting equal opportunity and diversity is part of a policy and has long been monitored. TOTAL was one of the pioneering groups with regard to diversity. It has prioritized two key components of diversity: gender diversity and internationalization, aiming to offer women and men of all nationalities the same career opportunities up to the highest levels of management. TOTAL set itself quantitative targets to be reached by the end of 2020.

In addition to the components of gender diversity and internationalization, disability forms an integral part of the Group's diversity policy. Initially deployed and coordinated in France, the disability policy was rolled out internationally in October 2018 through the signing of the International Labour Organization (ILO) Global Business and Disability Network Charter.

In September 2018, TOTAL renewed its commitment to diversity, equal opportunities and economic and social performance by signing the new Diversity Charter introduced by the network *Les entreprises pour la cité* in France. By signing this new charter, TOTAL reaffirmed its will to become a

responsible employer. The Group was one of the 33 founding signatories of the charter when it was launched in 2004. In November 2018, within the European Round Table of Industrialists (ERT) framework, TOTAL signed a pledge through which the signatories hope to strengthen the European movement to promote diversity and inclusion.

Equal treatment for women and men

TOTAL is committed to respecting and promoting the principle of equal treatment for women and men, while ensuring that it is correctly applied. Equal treatment for women and men is promoted in the Group through a global policy of gender diversity, quantitative targets set by General Management, Human Resources processes that take the issue of gender into consideration, agreements in favor of a better work-life balance and awareness-raising and training actions.

TOTAL's commitment to workplace gender equality spans from recruitment to the end of a career. It guarantees equal treatment for women and for men in the process for identifying high-potential employees and appointing senior executives.

In order to ensure a more balanced representation of men and women among senior managers, the Group set the following goals, which are to be reached in 2020:

- 25% women senior executives: women made up 23.0% in 2019 and around 5% in 2004;
- 18% women senior managers: women made up 17.4% in 2019 and around 8% in 2004;
- more than 20% women members on the Management Committees (head office and subsidiaries): women made up 23.9% in 2019;
- more than 20% women members on the Management Committees of branches and in large functional divisions: women made up 25.5% in 2019.

To meet these targets, the Group creates mixed talent pools. At the end of 2019, women made up 31.1% of high-potential employees (15% in 2004) and 30.7% of high-potential Group employees destined to become senior executives (24% in 2014).

In terms of TOTAL S.A., TOTAL's commitment to diversity took shape in 2016 as the President of the People & Social Responsibility division joined the Group's Executive Committee (eight people), which the President of the Strategy-Innovation division then joined in 2019. With regard to diversity in the 10% of the highest management positions of the Company, the proportion of women equals 16%. At Group level, which is the most relevant parameter considering TOTAL's activities, this proportion equals 22%⁽¹⁾.

TOTAL aims to hire women in proportions that reflect, at a minimum, the percentages of qualifications awarded by the higher education establishments in its business segments. The Group strives to promote the same proportion of women and men with equivalent qualifications and experience within the overall population eligible for a specific promotion.

To encourage young women to choose to study technical subjects, TOTAL has been a partner of the "*Elles bougent*" organization in France since 2011 and served as honorary chairman in 2015. Some 130 female engineers regularly inform high-school girls about careers

(1) Proportion calculated on the basis of 96,999 employees.

in science. Throughout the Group, female engineers and technicians from all cultures are encouraged to give talks to high-school girls and female students to illustrate women's contribution to the fields of science and technology.

Diversity is also promoted through action to change mentalities, and awareness, training and communication events are held regularly for managers and employees. Internal training courses such as *Managing your career as a woman* and *Managing diversity* are also available.

Through its mentoring activities and development workshops, the TWICE (Total Women's Initiative for Communication and Exchange) network also helps to develop the gender diversity policy. It aims to promote the progression of women within the Group, particularly to management roles, and help women further their careers. Created in 2006, it is currently in place in France and abroad (41 local networks) and has almost 4,000 members. Within this framework, a mentoring program is rolled out in France and internationally, and helps women to better anticipate the key phases of their careers. Nearly 1,600 women have benefited from this program since 2010. In 2018, the network launched the TWICE@Digital initiative to bring women working in the Group's digital fields together and, more generally, raise awareness of digital technology among women so that they could fully grasp the changes that are currently taking place and the impact of these changes on their work.

The signing of agreements, international charters and adherence to initiatives relating to diversity is emblematic of the Group's conviction at the very highest level of decision-making.

Thus, in 2010, TOTAL signed the "Women's Empowerment Principles – Equality Means Business" set out in the United Nations Global Compact, and its commitment to equal opportunities and the equal treatment of women and men is regularly embodied in agreements that address the issue of diversity.

In 2016, TOTAL, along with 20 other oil and gas companies, got involved at the World Economic Forum by signing *Closing the Gender Gap – a Call to Action*. This joint declaration is based on seven action principles (leadership; expectations and goal setting; Science, Technology, Engineering and Mathematics (STEM) program; clear responsibilities; recruitment, retention and promotion policies; inclusive corporate culture; and work environment and work-life balance) and two decisive drivers: more diverse recruitment and greater openness of technical and management roles to women.

% of women	2019	2018	2017
Permanent contract recruitment	41.2%	39.5%	38.6%
Management (JL ≥ 10) ^(a) recruitment	35.5%	31.9%	31.9%
Employees	35.8%	35.1%	33.3%
Managers (JL ≥ 10) ^(a)	28.5%	27.7%	26.3%
Senior executives	23.0%	21.6%	21.1%

(a) Job level of the position according to the Hay method. JL10 corresponds to junior manager (cadre débutant) (≥ 300 Hay points).

% of men	2019	2018	2017
Employees	64.2%	64.9%	66.7%
Permanent contract recruitment	58.8%	60.5%	61.4%

In terms of compensation, specific measures have been set in place since 2010 to prevent and compensate for any unjustified salary gaps. Regular checks are performed during salary-raise campaigns to ensure employees are treated fairly and men and women receive equivalent compensation for the same level of responsibility.

In France, in compliance with law no. 2018-771 of September 5, 2018, on the freedom to choose one's professional future, an index, based on a score of 100 and comprising five indicators (compensation gap, gap in individual pay raise rates excluding promotions, gap in the promotion rate, percentage of female employees who were given a pay raise in the year in which they returned from maternity leave, number of employees of the underrepresented gender among the ten employees who received the highest compensation) that concern compensation gaps between men and women and the actions taken to eliminate these gaps, has been published since 2019 for the three Social and Economic Units (UES).

Index ^(a)	2018/2019	2017/2018
UES Amont-Global Services-Holding	90/100	85/100
UES Refining-Petrochemicals	94/100	83/100
UES Marketing & Services	87/100	86/100

(a) Reference period from October 1 to September 30 of the year in question.

These results were published on sustainable-performance.total.com website.

In France, an equal opportunity agreement was negotiated with staff representative bodies in June 2019, applicable to the "Socle social commun" scope. It foresees, in particular, extending paternity leave to three consecutive calendar weeks, less stringent remote working conditions (whether occasional or not) and the right to return-to-work coaching following maternity leave.

Internationalization of management

With employees representing over 160 nationalities, TOTAL enjoys broad cultural diversity and believes that it is important to promote this at all levels of its activities. In 2019, 85.8% of employees hired by the Group and 55.0% of managers hired were non-French nationals. The increase in the representation of employees of non-French nationality in hires is mainly due to the development of SunPower and Hutchinson activities in Mexico, which represents 38.9% of the Group's hires and which are aimed mainly at non-manager profiles.

The Group has set a target of having local managers representing 50% to 75% of the subsidiaries' Management Committee members by 2020 (they represented 54.8% in 2019, compared to 52% in 2018) and non-French nationals representing 39% of senior managers and 40% of senior executives (compared to approximately 19% in 2004 and 34.1% in 2019).

Several measures have been put in place to internationalize the management population, including career paths to internationalize careers, increasing the number of foreign postings for employees of all nationalities (approximately 4,000 employees representing more than 100 nationalities are posted in more than 100 countries), and integration and personal development training organized by large regional hubs (for example, Houston, Johannesburg and Singapore).

% of employees of non-French nationality	2019	2018	2017
Permanent contract recruitment	85.8%	84.9%	90.3%
Management (JL ≥ 10) ^(a) recruitment	55.0%	58.9%	68.0%
Employees	67.2%	66.2%	68.2%
Managers (JL ≥ 10) ^(a)	56.1%	56.6%	58.1%
Senior executives	34.1%	32.1%	28.9%

% of employees of French nationality	2019	2018	2017
Employees	32.8%	33.8%	31.8%
Permanent contract recruitment	14.2%	15.1%	9.7%

(a) Job level of the position according to the Hay method. JL10 corresponds to junior manager (cadre débutant) (≥ 300 Hay points).

Measures promoting the employment and integration of people with disabilities

The integration and job retention of people with disabilities are covered by specific measures incorporated into the Group's diversity policy. TOTAL's Disability Program is a structure within the Diversity & Competences department of the Group's Human Resources division and is responsible for leading the disability policy while relying on disability coordinators within the business segments and a network of expert contacts within the establishments.

In **France**, for over 20 years, TOTAL has implemented its policy to promote the employment of people with disabilities by signing agreements with employee representatives.

TOTAL promotes the direct recruitment of people with disabilities as well as their indirect employment by purchasing from the protected employment sector as part of its responsible procurement. At the same time, the Group takes various types of action:

- internally: integration, professional training, support and job retention, communication, awareness-raising actions and sessions organized for managers and all the teams, as well as mandatory training for the Human Resources teams; mandatory awareness-raising actions within management committees are also worth noting;
- externally: information and advertising aimed at students, cooperation with recruitment agencies, attendance at specialized forums, partnerships with schools and universities. For example, in 2019, the Disability Program signed a partnership agreement with the association, Companieros, to fund training modules for Grande École students. As a result, tens of students from Université de Technologie de Compiègne, Centrale Lyon and the École Polytechnique, all of whom are future managers, received the "Handimanager" label. In addition, TOTAL took part in the first Disability Day organized at the École Polytechnique.

In 2019, a new agreement was negotiated with employee representatives and signed unanimously. This agreement, extended for the first time to the "Socle social commun" scope in France, replaces the three existing UES agreements, which contained different measures. The new agreement harmonizes the measures implemented for employees with disabilities in the whole of France (almost 14,000 people) and was approved by Direccte for a period of four years (2019–2022). The average Group employment rate of people with disabilities in France (direct and indirect employment) was 5.1% in 2018 (compared to 5.2% in 2017). The new agreement aims to reach the statutory employment rate of 6% of employees with disabilities by the end of the four-year period. It is based on three major priorities:

- recruitment, integration and professional support throughout the employee's career;
- job retention, the adaptation of workstations and measures to compensate for the employee's disability;
- the development of agreements and partnerships with the disabled and protected employment sectors (ESAT and EA).

The agreement foresees the creation of five dedicated full-time positions: four disability coordinator positions integrated into the business segments to promote and relay the Group's disability policy within the operational entities and a dedicated recruiting consultant position tasked with identifying and prequalifying candidates with disabilities for all positions managed by the Recruitment department for France (regarding any type of contract).

This agreement also enables employees to voice their support for associations that work on behalf of those with a disability in front of a dedicated committee whose members come from the Disability Program and employee representative bodies. A specific annual budget is allocated for the duration of the agreement.

In addition, TOTAL supports organizations such as the Association Total Solidarité Handicap (ATSH), which was formed in 1975 by employees with children with disabilities. ATSH provides confidential moral and financial support, helps with paperwork and gives practical assistance to current and retired employees of the Group and their dependents in France who are affected by disability. It currently has over 350 members, a third of whom received help from the association in 2018. In November 2019, TOTAL signed the "*Manifeste pour l'inclusion des personnes handicapées dans la vie économique*" initiated by the Secretary of State in charge of People with Disabilities. This commitment charter aims to embody a strong ambition around a proactive approach in favor of the employment of people with disabilities. This public commitment completes the new agreement and the charter of the UNEA (Union Nationale des Entreprises Adaptées) signed in October 2019, promoting the employment in France of people with disabilities in adapted companies.

Internationally, the Group's actions to support employees with disabilities took on a new dimension at the end of 2018, with the ambition of going beyond the legal requirements in all of the countries where it operates. This aim was embodied by the signing of the International Labour Organization (ILO) Global Business and Disability Network Charter in October 2018. To date, 41 subsidiaries have voluntarily signed up to the scheme and have set goals for the next two years on the basis of the five principles identified as priorities by the Group: respect and promotion of rights, policy and practice of non-discrimination, accessibility, job retention, and confidentiality. Signing the ILO's Global Business and Disability Network Charter gave rise to a new dynamic that has translated into, in particular, a regular exchange of best practice between the subsidiaries and the provision of awareness-raising tools.

In January 2020, TOTAL joined the Valuable 500, a global initiative aimed at explicitly putting the inclusion of people with disabilities and the unlocking of their potential on the agenda of multinational companies.

Commitment to promote the professional integration of young people

TOTAL is committed to promoting the professional integration of young people, thus increasing their employability. It believes that for maximum impact, this issue must be tackled as early as possible in the education system, and has therefore put in place targeted actions tailored to the specific context of the countries where they are implemented.

In France, TOTAL aims at offering 50% of internships for high school (first year) offered to young people from priority neighborhoods. Implemented in Île-de-France in 2018, TOTAL extended this scheme to the regions in 2019. During the 2018/2019 school year, TOTAL welcomed 116 students from priority neighborhoods.

TOTAL recruited nearly 5,000 interns in France over the 2016–2018 period, corresponding to 5% of the workforce in France. In 2019, TOTAL decided to continue this scheme. In order to monitor this part of the workforce more closely, indicators that reflect the Group's priority commitments with regard to diversity, disability and the professional integration of young people from priority neighborhoods were implemented. As of December 31, 2019, the Group employed in France 1,554 interns, of which 30 had a disability. With regard to young people from priority neighborhoods, the Group's recent partnership with Mozaik RH (a leading player in getting diverse talents into work), through its "DiversifiezVosTalents" platform, shall enable the Group to step up its commitment and improve the monitoring of this indicator.

In Africa, the Young Graduate Program run by the Marketing & Services segment offers graduates under the age of 26 an 18-month work

placement. The program is split into two phases consisting of work experience at the subsidiary in the young person's home country followed by an assignment in another country. Since the program was launched in 2014, over 400 young people have taken this opportunity to improve their employability; in 2020, the program aims to exceed the milestone of 500 young graduates.

Volontariat International en Entreprise (VIE) is an international internship program that offers young graduates aged between 18 and 28, from France or other European Economic Area member states, a professional internship within a subsidiary and abroad for a maximum of 24 months. The program has been in operation within the Group since 2002, and over 1,700 young people have benefited from it to date.

A partnership with the Agency for French Education Abroad and the French Ministry for Europe and Foreign Affairs was signed in June 2019, through which TOTAL undertakes to finance five new Excellence-Major scholarships and thus participates, with the French government, in the promotion of French higher education to excellent students around the world.

Other anti-discrimination measures

The Group signed the LGBT (lesbian, gay, bisexual and transgender) Charter in 2014. Prepared by the "L'Autre Cercle" association, it establishes a framework for combating discrimination related to sexual orientation or identity in the workplace in France.

TOTAL has written a practical guide to religion in the Group to offer concrete answers to employees' questions about religion in the workplace and to promote tolerance of everyone's beliefs, while respecting differences at the same time. The guide, which was posted on the Group's intranet site in March 2017, offers the keys to understanding different beliefs, so that everyone can better comprehend them in their everyday activities. Initially published in French and in English, the guide has since been translated into eight other languages. It has always been presented at human rights training courses run by the Group. It is also distributed on Business Ethics Day (on December 10 every year), celebrated in all of the Group's entities.

5.3.3.2 Adopting measures to meet the specific requirements of the organization of work

The Group's activities are varied and, depending on the segments, require the implementation of specific regimes for the organization of work, such as the "shift" regime⁽¹⁾ and the "rotational" regime⁽²⁾. Most shift workers are employed in the Refining & Chemicals, Marketing & Services and Integrated Gas, Renewables & Power segments, while the rotational regime mainly concerns the Exploration & Production segment.

The average work week is determined in accordance with applicable local law and limits set by International Labour Organization (ILO) conventions. Excluding specific regimes, it is less than 40 hours in most subsidiaries located in Europe, Israel, Mayotte and Qatar. It is 40 hours in most subsidiaries located in African, North American and Asian countries. It is above 40 hours, without exceeding 48 hours, in subsidiaries located in Latin America (mainly Mexico, Brazil, Dominican Republic and Argentina), a few countries in Asia (Philippines, India, Vietnam, China) and Africa (mainly Tunisia, South Africa, Morocco, Mauritius and Equatorial Guinea).

The challenges involved in the organization of work are many and varied depending on the regions of the world where the Group operates, and the applicable local law. The Group entities put in place measures to meet the specific requirements of the organization of work and promote, where possible, a good work-life balance.

Over the past few years, regular remote working has been rolled out within the Group.

	WHRS 2019	WHRS 2018	WHRS 2017
% of companies offering the option of regular remote working	29.1%	25.8%	24.1%
% of employees involved in remote working of those given the option	7.9%	5.0%	4.1%

Among those companies offering the option of remote working, 27.0% permit one day of remote working per week and 51.4% permit two days. France and Belgium have the greatest number of remote workers as this solution was introduced in these countries several years ago. In addition, as of December 31, 2019, 51.2% of companies offer occasional remote working.

As part of the roll-out of the *One Total, Better Together* project and in order to improve quality of life at work and ensure a better work-life balance, the Group announced in 2019 that it would generalize and allow throughout the world flexible working hours and voluntary remote working.

Among other solutions that favor a better work-life balance, employees also opt for voluntary part-time work.

	PSM 2019	PSM 2018	PSM 2017
% of companies offering voluntary part-time work	56.7%	50.0%	48.5%

France and Belgium have the largest number of voluntary part-time workers.

In addition, an agreement on the equal treatment of women and men in the workplace, applicable to the "Socle social commun" scope in France, was signed in June 2019. Aside from the equal treatment of women and men, the agreement covers parenthood and work-life balance, and strengthens the Group's approach to improving quality of life at work.

An agreement on the right to disconnect was also signed in October 2019 in France within the same scope. The agreement states that each employee has a right to disconnect in order to strike a better work-life balance. Line managers shall also encourage staff not to use digital work-related equipment outside of working hours.

In addition, as part of a global approach to preventing and managing employee absenteeism, the sickness absenteeism rate is one of the indicators monitored under the WHRS:

	WHRS 2019	WHRS 2018	WHRS 2017
Sickness absenteeism rate	3.4%	3.4%	2.4%

The sickness absenteeism rate evolves notably due a strengthening of the reporting process, in particular for the ARGEDIS subsidiary, whose sickness absenteeism rate went from 9.5% to 14.1% in 2019 and Hutchinson DOO, whose sickness absenteeism rate went from 3.4% to 7.7%.

(1) For employees providing a continual activity with relays between teams to maintain production (two or three 8-hour shifts), for example in plants or refineries.

(2) For employees working at a location (town or worksite) far from their place of residence with alternating periods of work and rest.

5.3.3.3 Promoting social dialogue

Social dialogue is one of the pillars of the Company project. It includes all types of negotiations, consultations or exchanges of information between the Group entities, the employees and their representatives about economic and social issues and related to the life of the company. The subjects covered by dialogue with employees vary from company to company, but some are shared throughout, such as health and safety, work time, compensation, training and equal opportunity.

The Group strives to maintain this dialogue at both a local level and at the head offices or centrally, as well as through its membership of bodies and the signing of agreements.

Among the numerous stakeholders with which TOTAL maintains regular dialogue, the Group's employees and their representatives have a privileged position and role, particularly in discussions with the management teams. In countries where employee representation is not required by law (for example in Myanmar and Brunei), the Group companies strive to set up such representation. There are therefore employee representatives in the majority of Group companies, most of whom are elected.

	WHRS 2019	WHRS 2018	WHRS 2017
% of companies with employee representation and/or with employee representatives	71.7%		
% of companies with employee representation	80.3%	80.5%	78.9%
% of employees covered by collective agreements	71.2%	71.5%	73.1%
Number of active agreements signed with employee representatives worldwide	312	316	256
of which in France ^(a)	201	190	160

(a) Some agreements cover several companies at once (for example, agreements in the Social and Economic Units – Unités Économiques et Sociales – or agreements in groups of companies).

The number of employees covered by collective agreements has increased: they were 66,822 in 2018 and 68,048 in 2019 within the WHRS scope.

At the European level, the European Committee enables the provision of information and discussions about the Group's strategy and social, economic and financial situation, as well as on matters relating to sustainable development, environmental and societal responsibility, and safety. It examines any significant proposed organizational change concerning at least two companies in two European countries, to express its opinion, in addition to the procedures initiated before the national representative bodies. An agreement was signed in July 2017. It contains some innovative measures allowing for better dialogue with the members of the European Committee (field safety visits and learning expeditions to discuss the Group's strategy directly on site). In 2019, European Committee members met 25 times.

The Board of Directors has decided to submit to the Annual Shareholders' Meeting on May 29, 2020 a project to transform TOTAL S.A. into a European company (Societas Europaea or SE). The legal status of a European company is common to all the countries in the European Union and is used by an increasing number of companies in France and in Europe. This status will better reflect the economic and social reality

of the Group and fully recognize its European dimension. This project has no impact on social dialogue or the way in which social dialogue is conducted in each European Union country. The European Committee will be replaced by a European Company Committee representing the 25 European Economic Area countries in which TOTAL is present. To do so, a Special Negotiating Body (SNB), in which each European country is represented, was formed. TOTAL negotiates with the SNB's members the agreement on the European Company Committee, employee involvement mechanism in the future European company.

Social dialogue is also embodied by the signing of various European agreements: *Plateforme sociale Groupe TOTAL* in 2004, a European agreement on equal opportunities in 2005, and an agreement on financial support for the creation, development or takeover of SMEs in 2007 and in 2012.

Social dialogue also results in the signing of international agreements that are emblematic of the Group's conviction at the very highest level of decision-making. In 2015, the Group signed a global agreement with the international IndustriALL Global Union trades union federation on the promotion of human rights at work, diversity, the participation of employees and their representatives in social dialogue and the recognition of health and safety at work. Discussions to renew this agreement in 2020 are underway.

In December 2017, TOTAL also joined the worldwide Global Deal initiative, a multi-stakeholder partnership that aims to incite governments, companies, unions and other organizations to make concrete commitments to favoring dialogue with employees. The Global Deal promotes the idea that effective social dialogue can contribute to decent work and quality jobs and, as a consequence, to more equality and inclusive growth from which workers, companies and civil society benefit. In 2019, Global Deal members were invited by the French Republic Minister for Labor, in parallel of the G7 Social summit, to take part in two working groups, one on supporting universal access to social protection adapted to new needs and risks, and the other on the equal treatment of women and men at work. By sharing its practices with Global Deal companies, TOTAL contributed to the creation of a report entitled, *Les membres du Global Deal s'engagent pour le G7 social* ("Global Deal members commit to the G7 Social").

As a company that listens to the people who work for it, TOTAL continues to build on its Company project, *One Total*, through a participative approach that engages employees. This approach was illustrated in 2016 by the involvement of employees in a reflection of the Group's ambitions and values, and in 2018 by the *One Total, Be Simple* collaborative campaign focusing on employees' day-to-day lives. Following further collaborative work that took the form of workshops, forums and an online collaborative platform that focused on a working text entitled, *Pacte d'engagement* ("Commitment agreement"), which received thousands of contributions from around the world, the *One Total, Better Together* project was launched with the aim of specifying the Group's human ambitions.

In addition, every two years, TOTAL carries out an internal survey (Total Survey) among its employees to gather their views and expectations with regard to their work situation and perception of the Company, locally and as a Group. The results of the last survey conducted in 2017 among 70,000 employees in 124 countries demonstrated that employees have a commitment rate of 78% and that 85% of them are proud to work for TOTAL.

The following survey was launched in 2019 and its results will be received in the first semester of 2020.

5.4 Personal health and safety challenges



TOTAL places safety at the heart of its ambition to be a responsible company. The operational measures and indicators used to manage the Group's activities are based on this fundamental value, in accordance with the strictest standards and with regard to health.

Given their specific nature, the Group's activities involve health and safety risks for the Group's employees, the personnel of the Group's contractors, and residents in the vicinity of industrial sites. Furthermore, certain products marketed by TOTAL may present risks for the health and safety of consumers.

In this context, the Group has therefore identified its main personal health and safety challenges:

- preventing the occurrence of any major industrial accidents;
- preventing occupational accidents;
- preventing occupational health risks;
- minimizing risks for the health and safety of consumers.

To address its challenges, TOTAL relies on the HSE division, which forms part of the People & Social Responsibility division, whose President is a member of the Executive Committee.

In line with the various businesses and environments in which the Group operates, the HSE division coordinates the promotion and implementation of Group policies to enable the HSE departments of the Group's subsidiaries to prevent or mitigate risks. Indicators are monitored so that the Group's actions in relation to personal health and safety can be continuously adapted.

TOTAL conducts its operations on the basis of its Safety Health Environment Quality Charter (available at total.com). It forms the common foundation for the Group's management frameworks, and sets out the basic principles applicable to safety, security, health, environment, quality and societal commitment. This charter is implemented at several levels (head office and subsidiaries). Group directives and rules define the minimum requirements expected. General specifications, guides and manuals are used to implement these directives and rules. The Group's subsidiaries implement these requirements by means of their own management systems, which take account of specific local circumstances and local regulatory requirements. The Group's framework is available to all employees.

Since 2018, an HSE reference framework common to all the business segments has progressively been rolled out in order to give greater overall consistency to the Group's operations, while continuing to respect the specific characteristics of the various business segments. This reference framework, named One MAESTRO (*Management and Expectations Standards Toward Robust Operations*), applies to all the Group's operated sites as defined in point 5.11 of this chapter (scope of One MAESTRO).

In order to evaluate the implementation of this framework, the Group performs audits at operated sites at least every five years. The sites themselves undertake self-assessments every two years. The Group's HSE audit protocol is based on the One MAESTRO framework and includes the requirements of the international standards ISO 14001:2015 and ISO 45001:2018. The audit protocol is applied fully during self-assessments and according to a risk-based approach during audits.

Before any final investment, acquisition or divestment decision, the projects presented to the Group's Risk Committee are assessed in regard to health and safety risks for people.

Finally, the One MAESTRO framework provides that companies holding an interest in assets or activities that they do not themselves operate shall promote the Group HSE requirements and best practices and to endeavor to ensure that similar requirements are adopted by the operator. This process can be exercised during board meetings, technical assistance missions or through HSE audits or reviews, when these are provided for by a shareholders' agreement. In 2019, the Group defined a new rule included in the One MAESTRO framework which aims at strengthening and harmonizing the Group-level assessments and follow-up of HSE risks relating to assets operated by third-parties.

5.4.1 Preventing the occurrence of major industrial accidents



To prevent the occurrence of a major industrial accident such as an explosion, fire, leakage of hazardous products or mass leakage that might cause death, physical injury, large-scale pollution or pollution at an environmentally sensitive site, or damage to property, TOTAL implements suitable risk management policies and measures which apply to all the Group's operated activities that are exposed to such risks.

At the end of 2019, in addition to its drilling and pipeline transport operations, the Group had 180 sites and operating zones exposed to such risks. These correspond to all the activities relating to operation, whether

offshore or onshore, the exploration and production of hydrocarbons as well as the Seveso-classified industrial sites (upper and lower tier) and their equivalents outside of the European Union. This number of sites is down compared to the end of 2018 when 195 sites were listed. The number of these sites is stable for the Exploration & Production and Integrated Gas Renewables & Power segments but decreasing for Refining-Chemicals (closure of a site in Spain and divestment of two sites in China) and for Marketing & Services (acquisition of a site in Brazil and divestment of sites in Argentina, Belgium, Germany and Tanzania).

The Group implements a policy for the management of major industrial accident risks in order to minimize the potential impacts associated with its activities. This policy provides for an analysis of the risks related to the Group's industrial operations at each operated site, based on incident scenarios for which the probability of occurrence and the severity of the consequences are assessed. Based on these parameters, a prioritization matrix is used to determine whether further measures are needed. These mainly include preventive measures but can also include mitigation measures and may be technical or organizational in nature. These analyses are updated periodically, at least every five years, or when facilities are modified. Numerous studies are carried out or revised every year. For example, 29 studies were carried out between 2018 and 2019 concerning sites in the Marketing & Services segment which, at the end of 2019, had 97 SEVESO sites or equivalent.

The accidental risk management systems are in place from the early stage of design and construction of facilities or any modifications to these, as well as during the conduct of activities. They also cover the maintenance of the facility integrities over time as well as the effective and appropriate management of accidents if such events do, nevertheless, occur.

With regard to the design and construction of facilities, the Group has defined technical standards which include applicable statutory requirements and refer to good industrial practices. The construction of the Group's facilities is entrusted to qualified contractors which undergo a demanding internal selection process and which are monitored. In the event of a modification to a facility, the Group's rules define the management process to be adopted.

Furthermore, the Group extended its training program on managing risks of major accidents by proposing, in 2019, on-site training to the operating teams in addition to the training provided at head office. For example, with regard to the Marketing & Services segment, the course on *Understanding of Major Risks and Integrity* was attended by more than 500 participants at 44 subsidiaries between mid-2018 and the end of 2019.

With regard to the management of operations and integrity of facilities, the Group has defined rules to prevent specific operating risks that have been identified either by means of risk analyses or by feedback from the Group and industry. For specific works, the preliminary risk analysis may lead to the establishment of a permit to work, the process of which, from preparation through to closure, is defined. The Group's rules also provide a process to manage the integrity of facilities, which includes, for example, preventive maintenance, facility inspections, identification of safety critical equipment for special monitoring, management of anomalies and downgraded situations, and regular audits. These rules are part of the Group's One MAESTRO reference framework. The operating teams receive regular training in the management of operations in the form of companionship or in-person trainings.

The Group asks subsidiaries operating sites with the potential for a major industrial accident to identify an integrity function to manage this transverse process. Support to subsidiaries is provided by the Major Risks unit of the Group HSE division.

In terms of monitoring indicators, the Group reports the number of Tier 1 and Tier 2 loss of containment as defined by the American Petroleum Institute (API) and the International Association of Oil and Gas Producers (IOGP). The Group sets itself the aim of having fewer than 100 Tier 1 and Tier 2 events in 2019.

This target was largely met in 2019. In addition to the 73 Tier 1 and Tier 2 operational events indicated in the table below, the Group recorded 2 Tier 2 events due to sabotage or theft in 2019.

Loss of primary containment ^(a)	2019	2018	2017 ^(b)
Loss of primary containment (Tier 1)	26	30	28
Loss of primary containment (Tier 2)	47	73	75
Loss of primary containment (Tier 1 and Tier 2)	73	103	103

(a) Tier 1 and Tier 2: indicator of the number of losses of primary containment with more or less significant consequences (fires, explosions, injuries, etc.), as defined by the API 754 (for downstream) and IOGP 456 (for upstream) standards. Excluding acts of sabotage and theft.

(b) Excluding TEP Barnett in 2017.

Despite these measures, two major industrial accidents occurred in 2019, both in France: one at the Île-de-France Pipeline (PLIF) and the other at the Normandy Refinery. In February 2019, a leakage of 900 m³ of hydrocarbons occurred on the PLIF, at Autouillet in the Yvelines department of France. This spill resulted in soil pollution over approximately 4 hectares as well as in pollution of water courses. The remediation operations undertaken are described in point 5.5.2 of this chapter. In December 2019, a major fire occurred in the distillation unit in the Normandy refinery (France). The fire was brought under control using the refinery's own internal resources. It caused important damage but no injuries. These two events gave rise to an analysis in order to draw feedbacks. The other Tier 1 and 2 events had more minor consequences (injuries with lost time, small-scale fire or pollution or with no impact).

In order to manage any major industrial accidental efficiently, the Group has implemented a **global crisis management system** that is based primarily on an on-call system available around the clock, seven days a week, as well as on a dedicated crisis management center at head office that makes it possible to manage two simultaneous crises. The framework provides that subsidiaries draw up plans and procedures for interventions in the event of leaks, fires or explosions and to test these at regular intervals. The intervention teams at the subsidiaries and at the head office practice their crisis management activities regularly on the basis of scenarios identified by the risk analyses. These personnel may follow dedicated training depending on their specific functions. In 2019, 349 individuals followed the "Crisis management" training in the subsidiaries and at head office.

In addition, the Group started to roll out the *Incident Management System* (IMS) in the Exploration & Production subsidiaries in 2019. The IMS is a harmonized system for the management of emergency situations. It is described in an IPIECA good practices guide and is being progressively adopted by the *majors*. In 2019, seven Exploration & Production subsidiaries received training and performed a large-scale exercise in the application of the system. A total of 314 employees have been trained at the subsidiaries and at the head office.

5.4.2 Preventing occupational accidents



The Group's One MAESTRO framework covers three main areas with regard to personal safety: the prevention of occupational accidents, the prevention of transport accidents, and the prevention of major industrial accidents as described in point 5.4 of this chapter. It relates to all employees of Group subsidiaries, employees of contractors working on a site operated by one of these subsidiaries, as well as employees of transport companies under long-term contracts. The safety results are monitored with the same attention for all.

Indicators measure the main results. In addition to its aim of zero fatalities in the exercise of its activities, the Group has set itself the target of continuously reducing the TRIR and, for 2019, of keeping it below 0.85 for all personnel of the Group and its contractors.

Safety indicators	2019	2018	2017
TRIR ^(a) : number of recorded injuries per million hours worked – All Personnel	0.81	0.91	0.88
Group company employees	0.74	0.82	0.89
Contractors' employees ^(b)	0.87	1.01	0.88
LTIR ^(c) : number of lost time injuries per million hours worked – All Personnel	0.48	0.59	0.58
SIR ^(d) : average number of days lost per lost time injury	34	26	28 ^(e)
Number of occupational fatalities	4	4	1

- (a) TRIR: Total Recordable Injury Rate.
- (b) As defined in point 5.11.4 of this chapter.
- (c) LTIR: Lost Time Injury Rate.
- (d) SIR: Severity Injury Rate.
- (e) Excluding Saft Groupe.

The efforts with regard to safety made by the Group over a period of more than 10 years have made it possible to reduce the number of occupational accidents by four between 2009 and 2019. Following a stabilization in performances in 2016 and 2017, the Group saw a 11% reduction in the number of accidents in the year 2019 compared to the results for the previous year. This improvement is due to the Group's **constant efforts** in the field of safety and, in particular, to:

- the implementation of the HSE frameworks, which are regularly updated and audited;
- the prevention of specific risks that are particularly liable to lead to accidents, such as handling loads (ergonomics), road transport, foot traffic;
- training and general familiarization with safety issues for all levels of management (world safety day, special training for managers);
- the HSE communication work, towards all Group's personnel;
- the introduction of safety objectives into the compensation policy for Group employees (see point 5.3.1.2 of this chapter).

The SIR raise between 2018 and 2019 is explained by an increase in accidents with a number of days off, (more than 30 days) especially in the M&S segment and a decrease in the number of accidents with a number of days off (less than 10 days) especially in the iGRP segment.

Despite these measures, fatalities occurred in 2019 among the personnel of contractors during construction work or maintenance operations in Belgium, France, the United States and South Korea. All were related directly or indirectly to work performed at height: fall of a mobile

platform while adjusting a pipe (Belgium), fall of a platform following the detachment of a guardrail (France), fall of a stepladder while dismantling an equipment (USA), fall of a roof being repaired (South Korea).

These fatalities, have led the Group to focus specifically on reaching a new milestone in the prevention of fatal accidents and on achieving "Zero fatal accidents" in the Group. As they are particularly affected, representatives of contractors took part in the corresponding discussions together with operational employees and Group's safety experts. The Group will strengthen its efforts in three priority areas :

- the incorporation in the permit to work process of a ritual to be performed prior to undertaking work at the Group's operated sites (*Safety Green Light*);
- the conduct of joint on-site safety inspections together with the contractors; and
- the intensification of on-site checks in order to measure compliance with the safety rules.

One MAESTRO rule concerning working at height was also reinforced. The progressive implementation of these measures at the Group's operated sites, accompanied by familiarization campaigns to draw attention to the most widespread risks of fatal injury, started in the final quarter of 2019 and will continue in 2020. Finally, on April 28, 2020, the Group will celebrate the World Day for Safety, on the topic of "Our lives matter: Safety Green Light".

In addition, following a fatal accident associated with the explosion of a tank in Egypt in October 2018, the Group rapidly decided to roll out a large-scale accident prevention program focusing on the presumed causes of the accident, in anticipation of the investigation conclusions. Following webinar awareness-raising sessions, special training on risks associated with work at oil tanks was deployed with the involvement of approximately 3,500 participants from 90 countries. This program ended in mid-2019 with the distribution of a feedback document for immediate and mandatory application throughout the Group.

More generally, the Group has, for many years, implemented a process for the analysis of accidents, irrespective of their nature, with the method used and the level of detail involved depending on the actual or potential level of severity of the event. By way of example, a near miss with a high severity potential is treated as a severe accident, and its analysis is considered an essential factor of progress. Depending on its relevance to the other Group entities, it triggers a safety alert and the distribution of feedback, depending on the circumstances.

In the field of **occupational safety**, the Group also introduced, in 2010, the document "Safety at Work: TOTAL's Twelve Golden Rules". This has been widely circulated within the Group and brings together the fundamental rules which must be scrupulously observed by all personnel, whether employees or the staff of contractors, in all the countries and business segments in which the Group is active.

The aim of the Golden Rules is to set out simple, easy-to-remember rules that cover a large number of occupational accidents. In addition, further rules can be found in the One MAESTRO framework, the business segment frameworks and the subsidiaries' frameworks.

According to the Group's internal statistics, more than 32% of severe workplace incidents or high potential severity near misses are related to an unfulfilled Golden Rule. The correct implementation of these rules, and more generally, of all occupational safety procedures, is verified through site visits and internal audits. The Stop Card system, which was set up in 2015, also enables any employee of the Group or a contractor to intervene if any of the Golden Rules are not being followed.

The reporting of anomalies and near misses (approximately 700,000 per year) is strongly encouraged and is permanently monitored. The involvement of each employee in identifying anomalies or dangerous situations is an indicator of the employees' involvement and vigilance in accident prevention and reflects the safety culture within the Group.

In addition, in 2016, the HSE department created a unit bringing together specialists on high-risk operations (work at height, lifting, high-pressure cleaning, excavations, etc.) in order to consolidate in-house knowledge and relations with contractors. In the same year, the Group HSE Division also created a unit aimed at providing support for sites to improve their safety culture upon their request.

In the field of **road transport**, the Group adopted a policy intended to reduce the number of accidents by applying standards that are, in some cases, more stringent than certain local regulations. This policy applies to the Group's personnel and contractors. For example, it comprises a ban on telephoning while driving, even with a hands-free set, a ban on using motorized two-wheeled vehicles for business travel, mandatory training for drivers, strict technical specifications for vehicles. Additional requirements are defined depending on the level of road traffic risks in the country and the nature of the activity. Thus, in countries with high road traffic risks, vehicles are equipped recorders of driving parameters and the conduct of drivers is monitored. Since 2012, a large-scale inspection program of transport contractors has also been rolled out by Marketing & Services. This calls on independent transport experts who inspect the practices and processes adopted by transport contractors with regard to the recruitment and training of drivers, vehicle inspections and maintenance, route management, and the HSE management system. Depending on the results of the inspection, transport contractor may be included in or excluded from the list of contractors approved by the Group. This program is gradually being extended to the Group's other business segments as required. Furthermore, a training center exists since 2015 in Radès in Tunisia. It offers transport trainings to the personnel of Marketing & Services subsidiaries and to transport contractors that are interested.

To measure the results of its policy, the Group has, for many years, been monitoring the number of severe road accidents involving its employees and those of contractors. The 27% reduction in the number of serious injuries between 2016 and 2019 is a testimony to the efforts that have been made. In 2019, the number of serious road accidents increased compared to 2018. However, there was no transport-related fatality.

The projects launched in 2018 on the use of new technologies for the prevention of road accidents were continued in 2019. In Marketing & Services, a new action plan has been introduced covering the fields of drivers' behaviour, vehicles and preparation for emergency situations. In particular, the decision was taken to fit more than 2,500 vehicles with fatigue detection systems following conclusive tests performed over a period of several months. In addition, the second part of the SafeDriver video campaign was launched in 2019 and will continue until 2021. The subjects chosen for 2019 were blind spots, driver tiredness and driving in difficult situations.

Number of severe road accidents ^(a)	2019	2018	2017
Light vehicles and public transport ^(b)	9	7	11
Heavy goods vehicles ^(b)	24	23	26

(a) Overturned vehicle or other accident resulting in the injury of a crew member (declared incident).

(b) Vehicles on long-term contract with the Group (> 6 months).

With regard to **air transport**, a carrier selection process exists to limit the risks relating to travel by Group and contractor's employees, if their journey is organized by the Group. This process is based on data provided by recognized international bodies: the International Civil Aviation Organization (ICAO), the IATA Operational Safety Audit (IOSA), the International Association of Oil and Gas Producers (IOGP), and civil aviation authorities recommendations. Airlines that do not have a rating from an international body are assessed by an independent body commissioned by the Group.

Preventive actions in the field of health, safety and the environment require all employees to adhere to the Group's safety policies. To this end, the Group provides **training intended for various groups** (new arrivals, managers, senior executives and directors) in order to establish a broad-based, consistent body of knowledge that is shared by everyone:

- **Safety Pass**: These safety induction courses were started on January 1st, 2018, for new arrivals within the Group. Various courses exist depending on the position and cover the Company's main HSE risks, the risks linked to the site activities as well as those linked to the workplace. The theoretical content is supplemented by practical "life-saving" training sessions;
- **HSE for Managers** is aimed at current or future operational or functional managers within one of the Group's entities. Sessions are offered on all continents where TOTAL operates. In 2019, seven sessions, including four held internationally, brought together more than 287 managers;
- **Safety Leadership for Executives** is intended for the Group's senior executives. Its objective is to give senior executives the tools allowing them to communicate and develop a safety culture within their organization. The updated version of this course was validated during pilot sessions held in 2019. Five sessions were attended by more than 85 senior executives in 2019. The target is for all senior executives to have taken the new module within three years.

In order to ensure and reinforce knowledge of the HSE framework documents, a tool designed to evaluate HSE-related knowledge and containing over 3,000 multiple-choice questions was developed in 2018 for use by the Group's HSE managers of subsidiaries or operated sites. This tool makes it possible to assess their knowledge and decide on a suitable training plan, if necessary. In 2019, 125 HSE managers took part in this knowledge assessment which corresponds to about half of the targeted population. The goal is to have the entire population assessed within 3 years.

In addition to the training measures, the HSE division is responsible for **regular communicating and animation on HSE-related topics**. Each month, central experts and specialists communicate a set of rules and good practices internal and external. In addition, 24 seminars, webinars or symposia involving the Group's subsidiaries were led by the HSE division in 2019.

Finally, safety, as a core value of TOTAL, is a component of the **Group's employee compensation policy** since 2011 at all level of the Company (refer to point 5.3.1.2 of this chapter).

With regard to **security**, the Group has put in place means to analyze threats and assess risks in order to take preventive measures to limit its exposure to security risks in the countries where it operates.

5.4.3 Preventing occupational health risks



With regard to the prevention of occupational health risks, the Group One MAESTRO framework provides that subsidiaries of the Group identify and assess risks at the workplace in the short, medium and long terms and also provides guides for implementation. The analysis of these health risks relates to chemical, physical, biological, ergonomic and psychosocial risks. The framework results in the roll-out of an action plan. In addition, it requires that each Group entity sets out a formal medical monitoring procedure taking into account the requirements under local law (frequency, type of examination, etc.) and the level of exposure of its personnel to the various risks.

To complement this program, the Group has set up an employee health observation committee. The aim is to monitor the health of a sample of employees in order to identify the emergence of certain illnesses and, if applicable, suggest appropriate preventive measures. The data, which is gathered anonymously during medical examinations, covers approximately 10% of Group employees worldwide.

The Group also has a Medical Advisory Committee that meets regularly to discuss key health issues relating to the Group's activities. It decides whether there is a need for additional health protection strategies to be implemented. It consists of external scientific experts and also brings together the Group's senior executives and stakeholders concerned by these issues.

The Group has set itself the priority of preventing psychosocial risks (PSR). Therefore, it has launched a global voluntary program for the prevention of PSR that is intended to support all employees exposed to such risks, wherever they are in the world.

The global PSR prevention program is based on four areas of activity:

- a minimum level of awareness and training for all through the distribution of a prevention kit, which has been translated into 11 languages and validated by international experts. This forms the starting point for all training activities;
- a single system for measuring individual stress and a collective assessment of the psychosocial risk factors in the working environment. This facilitates the production of action plans;
- a system for listening to and supporting all employees, irrespective of their geographical location. Supervised by international experts and available in more than 40 languages, it provides, as far as possible, care and support to employees in their mother tongue and in accordance with their specific cultural environment;
- regular monitoring of the indicators for enhanced control of the system. The implemented mechanism guarantees anonymity, confidentiality and the security of personal data during the entire period of support.

All Group subsidiaries must ensure that they implement the Group's PSR prevention program or an equivalent local program.

A Quality of Life at Work and Health working group was set up in September 2018 to coordinate and ensure the effectiveness of all of the actions taken. Led by the Group Human Resources division, all of TOTAL's business segments are represented, including the international medical department. In particular, the working group has the task of identifying the PSR reference persons for each Group subsidiary. At December 31, 2019, 153 PSR reference persons had been identified. In their respective subsidiaries, they actively contribute to the implementation of the four priority areas of action.

On a broader level, TOTAL is also helping to promote individual and collective health programs in the countries where it operates, including vaccination campaigns and screening programs for certain diseases (AIDS, cancer, malaria, etc.) for employees, their families and local communities. Action is also taken regularly to raise awareness of lifestyle risks (anti-smoking and anti-drinking campaigns, etc.).

Every year, in order to share information on the Group's progress in the area of Industrial Hygiene, the Group organizes a technical day of discussions on different subjects with the concerned business segments.

The Group has put in place the following indicators to monitor the performance of its program:

Health indicators (WHRS scope)	2019	2018	2017
Percentage of employees with specific occupational risks benefiting from regular medical monitoring	98%	98% ^(a)	98%
Number of occupational illnesses recorded in the year (in accordance with local regulations)	128	154	143

(a) As an exception to the reporting principles described in section 5.11 of this chapter, the 2018 rate does not include a company that did not report its data in time for the 2018 WHRS.

Musculoskeletal disorders, the main cause of occupational illnesses in the Group, represented 67% of all recorded illnesses in 2019, against 69% in 2018. The Group assesses ergonomic risks in accordance with a methodology defined above and trains personnel at its sites in the prevention of musculoskeletal disorders.

5.4.4 Limiting risks for the health and safety of consumers



Unless certain precautions are taken, some of the petroleum or chemical products marketed by TOTAL pose potential consumer health and safety risks. The Group aims to respect the regulatory requirements in order to limit the risks throughout the life cycle of its products.

The Group has also defined the minimum requirements to be observed in order to market its petroleum or chemical products worldwide with the goal to reduce potential risks to consumer health and the environment. The identification and assessment of the risks inherent to these products and their utilizations form part of these requirements, as does the

provision of information to consumers. The material safety data sheets that accompany the petroleum or chemical products marketed by the Group (available in at least one of the languages used in the country) as well as product labels are two key sources of information.

The implementation of these requirements is monitored by specialist units in Refining & Chemicals and Marketing & Services segments of the Group. The task of these units is to ensure the preparation of safety documentation for the marketed petroleum or chemical products so that they correspond to the applications for which they are intended and to the applicable regulations. They therefore draw up the material safety data sheets, compliance certificates (contact with food, toys, pharmaceutical packaging, etc.) and ensure REACH registration, if necessary. They also monitor scientific and regulatory developments and verify the rapid implementation of new sheets and updates within the Group entities.

Governance of the process is rounded off within the Group's *business units* or subsidiaries of Refining & Chemicals and Marketing & Services segment through the designation of a product steward who ensures compliance during the market release of his or her entity's petroleum or chemical products. The networks of product steward are coordinated by the Group's specialist units either directly or via an intermediate regional level in the case of the Marketing & Services segment.

The safety data sheets for oil and gas produced by the Exploration & Production and of Integrated Gas, Renewables & Power subsidiaries are produced by the Marketing & Services expertise center. The conformity of the marketing process of these products is ensured by the subsidiary.

Finally, the Group has set up an intersegmental working group that works on the harmonization of practices and classifications for the petroleum or chemical products common to the different segments, as well as on the development of good practices.

5.5 Environmental challenges



TOTAL places the environment at the heart of its ambition of being a responsible company. The specificities of the Group's activities incur environmental risks, for which TOTAL has developed a structured management policy.

The Group has therefore identified its main environmental challenges:

- preventing risks of accidental pollution;
- limiting its environmental footprint by managing energy consumption, emissions in natural environments (water, air, soil) and use of natural resources;
- managing impacts to biodiversity and ecosystems during projects and operations especially when situated in sensitive natural environments;
- limiting its production of residual waste by supporting the circular economy.

To address its challenges, TOTAL relies on the HSE division, which is part of the People & Social Responsibility division, whose President is a member of the Executive Committee. In particular, the HSE division is tasked with defining the HSE strategy and policies of the Group in line with the business challenges and the *One Total* Company project.

The HSE division manages in an integrated manner the environmental, security, health and societal challenges associated with the Group's operations. It coordinates the implementation of the Group's Health, Safety, Environment and Quality charter by defining and monitoring the implementation of the One MAESTRO reference framework. This reference framework and the corresponding audits are described in detail in point 5.4 of this chapter.

Environmental indicators have been monitored for many years in order to constantly adapt the Group's environmental protection measures, which are presented in this section.

5.5.1 General policy and environmental targets



In keeping with its Safety Health Environment Quality charter, TOTAL considers respect for the environment to be a priority. All employees, at every level, must do their utmost to protect the environment as they go about their work. TOTAL strives to control its energy consumption, its emissions in natural environments (water, air, soil), its residual waste production, its use of natural resources and its impact on biodiversity. TOTAL takes a constructive approach on this topic that is based on transparency and dialogue when communicating with its stakeholders and third parties.

To this end, the HSE division and the HSE departments within the Group's entities seek to ensure both applicable local regulations and internal requirements resulting from the Safety Health Environment Quality Charter and the Group's additional commitments are respected. Group steering bodies, led by the HSE division, are tasked with:

- monitoring TOTAL's environmental performance, which is reviewed annually by the Audit Committee, for which multi-annual improvement targets are set;
- handling, in conjunction with the business segments, the various environment-related subjects of which they are in charge; and
- promoting the internal standards to be applied by the Group's operational entities.

The Group's environmental progress targets^(a):

- decrease sulfur dioxide (SO₂) emissions into the air by 50% between 2010 and 2020;
- valorize more than 50% of the waste produced by the sites operated by the Group;
- maintain the hydrocarbon content of water discharges below 30 mg/l for offshore sites and below 15 mg/l for onshore and coastal sites.

Moreover, the Group is committed to:

- systematically develop biodiversity action plans for production sites located in protected areas⁽¹⁾;
- not conducting oil and gas exploration or production operations in the area of natural sites listed on the UNESCO World Heritage List⁽²⁾;
- not conducting exploration in oil fields under sea ice in the Arctic.

(a) For the climate change targets, refer to point 5.6 of this chapter.

What has been accomplished:

- more than 50% reduction in sulfur dioxide (SO₂) emissions into the air reached since 2017;
- more than 50% of the waste produced by the sites operated by the Group was valorized in 2019;
- 100% of the Group's oil sites have met the target for the quality of onshore discharges since 2016 and 100% of the Group's oil sites met the target for the quality of offshore discharges in 2019;
- six biodiversity action plans deployed or in preparation in 2019;
- no oil and gas exploration or production activity in the area of natural sites listed on the UNESCO World Heritage List⁽²⁾; and
- no exploration activity in oil fields under sea ice in the Arctic.

The Group's internal requirements state that the environmental management systems of the sites operated by the Group that are important for the environment⁽³⁾ must be ISO 14001 certified within two years of start-up of operations or acquisition: 100% of these 77 sites were compliant in 2019. Beyond these internal requirements, at the end of 2019, a total of 281 sites operated by the Group were ISO 14001 certified. In 2019, 7 sites were newly ISO 14001 certified.

The internal rules stipulate that all projects of investment, divestment or acquisition submitted to the Risk committee of the Group must be assessed and reviewed with regards to their risks and potential impact, particularly environmental, before the final investment decision is made.

TOTAL seeks to ensure that all employees share its environmental protection requirements. Employees receive training in the required skills. TOTAL also raises employee awareness through internal communication campaigns (e.g., in-house magazines, intranet, posters). The 2019 World Environment Day focused on good practices that protect biodiversity on the Group's sites. To mark the occasion, instructive materials were developed to teach employees more about biodiversity.

5.5.2 Preventing risks of accidental pollution



To prevent incident risks and, in particular, major spills that could reach the environment, TOTAL implements appropriate policies of risk management. Point 5.4.1 of this chapter describes the management measures covering the design and construction of facilities, changes to existing facilities, operations and the control of the integrity of facilities. It also describes the measures taken to control the integrity of facilities over time.

For its sea and river shipment requirements, TOTAL only charters ships and barges that meet the highest international standards. The Group has an internal policy that lays down the process and criteria by which ships and barges are selected (known as vetting). These criteria are based, in particular, on the regulations, the best practices and recommendations of the OCIMF⁽⁴⁾ and, in Europe, on the European Barge Inspection Scheme (EBIS). Tankers and barges are vetted by a single centralized Group entity. The average age of the Group Shipping division's time-chartered fleet is approximately six years.

With regard to operated marine terminals, the Group follows an initiative that seeks to record their physical characteristics and store this data in a global database that forms part of the Marine Terminal Information System (MTIS) of the OCIMF. At the end of 2019, 95% of coastal and offshore marine terminals had submitted their characteristics, thereby

making it easier to assess the compatibility of ships with the ports of call. Additionally, TOTAL encourages all maritime terminals to use the *Marine Terminal Management Self-Assessment (MTMSA)*, the framework recommended by the industry for the self-assessment of terminals and the continuous improvement of the safety of product transfers. A training course on ship/shore interface management (SSSCL – Ship Shore Safety Check List) and cargo transfer operations, developed by the Group in 2016, had been completed by operators of 80% of operated-terminals by the end of 2019.

In order to manage a major accidental spill efficiently, TOTAL implemented a global crisis management system that is described in point 5.4.1 of this chapter.

For the sites operated by the Group exposed to the risk of accidental spills that reach the surface water, this system is supplemented by the requirements of the One MAESTRO reference framework. These requirements demand that the oil spill contingency plans be regularly reviewed and tested in exercises. These plans are specific to each site and are adapted to their structure, activities and environment while complying with Group recommendations.

(1) Sites located in an IUCN I to IV or Ramsar convention protected area.

(2) Natural sites included on the UNESCO World Heritage List of December 31, 2018.

(3) Sites that emit more than 30 kt of CO₂ per year.

(4) OCIMF (Oil Companies International Marine Forum): An industry forum including the leading worldwide oil companies. This organization manages, in particular, the Ship Inspection Report (SIRE) Program, which holds and provides access to tanker and river barge inspection reports (Barge inspection Questionnaire – BIQ).

The Group companies can call on in-house human and material resources (Fast Oil Spill Team, FOST) and benefit from assistance agreements with the main third-party organizations specialized in the management of hydrocarbon spills.

For the oil and gas exploration & production activities, since 2014, subsea capping and subsea containment equipment that can be transported by air has been strategically positioned at various points of the world (South Africa, Brazil, Norway and Singapore). This equipment provides solutions that are readily available in the event of oil or gas blowout in deep offshore drilling operations. From these locations, the equipment can benefit TOTAL's operations worldwide. This equipment was developed by a group of nine oil companies, including TOTAL, and is managed by Oil Spill Response Ltd (OSRL), a cooperative dedicated to the response to marine pollution by hydrocarbons.

TOTAL has also designed and developed its own capping system ("Subsea Emergency Response System") to stop potential eruptions in drilling or production operations as quickly as possible. Since 2015, equipment has been installed in Angola, then the Republic of Congo, potentially covering the entire Gulf of Guinea region. In March 2019, one of these pieces of equipment was deployed and tested at more than 1200 m water depth during a large-scale exercise in Nigeria.

Oil spill preparedness	2019	2018	2017
Number of sites whose risk analysis identified at least one risk of major accidental pollution to surface water ^(a)	128	126	126
Proportion of those sites with an operational oil spill contingency plan	100%	99%	91%
Proportion of those sites that have performed at least one oil spill response exercise during the year	91%	86% ^(b)	95%

(a) The variation of the number of sites is due to perimeter variation.

(b) The decrease compared to 2017 corresponds mainly to two subsidiaries where equipment was being refurbished in 2018.

5.5.3 Limiting the environmental footprint



Wherever TOTAL conducts its business, it makes sure that it complies with applicable laws and regulations, which the Group complements with specific requirements and commitments when necessary. TOTAL implements a policy of avoiding, reducing, managing and monitoring the environmental footprint of its operations. As part of this policy, emissions are identified and quantified by environment (water, air and soil) so that appropriate measures can be taken to better control them.

Water, air

The Group's operations generate emissions into the atmosphere from combustion plants and the various conversion processes and discharges into wastewater. In addition to complying with applicable legislation, the Group drew up a guide that the Group subsidiaries can use to limit the quantities discharged. More particularly, the Group set itself targets for the reduction in sulfur dioxide (SO₂) emissions and committed to limiting its hydrocarbons discharges in water. After analyses have been conducted, the exposed sites can introduce various reduction systems that include organizational measures (such as using predictive models to control peaks

In accordance with industry best practices, TOTAL monitors accidental liquid hydrocarbon spills of more than one barrel. Spills that exceed a predetermined severity threshold are reviewed on a monthly basis and annual statistics are sent to the Group Performance Management Committee. All spills are followed by corrective actions aimed at returning the environment to an acceptable state as quickly as possible.

Accidental liquid hydrocarbon spills of a volume or more than one barrel that affected the environment, excluding sabotage

	2019	2018	2017
Number of spills	57	74	62
Total volume of spills (thousands of m ³)	1.2	0.3	0.5

In February 2019, 900 m³ of hydrocarbons leakage from the Île-de-France pipeline (PLIF) in Autouillet, which was the largest oil and gas spill impacting the environment in 2019. This spill polluted about four hectares of soil and watercourses. All the banks were cleaned, traces of oil were removed from the watercourses, 800 m³ of a mix of water and oil were disposed of, 49,000 m³ of earth were excavated and the groundwater was checked for signs of impacts. This process was monitored by more than 3,000 laboratory analyses of the environment (water, air, soil). In 2020, a further 3,000 m³ of earth will be excavated and disposed of, and the ground and surface water will continue to be monitored.

in sulfur dioxide (SO₂) emissions based on weather forecast data and the improvement of combustion processes management, etc.) and technical measures (wastewater treatment plants, using low NO_x burners and electrostatic scrubbers, etc.). Today, all the refineries owned exclusively by the Group have this type of system.

For new facilities developed by the Group, the internal rules require impact assessments to be carried out on these emissions and, if necessary, actions must be taken to limit their impact.

In 2010, SO₂ emissions reached 99 kt. The Group set itself the target of not exceeding 49.5 kt by 2020; it has met this target since 2017.

Chronic emissions into the atmosphere ^(a)	2019	2018	2017
SO ₂ emissions (kt)	39	48	47
NO _x emissions (kt)	72	66	69

(a) Refer to point 5.11 of this chapter for the scope of reporting.

SO₂ emissions that are likely to cause acid rain are regularly checked and reduced. The decrease in these emissions in 2019 is mainly due to a decrease in activity at refining units and the implementation of a more stringent policy concerning acid gas flaring by the Exploration & Production segment in the United Arab Emirates.

NOx emissions mainly concern hydrocarbon exploration and production activities and are primarily located offshore and far away from the coast. Their impact on air quality is therefore considered to be minor. The increase in 2019 is mainly due to an increase in offshore drilling and logistics activities.

Discharged water quality	2019	2018	2017
Hydrocarbon content of offshore water discharges (in mg/l)	13.0	14.1	17.7
% of sites that meet the target for the quality of offshore discharges (30 mg/l)	100% ^(a)	96% ^(a)	100% ^(a)
Hydrocarbon content of onshore water discharges (in mg/l)	1.7	1.8	2.4
% of sites that meet the target for the quality of onshore discharges (15 mg/l)	100%	100%	100%

(a) Alwynn site (United Kingdom) excluded, as its produced water discharges only occur during the maintenance periods of the water reinjection system and are subject to a specific regulatory authorization.

Soil

The risks of soil pollution related to TOTAL's operations come mainly from accidental spills (refer to point 5.5.2 of this chapter) and waste storage (refer to point 5.5.5 of this chapter).

The Group has drawn up a guide that the subsidiaries can use to prevent and contain this pollution. The guide recommends an approach based on four pillars:

- preventing leaks, by implementing, as far as possible, industry best practices in engineering, operations and transport;
- carrying out maintenance at appropriate frequency to minimize the risk of leaks;
- overall monitoring of the environment to identify any soil and groundwater pollution; and
- managing any pollution from previous activities by means of containment and reduction or elimination operations.

In addition, a Group rule defines the following minimum requirements:

- systematic identification of each site's environmental and health impacts related to possible soil and groundwater contamination;
- assessment of soil and groundwater contamination based on various factors (extent of pollution inside or outside the site's boundaries, nature and concentrations of pollutants, presence of a vector that could allow the pollution to migrate, use of the land and groundwater in and around the site); and
- management of health or environmental impacts identified based on the use of the site.

Lastly, decommissioned facilities operated by the Group (i.e., chemical plants, service stations, mud pits or lagoons resulting from hydrocarbon extraction operations, wasteland on the site of decommissioned refinery units, etc.) impact the landscape and may, despite all the precautions taken, be sources of chronic or accidental pollution. In addition to the appropriate management of waste produced by the dismantling and securing of sites, TOTAL has created a policy to evaluate and manage

the risks related to soil and groundwater pollution. For sites at the end of their life cycle, management of pollution takes into account regulatory obligations as well as the aim of the Group to retain control over the use of these sites, favoring redevelopment its activities (solar, reforestation, etc.) Remediation operations are conducted by specialized entities created by the Group. At the end of 2019, 114 industrial sites that were no longer in operation (excluding service stations) were in the process of remediation.

The Group's provisions for the protection of the environment and site remediation are detailed in Note 12 to the Consolidated Financial Statements (refer to point 8.7 of chapter 8).

Sustainable use of resources

Fresh water

The Group's activities, mainly those of Refining & Chemicals, and to a lesser extent those of the Exploration & Production and the Integrated Gas, Renewables & Power segments, may potentially have an impact on, as well as be dependent on, water resources. This is especially true when an activity is located in a water resources sensitive environment.

Fully aware of these challenges, TOTAL implements the following water risk management actions:

- monitor water withdrawals to identify priority sensitive sites and then carry out a risk assessment;
- improve the water resources management depending on identified needs, by adapting the priority sites' environmental management system.

In order to identify its facilities exposed to the risk of water stress, TOTAL records the withdrawal and discharge of water on all of its operated sites for this indicator and assesses these volumes on the basis of the current and future water stress indicators of the WRI⁽¹⁾ Aqueduct tool. Currently, 9.3%⁽²⁾ of freshwater withdrawals take place in a global water stress area. For the sites situated in these areas and that withdraw more than 500,000 m³ per year, TOTAL assesses water resources risk levels using, in particular, the Local Water Tool (LWT) for Oil & Gas from the Global Environmental Management Initiative (GEMI). This tool also helps guide the actions taken to mitigate the risks and to make optimal use of water resources on the sites when necessary.

This risk assessment establishes that the activities of the sites operated by the Group only expose the other users of the water to a relatively low risk of water stress. Following this assessment, two sites were identified in 2019 as being at risk and were reported to the CDP⁽³⁾: the Grandpuits and Normandy refineries. The risk concerns the supply of water to these sites, which could be cut in order to maintain access to water for priority users. In 2020, the analysis process is expected to be extended to four additional sites.

In 2019, the Group answered the CDP Water survey for the 2018 period and was, for the third consecutive year, graded A-. The main indicator used in this reporting is fresh water withdrawal.

Water-related indicator ^(a)	2019	2018	2017
Fresh water withdrawals excluding cooling water (million m ³)	115	116	116

(a) Refer to point 5.11 of this chapter for the scope of reporting.

(1) World Resources Institute.

(2) According to CDP Water 2018 definition.

(3) Non-profit organization that offers environmental reporting services for investors, enterprises, city authorities, States and regional authorities.

Soil

TOTAL uses the ground surface that it needs to safely conduct its industrial operations and, in 2019, did not make extensive use of ground surfaces that could substantially conflict with various natural ecosystems or agriculture.

Worldwide, biofuels used by the Group meet sustainability requirements as per regulations. TOTAL produces and markets biofuels partly produced from agricultural raw materials. All the biofuels incorporated by the Group in Europe are certified as sustainable ISCC EU type certification according to the criteria required by the European Union. This certification imposes criteria of sustainability and traceability of

the oils (carbon footprint, non-deforestation, proper soil use, respect for Human Rights). Those criteria apply to the entire production and distribution chain of the sustainable biofuels and were strengthened in 2019 as part of the revision of the Directive on renewable energy in transport. In particular, the European Union caps the use of agriculture raw materials in biofuels to limit changes in land use.

In July 2019, TOTAL started up the La Mède biorefinery in France that is expected to produce biofuels from 60-70% of vegetable oils (rape, palm, etc.) and 30-40% of waste and residues. TOTAL selects a limited number of suppliers of palm oil and completes the certification with a specific reinforced control system of sustainability and the respect of human rights.

5.5.4 Managing impacts to biodiversity and ecosystems during projects and operations



TOTAL's activities may potentially be located in sensitive natural environments.

The Group is fully aware of this challenge and takes biodiversity and ecosystems into account in its reference frameworks, the founding element of which is its Safety Health Environment Quality charter, as well as in its projects and operations. Thus, for new facilities developed by the Group, internal rules require that impact assessment taking into account biodiversity and ecosystems be carried out and that action be taken if necessary. For existing facilities, the Group recommends that its subsidiaries apply the avoid – reduce – restore – compensate approach.

In July 2018, and within the framework of the Act4Nature initiative, the Group made 16 biodiversity commitments to make this policy more tangible. The 16 commitments are described in the biodiversity brochure available on the website sustainable-performance.total.com. There are 10 general commitments common to all of the signatory companies and an additional six commitments specific to TOTAL, some of which existed before the initiative. These differentiate the Group from its competitors.

The commitments are currently being implemented. A review of the actions that have already been performed on the first three priority commitments is provided below.

TOTAL commitments

Commitment No. 1

The Group extended its commitment not to engage in oil and gas exploration or extraction operations at natural sites included on the UNESCO World Heritage List of December 31, 2018.

Achievements

This commitment is respected.

Commitment No. 2

TOTAL does not conduct any oil exploration activities in oil fields under sea ice in the Arctic.

The Group publishes on its website sustainable-performance.total.com, a list of its licenses in the Arctic. In 2019, no exploration activities have been conducted in the oil fields under sea ice in the Arctic.

Commitment No. 3

TOTAL develops biodiversity action plans for operated production sites located in the most sensitive protected areas.

A biodiversity action plan has been developed for all the operated production sites located in the most sensitive protected areas, corresponding to the UICN I to IV and Ramsar categories. Consequently, the biodiversity action plan developed in 2015 for Djeno in the Republic of the Congo is still being implemented, particularly with regards to the ecosystem services of Lagune de la Loubie. Other action plans are deployed in Italy (Tempa Rossa project) and in Mozambique (Mozambique LNG project) or are being prepared but not yet deployed in Uganda (Tilenga project), Tanzania (EACOP project) and Papua New Guinea (Papua LNG project).

In order to continue sharing its biodiversity data and tools with the scientific community, the Group joined the international Global Biodiversity Information Facility (GBIF), the French hub of which is the French National Natural History Museum. The first data loaded concerns the Group's projects in Angola⁽¹⁾. Data loading will continue in 2020 with, for example French, Guiana. TOTAL is the first major to join GBIF.

In addition, the collaboration program with the University of Oxford in United Kingdom (Long Term Ecology Laboratory), in partnership with Equinor, has continued. Initiated in 2018, the aim of this program is to develop a tool for screening of marine biodiversity sensitivities. Its simplified version is online⁽²⁾ and is accessible to the public. A more complete version, initiated in 2019, is scheduled for the end of 2020.

(1) 324 data on the initial state of the seabed and the observation of marine mammals.

(2) LEFT Marine (Local Ecological Footprint Tool).

Finally, in 2019, communication actions were carried out in order to raise awareness of biodiversity among Group employees. The United Nations World Environment Day was celebrated on the theme of Biodiversity. On this occasion, the Act4Nature commitments and the Group's Biodiversity actions were presented. Around 30 employees from the

headquarter offices also benefited from training provided by the French National Natural History Museum following this event. In addition, around 350 employees were made aware of the Group's commitments during the Group's One HSE seminar.

5.5.5 Promoting a better use of natural resources by supporting the circular economy



Between 2017 and 2020, TOTAL is rolling out a range of actions that includes targets for progress in various areas:

- valorize more than 50% of the waste produced by the sites operated by the Group;
- improve by an average of 1% per year the energy efficiency of the Group's operated industrial facilities;
- incorporate a criterion dedicated to the circular economy into the Company's purchases.

Additionally, TOTAL has set itself the target of:

- producing 30% of its polymers from recycled materials by 2030 (the commitment published in 2018 to develop polymers comprising more than 50% of recycled plastics was achieved in 2019);
- installing solar panels on 5,000 service stations.

What has been accomplished:

- more than 50% of the waste produced by the sites operated by the Group was valorized in 2019;
- the Group reached its energy efficiency target in 2017 (refer to point 5.6.4 in this chapter);
- production of 20,000 tons of recycled polypropylene per year and, further to the conclusive industrial-scale tests, creation and marketing of 15 grades of polyethylene, polypropylene and polystyrene compounds containing up to 50% of recycled materials;
- by the end of 2019, solar panels had been installed on 1,436 service stations.

With regards to food waste and food poverty, the Group's activities pertaining to food distribution are minor and are therefore not directly affected by these issues.

Waste prevention and management

Regarding waste in particular, a Group directive lays down a number of minimum waste-management requirements, which limit the potential risks associated with the improper management of waste. Waste management is carried out in four basic stages: waste identification (technical and regulatory); waste storage (soil protection and discharge management); waste traceability, from production through to disposal (e.g., notes, logs, statements); and waste treatment, with technical and regulatory knowledge of the relevant processes, under the site's responsibility.

The Group's companies are also focused on controlling the waste produced on all of the operated sites, at every stage in their operations. This approach is based on the following four principles, listed in decreasing order of priority:

- reducing waste at source by designing products and processes that generate as little waste as possible, as well as minimizing the quantity of waste produced by the Group's operations;

- reusing products for a similar purpose in order to prevent them from becoming waste;
- recycling residual waste; and
- recovering energy, wherever possible, from non-recycled products.

TOTAL deploys programs on its operated sites to valorize the majority of the Group's waste. In 2019, the active sites operated by the Group generated 662kt of waste of which 288kt of hazardous waste. The Group's target is to valorize more than 50% of the waste produced by these sites. This target was achieved:

Waste treatment processes ^(a)	2019 ^(c)	2018	2017
Valorization (recycling, material or energy valorization) ^(b)	65%	57%	59%
Landfill	15%	18%	13%
Others (incineration without valorization, biotreatment without valorization, etc.)	20%	25%	28%

(a) Excluding drilling cuttings, excluding sites that have ceased operations and are in the process of being remediated.

(b) The valorization percentages of 2017 and 2018 exclude excavated soil in the scope of the Port Arthur Ethan Cracker project. It was exceptional non-hazardous waste associated with the construction of a new installation which was used as soil cover in a landfill. Refer to point 5.11 of this chapter for the scope of reporting.

(c) The tonnages of waste from 10 Hutchinson sites were estimated in 2019 based on their 2018 reporting. Waste from those 10 sites represented around 1% of the Group's total tonnage in 2018.

The increase in the valorization percentage in 2019 is mainly due to the valorization, at the biological treatment center, of 83kt of polluted soil resulting from remediation work related to the incident on the Île-de-France pipeline. The Group's valorization percentage would have been 60% without this soil.

Since 2015, all the Refining & Chemicals segment's plastic production sites worldwide are participating in the CleanSweep® program, which aims to achieve zero loss of plastic pellets in handling operations. CleanSweep® is an international program that aims to avoid losses of plastic pellets during handling operations by the players in the plastics industry, so that they are not disseminated into the aquatic environment. Since 2018, the program has been deployed at all polymer sites in the Refining & Chemicals segment.

Additionally, TOTAL is a founding member of the Alliance to End Plastic Waste, launched in 2019, which brings together 42 companies in the plastics and consumer goods value chain. The Alliance's objective is to finance, to the extent of \$1.5 billion over five years, the development of solutions for the reduction and treatment (reuse, recycling and recovery) of used plastics in the environment, particularly in the oceans.

Developing polymers from recycled plastics

TOTAL has set itself the target of producing 30% of its polymers from recycled materials by 2030. The Group is working to achieve this goal by using all types of recycling to produce high-performance recycled polymers:

- in the field of mechanical recycling, in 2019 the Group acquired Synova, France's leading producer of high-performance recycled polypropylene for the automotive industry. At the same time, TOTAL announced its decision to double Synova's production capacity to about 40,000 tons of recycled polypropylene per year by 2021;
- TOTAL has joined forces with the plastic recycling technology provider Recycling Technologies, Nestlé and Mars, both world leaders in the food processing sector, to develop an innovative chemical recycling process on an industrial scale in France. This unique consortium of world leaders in the packaging value chain is studying the technical

and economic feasibility of recycling complex food-grade plastic waste, such as small and soft packaging, or multi-layer packaging. Today, these products are considered to be non-recyclable and are incinerated or disposed of on landfill sites;

- TOTAL produces circular compounds that contain at least 50% of recycled materials and possess the same properties as virgin polymers. More than 15 grades of polyethylene, polypropylene and polystyrene compounds containing up to 50% of recycled materials are already marketed.

The Group is also working on the diversification of its supply sources, notably biosourced. TOTAL is one of the world leaders in bioplastics. In Thailand, Total Corbion PLA, 50% owned by TOTAL, operates a plant with a capacity of 75,000 tons per year of PLA, a recycled and 100% biodegradable bioplastic. The operational launch was in 2019.

5.6 Climate change-related challenges



TOTAL's ambition is to become the responsible energy major. The Group is committed to contributing to the United Nations Sustainable Development Goals, particularly with regards to those subjects that are connected to climate change and the development of more affordable, more available and cleaner energy for as many people as possible.

The Group has therefore identified the following main challenges in the realm of climate change:

- reduce the greenhouse gas emissions (GHG) of its operated oil & gas activities including methane emissions;
- implement a strategy allowing to reduce the carbon intensity of the energy products used by its customers;
- identify and support technologies and initiatives that help respond to the challenges of climate change.

5.6.1 Governance



In order to make an effective contribution to the climate change issue, TOTAL relies on an organization and structured governance. The Group has defined four strategic focuses that integrate the climate change-related challenges.

In support of the Group's governance bodies, the Strategy and Climate division shapes the Group's approach to climate change while working with the strategic and operational divisions of the Group's business segments. By monitoring indicators, progress can be measured and the Group's actions can be adjusted.

Oversight by the Board of Directors

TOTAL's Board of Directors ensures that climate-related issues are incorporated into the Group's strategy and examines climate change risks and opportunities during the annual strategic outlook review of the Group's business segments. The Board of Directors examines the Group's GHG emissions reduction targets and reviews its performance on an annual basis.

To carry out its work, the Board of Directors relies on its Strategy & CSR Committee, whose rules of procedure were changed in September 2017 then in July 2018 in order to broaden its missions in the realm of CSR and in questions relating to the inclusion of climate-related issues in the Group's strategy.

Aware of the importance of climate change challenges, in 2019, the Board of Directors decided to change the criteria for the determination of the variable portion of the Chairman and Chief Executive Officer's compensation for the year 2019. Among others, by applying a quantifiable criterion related to the evolution of GHG emissions (Scopes 1 & 2) on operated oil & gas facilities (refer to section 4.3.2 of chapter 4). This criterion completes those introduced in 2016 to take better account of the achievements of Corporate Social Responsibility (CSR) and the Group's HSE targets. CSR performance is assessed by considering the extent to which climate issues are included in the Group's strategy, the Group's reputation in the domain of Corporate Social Responsibility as well as the policy concerning all aspects of diversity.

Role of management

TOTAL's Chairman and Chief Executive Officer, in compliance with the long-term strategic direction set by the Board of Directors, implements the strategy of the Group while making sure climate change challenges are taken into account. In particular, he relies on the President, Group Strategy-Innovation, who is a member of the Executive Committee, to whom the Senior Vice President Strategy & Climate, and the Senior Vice President Climate report. The Senior Vice President Climate chairs the Climate-Energy steering Committee, which mainly includes representatives of Strategy and HSE management from the various business segments. The mission of this Committee consists of structuring the Group's approach to the climate, and in particular to:

- propose GHG emission reduction targets for the Group's operated oil & gas facilities;
- propose a strategy to reduce the carbon intensity of the energy products used by the Group's customers;
- monitor the existing or emerging CO₂ markets; and
- drive new-technology initiatives, in particular with industrial partners, to reduce CO₂ emissions (energy efficiency, CO₂ capture and storage, for example).

5.6.2 Strategy



Identification of climate-related risks and opportunities

The risks and opportunities related to climate change are analyzed according to different timescales: short term (two years), medium term (until 2030) and long term (beyond 2030).

The identification and the impact of climate-related risks form an integral part of TOTAL's global risk management processes. In particular, they cover the risks related to transition due, for example, to regulatory changes, such as the introduction of carbon taxes, and the physical risks due to the effects of climate change. The impact of these risks is analyzed for the Group's assets and for investment projects (refer to point 3.1.2 of chapter 3).

Climate change also provides TOTAL with opportunities. In the coming decades, demand for electricity will grow faster than the global demand for energy, and the contribution of renewables and gas to the production of electricity shall therefore play an essential role in the fight against climate change. Electricity alone will not be sufficient to meet all needs, particularly those connected to transport. Gas and sustainable biofuels will be attractive and credible alternatives to conventional fuels and the Group intends to develop them.

Helping customers improve their energy efficiency also offers opportunities and forms part of a trend that will be accelerated by digital technology. TOTAL intends to innovate in order to provide them with new product and service offers that will support their energy options and their usages. The promotion of hybrid solutions combining hydrocarbons and renewable energies is part of this approach. Similarly, services can be offered to optimize energy for industrial sites. The Group aims to develop this approach for industrial and mobility applications.

In addition, ecosystems, and forests in particular, store carbon naturally. Consequently, their conservation and the restoration of their role as carbon sinks are crucially important in the fight against global warming. Therefore, TOTAL wants to develop its activities related to natural carbon sinks.

Finally, certain sectors, particularly the cement industry and the steel sector, could struggle to reduce their GHG emissions. They will therefore require carbon capture, utilization and storage technology (CCUS). Consequently, the Group intends to step up the development of CCUS.

Impact of climate-related risks and opportunities

Climate change is at the heart of the Company's strategic vision. TOTAL positions itself on high-growth low-carbon markets and intends to offer customers an energy mix with a carbon intensity that shall gradually decrease. To accompany these changes, TOTAL has introduced a carbon intensity indicator for the energy products used by its customers. This indicator is described in point 5.6.4 of this chapter.

TOTAL's approach is based on four strategic focuses.

1) Growing in gas value chains (natural gas, biogas and hydrogen)

To respond responsibly to the strong rise in demand for electricity, TOTAL is continuing its development in the gas sector, whose CO₂ emissions are half those of coal when used to generate electricity⁽¹⁾. Gas is also a supplement that is essential to cope with the intermittent supply of renewables and seasonal fluctuations in demand. The growth of natural gas will see a constantly increasing proportion of greener gas, in the existing infrastructure network such as biogas and hydrogen, to reduce greenhouse gas emissions.

The Group has continued its efforts to grow along the entire gas chain, from production to the end customer. Upstream, TOTAL has finalized various acquisitions, including that of the Engie and Anadarko LNG assets in Mozambique, and has launched some major LNG projects, such as Ichthys in Australia and Cameron in the United States. In addition, the Group has proceeded with or benefited from the launch of major developments, like the Arctic LNG 2 project (refer to point 2.3 of chapter 2). TOTAL is the world's second-ranking⁽²⁾ operator on this market, with a volume sold of more than 34 Mt in 2019.

In distribution, TOTAL has committed itself to gas fuel for transport by acquiring a 25% stake in 2018 in Clean Energy Fuels Corp.⁽³⁾, one of the leading distributors of gas fuel for HGVs in the United States, or by signing a contract with CMA-CGM, the first shipping company to equip its transcontinental container ships with LNG-powered engines. In 2018, the Group also entered a partnership with the Adani group, India's largest private conglomerate in energy and gas infrastructures, in order to contribute to the development of the natural gas market. This partnership, which was extended in 2019, illustrates the Group's will to support countries that produce the greatest part of their electricity from coal to diversify their energy mix.

(1) Sources: International Reference Center for the Life Cycle of Products, Processes and Services; Life cycle assessment of greenhouse gas emissions associated with natural gas and coal in different geographical contexts, October 2016, and "Review of Life Cycle Analysis of gas and coal supply and power generation from GHG and Air Quality Perspective" Imperial College London, 2017.
 (2) Company data.
 (3) A company listed on the NASDAQ, 24.84% interest on December 31, 2019.

Strengthening the position of gas in the energy mix must, however, be accompanied by a greater focus on control of methane emissions. To preserve the advantage that gas offers in terms of GHG emissions compared to coal for electricity generation, it is necessary to strictly reduce the methane emissions associated with the production and transportation of gas. In 2019, methane emissions from facilities operated by the Group for its Upstream hydrocarbons activities were around 0.20% of the commercial gas produced⁽¹⁾. The Group's target is to reduce this intensity below 0.20%.

The Group has been a member since 2014 of the Oil & Gas Methane Partnership between governments and industrial companies for the improvement of tools to measure and control methane emissions set up by the Climate and Clean Air Coalition and promoted by UN Environment and the non-profit organization Environmental Defense Fund. The Group also took several actions as part of the Oil & Gas Climate Initiative and signed the guiding principles on the reduction of methane emissions on the gas value chain⁽²⁾.

2) Developing a profitable low-carbon electricity business

TOTAL is developing on the non-regulated portion of the low-carbon electricity value chain (i.e., excluding the power transportation), from power generation – from renewables or natural gas – to storage (batteries, hydrogen) and sale to end customers. As demand for electricity is expected to grow strongly in the coming decades, TOTAL plans to invest \$1.5 to \$2.0 billion per year. In 2018, the Group made strategic acquisitions, including Direct Énergie and its subsidiary Quadran, respectively renamed Total Direct Énergie and Total Quadran, thereby stepping up its presence in renewable energies (wind, solar, hydropower and biogas).

In 2018, TOTAL acquired four combined-cycle natural gas power plants in France with a global capacity of 1.6 GW. Refer to point 2.3 of chapter 2 for further information on these acquisitions.

TOTAL aims at holding an installed gross production capacity of renewable electricity in excess of 25 GW by 2025, of which 10 GW in Europe. In 2019, this gross installed capacity was about 3 GW.

In distribution, following the acquisition in 2018 of the French specialist in smart recharging solution, G2Mobility renamed Total EV Charge, the Group has diversified its activities dedicated to electric mobility. TOTAL aims to operate 150,000 charging points on private or public parking lots in Europe by 2025. TOTAL has also launched a range of fluids for electric and hybrid vehicles.

As an electricity supplier, the Group aims to supply electricity to nearly eight million customers by 2025.

3) Avoid expensive oil, reducing emissions at our facilities and promoting sustainable biofuels

The Group foresees a long-term stagnation, or even a decline, in the demand for oil and is, therefore, concentrating on low break-even assets.

Additionally, TOTAL is taking steps to reduce CO₂ emissions from its operated facilities and a dedicated task force bringing together different skills in the Group was set up in 2019. The Group has set itself a target of cutting GHG emissions from its operated oil & gas facilities from 46 Mt of CO₂ to less than 40Mt of CO₂ between 2015 and 2025.

Improving the energy efficiency of the facilities is an essential part of this effort. The Group aims to improve its energy efficiency by an average of 1% per year over the 2010-2020 period, at a time when exploration is becoming increasingly complex. This indicator is described in point 5.6.4 of this chapter. TOTAL also uses appropriate architectures and equipment and introduces technological innovations. For example, on offshore production barges, offshore platforms and onshore facilities, heat recovery systems on gas turbine exhausts have been implemented, thereby avoiding the need for furnaces or boiler systems.

Finally, the incorporation of biofuels can help reduce CO₂ emissions from road and air transport. According to European standards, they reduce CO₂ equivalent emissions by at least 50% through their complete life cycle, in comparison with the equivalent fossil fuels. As a pioneer in biofuels for more than 20 years, TOTAL is now one of Europe's major actors, with 2.5 Mt blended sustainable biofuels⁽³⁾ in 2019. On a worldwide scale, the Group contributed to the incorporation of 3.6 Mt of sustainable biofuels. In addition, TOTAL produced 0.24 Mt of sustainable biofuels in its refineries in 2019. With the start of production at the La Mède biorefinery in 2019, with a capacity of 0.5 Mt per year of hydrotreated vegetable oil (HVO), the Group cornered a market share of over 10% in Europe in HVO production. The oils processed at La Mède are certified sustainable⁽⁴⁾ according to the criteria of the European Union. TOTAL has also set up a specific organization to complete this certification by selecting a limited number of responsible partners, plus an obligation to join the RSPO (Round table on Sustainable Palm Oil⁽⁵⁾), the signing by these suppliers of the Group's Fundamental Principles of Purchasing (refer to point 5.10 of this chapter) and specific, more stringent controls of sustainability and the respect of human rights.

For more than 10 years, TOTAL's R&D teams have developed technologies that have broadened the range of usable resources, while also meeting the need for sustainability. The consortium BioTFuel is working on, for example, the development of lignocellulose (plant waste).

4) Developing businesses that contribute to carbon neutrality

The preservation and restoration of natural carbon sinks (forests, wetlands, etc.) and carbon capture (CCUS) will be key to achieving carbon neutrality in the second part of the 21st century.

TOTAL has launched a new activity based, on preserving and restoring the capacity of ecosystems to act as carbon sinks. This activity is owned by a business unit created in 2019 that is dedicated to investments in natural carbon sinks, composed of experts in the environment and agronomy, with an investment budget \$100 million per year from 2020 onwards, and the goal of creating 5 MtCO₂ of sustainable storage capacity per year by 2030. In addition, actions of preservation and restoration of the forest are currently conducted by the Fondation d'entreprise Total as part of the Total Foundation program (refer to point 5.9 of this chapter).

(1) Refer to the OGCI methodology for methane intensity calculation.

(2) Guiding Principles on Reducing Methane Emissions across the Natural Gas Value Chain".

(3) Physical volume of biofuels in equivalent ethanol and esters according to the rules defined by the European RED Directive, excluding volumes sold to third parties via trading.

(4) The sustainability of the oils processed at the La Mède biorefinery is guaranteed by an ISCC (International Sustainability & Carbon Certification) type certificate of sustainability recognized by the European Union.

(5) International initiative.

Finally, CCUS will be essential for several industries, especially those that emit massive amounts of CO₂ due to the nature of their business (cement, steel, etc.). TOTAL allocates significant resources to this area by dedicating up to 10% of the Group's R&D budget to it. Several projects represented significant progress, including Northern Lights (Norway), a project in which the Group participates alongside Equinor and Shell. TOTAL is also a partner of the Net Zero Teesside project (UK), together with the OGCI's investment fund and a few companies of the sector⁽¹⁾.

TOTAL also stepped up its R&D program in 2019 by entering partnerships with the National Carbon Capture Center in the United States and IFPEN in France. The Group has also launched a development study for a major pilot industrial scale project in Dunkirk, a project to produce methanol from CO₂ and hydrogen in Germany, with the start-up Sunfire, and a feasibility study of an industrial system to capture and reuse the CO₂ produced by the LafargeHolcim cement works in the United States⁽²⁾.

TOTAL also offers customers an energy efficiency consultancy service so that they can optimize their own energy consumption and reduce their GHG emissions. The acquisition of GreenFlex forms part of this initiative. By providing consultancy (strategic and operational), data intelligence (digital platforms) and financing services, GreenFlex helps companies and regions improve their energy and environmental performance. The Company's areas of expertise are varied and include, for example, the improvement and management of the energy performance of buildings, equipment, utilities and processes, sustainable mobility, flexible electricity consumption, renewables and positive-energy buildings. More than 700 companies have already been supported by GreenFlex since 2009.

Sector initiatives and international framework

TOTAL is committed to various sector initiatives on the main challenges raised by climate change. Indeed, tackling climate change requires cooperation between all actors, from both public and private sectors.

Thus, TOTAL joined, in 2014, the call of the UN Global Compact, which encourages companies to consider a CO₂ price internally and publicly support the importance of such a price via regulation mechanisms suited to the local context. In particular, TOTAL advocates the emergence of a balanced, progressive international agreement that prevents the distortion of competition between industries or regions of the world. Drawing attention to future constraints on GHG emissions is crucial to changing the energy mix. TOTAL therefore encourages the setting of a worldwide price for each ton of carbon emitted, while ensuring fair treatment of "sectors exposed to carbon leakage" (as defined by the EU). In addition, TOTAL is working with the World Bank as part of the Carbon Pricing Leadership Coalition (CPLC). In June 2017, TOTAL became a founding member of the Climate Leadership Council, an initiative that calls for the introduction of a "carbon dividend", with a redistribution mechanism that pays a dividend to the entire population.

In 2014, TOTAL was actively involved in launching and developing the Oil & Gas Climate Initiative (OGCI), a global industry partnership. At year-end 2019, this initiative involved 13 major international energy players. Its purpose is to develop solutions for a sustainable low emissions future. Launched in 2017, the OGCI Climate Investments fund, which has access to over \$1 billion over 10 years, invests in technology that significantly cuts emissions. Examples of investments include a large-scale industrial CO₂ capture and storage project (Net Zero Teesside Project), methane emission monitoring services by satellite (GHGSat), by aircraft (Kairos Aerospace) or by drone (SeekOps Inc.) and a technology that incorporates CO₂ as a raw material in the production of polyols used in polyurethanes, which are plastics that have multiple uses (Econic Technologies).

The Group also plays a role in various international initiatives that involve the private and the public sectors to bring about (non-exhaustive list):

- carbon pricing within Caring for Climate – United Nations Global Compact, and the Paying for Carbon call;
- the end of routine flaring of gas associated to oil production within the World Bank's Zero Routine Flaring by 2030 initiative;
- greater transparency, while taking into account the recommendations of the G20 Financial Stability Board on climate, and of the Task Force on Climate-related Financial Disclosures (TCFD); and the development of new state-of-the-art energy companies, since 2017 within the Breakthrough Energy Coalition (BEC), a group of investors created by Bill Gates in 2015, and since 2016 within the Breakthrough Energy Ventures, a \$1 billion fund created in 2016 by the BEC.

The list of trade associations of which TOTAL is a member and the lobbying Ethics Charter that governs these memberships are published on the website total.com. The Group cooperates with these associations mainly on technical or scientific matters, but certain associations sometimes take public stances on climate change. In 2019, TOTAL assessed the 30 main trade associations to which it belongs in order to check that they are in line with the Group's stance on the climate. This alignment was reviewed according to six key points: their scientific position, the Paris Agreement, carbon pricing, the role of natural gas, the development of renewable energies and the development of CCUS. Following this review, TOTAL decided not to renew its membership of the American Fuel & Petrochemical Manufacturers association. TOTAL remains a member of the three associations (the American Chemistry Council, the American Petroleum Institute and the Canadian Association of Petroleum Producers) identified as being partially aligned, to advocate internally for changes in their positions. Total would reconsider its memberships in the event of lasting divergences.

TOTAL also actively participates in the debate on climate issues, thanks especially to its long-term partnerships with university chairs, such as the Climate Economics Chair at Paris-Dauphine University, the climate change research program of Massachusetts Institute of Technology (MIT)⁽³⁾, and Toulouse School of Economics. TOTAL also offers training and makes presentations at several universities, thereby taking part in the debate.

(1) BP, ENI, Equinor, Occidental Petroleum and Shell.

(2) Svante Inc., LafargeHolcim, Oxy Low Carbon Ventures LLC and TOTAL.

(3) The Joint Program on the Science and Policy of Global Change.

Resilience of the organization's strategy

In order to ensure the viability of its project and long-term strategy in light of the challenges raised by climate change, the Group integrated, into the financial evaluation of its investments presented to the Executive Committee, a CO₂ price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO₂ in a given country if higher. Since January 1, 2020, the Group has been taking into account in the economic evaluations of investments submitted to the Executive Committee a CO₂ price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios.

Regulations designed to gradually limit fossil fuel use may, depending on the GHG emission limits and time horizons set, negatively and significantly affect the development of projects, as well as the economic value of certain of the Group's assets.

The Group performs sensitivity tests to assess the ability of its asset portfolio to withstand an increase in the price per ton of CO₂. In 2019,

these tests show that a long-term CO₂ price of \$40/t⁽¹⁾ applied worldwide would have a negative impact of around 5% on the discounted present value of the Group's assets (upstream and downstream).

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

The limited level of 2019 impairments reflects the resilience of the portfolio on a long-term price trajectory in line with the IEA Sustainable Development Scenario (SDS).

As part of the annual preparation of its long-term plan, TOTAL makes long-term energy demand forecasts (oil, gas and electricity). The Group presented in February 2019 these forecasts (Total Energy Outlook), available on total.com.

5.6.3 Risk management



Processes to identify and assess risks related to climate change

Climate-related risks form part of the risks that are analyzed by the Group Risk Management Committee. To this end, it uses the risk-mapping work.

In addition, the Risk Committee (CORISK) assesses investment projects, risks and corresponding climate-related issues (flaring, GHG emissions, sensitivity to CO₂ prices) before they are presented to the Executive Committee.

Processes to manage risks related to climate change

In its decision-making process, the risks and associated climate issues are assessed prior to the presentation of the projects to the Executive Committee. If the level of risk requires it, they are subject to mitigation measures. TOTAL, in accordance with its Safety Health Environment Quality Charter, is committed in particular to managing its energy consumption and develops processes to improve its energy performance and that of its customers.

The Group also assesses the vulnerability of its facilities to climate hazards so that the consequences do not affect the integrity of the facilities, or the safety of people. More generally, natural hazards (climate-related risks as well as seismic, tsunami, soil strength and other risks) are taken into account in the construction of industrial facilities, which are designed to withstand both normal and extreme conditions. The Group carries out an assessment of the possible repercussions of climate change on its projects. These analyses include a review by type of risk (e.g., sea level, storms, temperature, permafrost) and take into account the lifespan of the projects and their capacity to gradually adapt. These internal studies have not identified any facilities that cannot withstand the consequences of climate change known today.

Integration of climate-related risks into global risk management

The risks related to climate issues are fully integrated in TOTAL's global risk management processes.

The Audit Committee takes part in the annual review of the results of the climatic and environmental reporting process. In addition, these results are audited by an independent third party.

(1) \$40/t as from 2021 for all countries, or the current price in a given country if it is higher than \$40/t.

5.6.4 Targets and metrics to measure climate-related risks and opportunities



TOTAL has set targets and introduced a number of indicators to coordinate its performance.

The Group's climate targets:

- reduce the GHG emission (Scopes 1 & 2) on operated oil & gas facilities of 46 Mt CO₂e in 2015 to less than 40 Mt CO₂e in 2025.
- reduce the routine flaring⁽¹⁾ by 80% on operated facilities between 2010 and 2020 in order to eliminate it by 2030;
- improve by an average of 1% per year the energy efficiency of operated facilities between 2010 and 2020;
- reduce the intensity of the methane emissions of the facilities operated by the Group for its Upstream hydrocarbons activities remaining below 0.20% of the commercial gas produced;
- maintain the intensity of CO₂e emissions of the facilities operated by the Group for its Upstream hydrocarbons activities lower than 20 kg CO₂e/boe.

What has been accomplished:

- a GHG emission reduction (Scopes 1 & 2) on operated oil & gas facilities from 46 Mt CO₂e to 41.5 Mt CO₂e between 2015 and 2019.
- more than 80% reduction in routine flaring between 2010 and 2019;
- more than 10% improvement in energy efficiency between 2010 and 2019;
- an intensity of the methane emissions around 0.20% of the commercial gas produced in 2019;
- an intensity of the CO₂e emissions below 20 kg CO₂e/boe in 2019.

The Group also intends to reduce the carbon intensity of energy products used by its customers by 15% between 2015, the date of the Paris Agreement, and 2030 and by 40% by 2040. This carbon intensity was already reduced from 75 g CO₂/kBTu in 2015 to 70 g CO₂/kBTu in 2019, a reduction of 6%. This reduction was achieved in particular

through a threefold increase in LNG sales (from 10 to 34 Mt) and an almost eightfold increase in electricity sales (from 6 to 46 TWh); over the same period, these efforts were accompanied by investments of more than \$20 billion.

Indicators related to climate change^(a)

		2019	2018	2017	2016	2015
SCOPE 1 Direct greenhouse-gas emissions (operated scope)	Mt CO ₂ e	41	40	38	41	42
Breakdown						
Hydrocarbons Upstream activities	Mt CO ₂ e	18	18	17	19	19
Refining & Chemicals	Mt CO ₂ e	20	21	21	22	22
Marketing & Services	Mt CO ₂ e	< 1	< 1	< 1	< 1	< 1
Integrated Gas, Renewables & Power (excluding gas upstream activities)	Mt CO ₂ e	3	2	0	0	–
SCOPE 1 Direct greenhouse-gas emissions based on the Group's equity interest	Mt CO ₂ e	55	54	50	51	50
SCOPE 2 Indirect emissions attributable to energy consumption by sites	Mt CO ₂ e	4	4	4	4	4
GHG emissions (Scopes 1 & 2) on operated oil & gas facilities	Mt CO ₂ e	41.5	42	41	45	46
SCOPE 3^(b) Other indirect emissions – Use by customers of products sold for end use	Mt CO ₂ e	410	400	400	420	410
Net primary energy consumption (operated scope)	TWh	160	143 ^(c)	142	150	153
Group energy efficiency indicator (GEEI)	Base 100 in 2010	88.0	88.4	85.7	91.0	90.8
Daily volume of all flared gas (hydrocarbons Upstream activities operated scope) (including safety flaring, routine flaring and non-routine flaring)	Mm ³ /d	5.7	6.5	5.4	7.1	7.2
Of which routine flaring	Mm ³ /d	0.9	1.1	1.0	1.7 ^(d)	2.3 ^(e)
Carbon intensity of energy products used by customers of the Group	g CO ₂ e / kBTu	70	71	73	74	75 ^(f)

(a) Refer to point 5.11 of this chapter for the scope on reporting.

(b) The Group usually follows the oil industry reporting guidelines published by IPIECA which are conform to the GHG Protocol methodologies. In this document, only item 11 of scope 3 (use of sold products), which is the most significant, is reported. Emissions for this item are calculated based on sales of finished products for which the next stage is end use, in other words, combustion of the products to obtain energy. A stoichiometric emission factor is applied to these sales (oxidation of molecules to carbon dioxide) to obtain an emission volume.

(c) Excluding primary energy consumption of Direct Énergie gas power plants.

(d) Estimated volume at end 2016 based on new definition of Routine Flaring published in June 2016 by the Working Group Global Gas Flaring Reduction.

(e) Volumes estimated upon historical data.

(f) Indicator developed in 2018, with 2015 as the baseline year.

(1) Routine flaring, as defined by the working group of the Global Gas Flaring Reduction program within the framework of the World Bank's Zero Routine Flaring initiative.

These data as well as the related risks are also reported to the CDP⁽¹⁾ once a year, and TOTAL's response to the CDP Climate Change questionnaire is posted on the Group's website (sustainable-performance.total.com). For its 2019 reporting regarding 2018 activities, the Group received an A-.

Flaring

Reducing routine flaring has been a long-standing target of the Group, which designs its new projects without resorting to it. In addition, TOTAL is committed to putting an end to routine flaring of its operated facilities by 2030. An 80% reduction target was set for 2020 compared to 2010, in other words, an average of 1.5 Mm³/d. This target has been met since 2017.

Furthermore, as part of the Global Gas Flaring Reduction program, TOTAL has worked alongside the World Bank for over 10 years to help producing countries and industrial players control flaring of gas associated to oil production.

The decrease in flaring in 2019 is due to better compressor reliability and shorter start-up periods in Africa.

Energy efficiency

One of the Group's performance targets is to better control energy consumption. Since the beginning of 2013, a Group directive has defined the requirements to be met at operated sites using more than 50,000 tons of oil equivalent per year of primary energy (approximately 40 sites). At end 2019, all the concerned sites reported compliance or had taken steps to comply with this directive. The aim is to ensure that 100% sites using more than 50,000 tons of oil equivalent per year by the end of 2020 have an auditable energy management system, such as the ISO 50001 on energy management⁽²⁾. A certain number of sites that use less than 50,000 tons of oil equivalent per year have also, voluntarily, taken measures to become ISO 50001 certified.

Energy efficiency is a key factor for the improvement of economic, environmental and industrial performance. Since 2013, the Group has used a Group Energy Efficiency Index (GEEI) to assess its performance in this area. It consists of a combination of energy intensity ratios (ratio of net primary energy consumption to the level of activity) per business.

The Group's target for the 2010-2020 period is to improve the energy efficiency of its operated facilities by an average of 1% per year. By design, the base value of the GEEI was defined as 100 in 2010 and the target is to reach 90.4 in 2020. This target has been met since 2017.

Through the *Total Ecosolutions* program, the Group is developing innovative products and services that perform above market standards on the environmental front. At year-end 2019, 95 products and services bore the *Total Ecosolutions* label. The CO₂e emissions avoided throughout the life cycle by the use of *Total Ecosolutions* products and services, compared to the use of benchmark products on the market and for an equivalent level of service, are measured annually based on sales volumes. This represented 2.2 Mt CO₂e in 2019.

GHG emissions

The Group has reduced by 50% the GHG emissions (Scopes 1 & 2) produced by its operated activities since 2005. This reduction was reached thanks to notably reducing flaring and improving energy efficiency.

In 2019, TOTAL set itself a target to reduce GHG emissions (Scopes 1 & 2) on its operated oil & gas facilities to less than 40 Mt CO₂e in 2025.

Carbon intensity indicator of the products used by its customers

TOTAL wishes to fully address the issue regarding the emissions of energy products used by the Group's customers and therefore decided to report all of the emissions associated with these products in the form of a carbon intensity indicator.

This indicator measures the average GHG emissions of these products throughout their life cycle, from production to end use by the Group's customers. This indicator takes into account:

- for the numerator:
 - the emissions connected to the production and conversion of energy products used by the customers on the basis of the Group's average emission rates;
 - the emissions connected to the use of energy products used by the customers. For each product, stoichiometric emission factors⁽³⁾ are applied to these sales to obtain an emission volume. Non-fuel use products (bitumen, lubricants, plastics, etc.) are not taken into account;
 - negative emissions stored thanks to CCUS and natural carbon sinks;
- for the denominator: the quantity of energy sold, knowing that electricity is placed on an equal footing with fossil fuels by taking into account the average capacity factor and average efficiency ratio.

The Group intends to reduce its carbon intensity by 15% between 2015, the date of the Paris agreement, and 2030 and by 40% by 2040. This undertaking represents a responsible contribution by TOTAL to the Paris agreement targets and it also enables the Group to fulfill its mission to supply to as many people as possible a more affordable, more available and cleaner energy.

(1) The CDP is a non-profit organization that offers environmental reporting services for investors, enterprises, city authorities, States and regional authorities.

(2) The ISO 50001 standard accompanies the implementation in companies of an energy management system that allows a better use of energy.

(3) The emission factors used are taken from a technical note from the CDP: Guidance methodology for estimation of scope 3 category 11 emissions for oil and gas companies.

5.6.5 TCFD correspondence table



In June 2017, the TCFD⁽¹⁾ of the G20's Financial Stability Board published its final recommendations on information pertaining to climate to be released by companies. These recommendations include additional details for certain sectors, such as energy. TOTAL publicly announced its support for the TCFD and its recommendations and has implemented them since its 2017 annual report.

In 2019, TOTAL also took part in the first Task Force set up by the EFRAG (European Financial Reporting Advisory Group) Reporting Lab on Climate-related disclosures, which aim to identify the best practices in this area. This Task Force published the results of its work in February 2020.

TOTAL continued discussions by taking part in the Oil & Gas Preparer Forum, which published, in July 2018, the best practices on the disclosure of climate-related information and on the implementation of TCFD recommendations by the four companies that are members of the Forum⁽²⁾.

Themes	Recommended TCFD disclosures	Source of information in TOTAL's reporting
Governance		
Disclose the organization's governance around climate-related risks and opportunities.	<ul style="list-style-type: none"> a) Describe the board's oversight of climate-related risks and opportunities. b) Describe management's role in assessing and managing climate-related risks and opportunities. 	<ul style="list-style-type: none"> URD 2019 – 5.6.1 CR p. 10 CDP C1.1 URD 2019 – 5.6.1 CR pp. 5-9 CDP C1.2
Strategy		
Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	<ul style="list-style-type: none"> a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term. b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning. c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2 °C or lower scenario. 	<ul style="list-style-type: none"> URD 2019 – 5.6.2 CDP C2 URD 2019 – 5.6.2 CDP C2.5, C2.6 URD 2019 – 5.6.2 CR pp. 38-39
Risk Management		
Disclose how the organization identifies, assesses, and manages climate-related risks.	<ul style="list-style-type: none"> a) Describe the organization's processes for identifying and assessing climate-related risks. b) Describe the organization's processes for managing climate-related risks. c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management. 	<ul style="list-style-type: none"> URD 2019 – 5.6.3 CDP C2.2 URD 2019 – 5.6.3 CDP C2.2d URD 2019 – 5.6.3 CDP C3.1
Metrics & targets		
Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	<ul style="list-style-type: none"> a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process. b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets. 	<ul style="list-style-type: none"> URD 2019 – 5.6.4 CR p. 56 CDP C6, C10 URD 2019 – 5.6.4 CR p. 56 CDP C6, C10 URD 2019 – 5.6.4 CR pp. 30-32, 38-39, 47-48 CDP C4.1, C4.2

Key: CR = TOTAL 2019 Climate Report. CDP = TOTAL's 2019 response to the CDP Climate Change questionnaire (available on total.com).

(1) Task Force on Climate-related Financial Disclosures.

(2) Eni, Equinor, Shell and TOTAL, with the support of the WBCSD (World Business Council for Sustainable Development).

5.7 Actions in support of human rights



The main challenges associated with the Group activities and respect for human rights are identified using the methodology set out in the United Nations Guiding Principles Reporting Framework relating to the “salient issues”, that is to say the human rights at risk of the most severe negative impact through the Company’s activities or business relationships.

This analysis, as well as the internal risk mapping activities, has led the Group to identify six risks subdivided across three key areas:

- human rights in the workplace of TOTAL’s employees as well as of the employees of its suppliers and other business partners:
 - forced labor and child labor;
 - discrimination;
 - just and favorable working conditions and safety.
- human rights and local communities:
 - access to land;
 - the right to health and an adequate standard of living.
- respect for human rights in security-related activities:
 - the risk of misuse of force.

In 2016, TOTAL published an initial Human Rights Briefing Paper, in line with the UN Guiding Principles Reporting Framework, making it the first company in the oil and gas industry to do so. An updated version of this document was published in 2018 (available at sustainable-performance.total.com).

TOTAL’s human rights approach is based on written commitments. It is supported by a dedicated organization, and embedded through an awareness-raising and training program, as well as evaluation and follow-up mechanisms aiming at measuring the effectiveness of the Group’s actions.

Written commitments

TOTAL is committed to respecting internationally recognized human rights wherever the Group operates, in particular the Universal Declaration of Human Rights, the Fundamental Conventions of the International Labor Organization (ILO), the UN Guiding Principles on Business and Human Rights, the OECD guidelines for multinational enterprises and the Voluntary Principles on Security and Human Rights (VPSHR).

A dedicated organization

At regular intervals, a human rights roadmap is presented to the Executive Committee to support the ongoing effort to implement the Code of Conduct. The 2019–2020 roadmap was presented to the Executive Committee in April 2019. The Human Rights Steering Committee (formerly the Human Rights Committee) is responsible for monitoring the implementation of this roadmap. The committee is chaired by the Group’s Vice President, Civil Society Engagement and includes representatives of each business segment and of the main functional divisions that have a role related to human rights. It meets four times a year and coordinates the actions taken internally and externally by the various Group entities.

In accordance to the Group’s Code of Conduct, the Group’s Human Rights Department provides advice to employees, support operational divisions and supervises efforts made to promote respect for human rights in close collaboration with the Ethics division and in accordance with the Group’s Code of Conduct.

The Human Rights Department and the Ethics division rely on a network of Ethics officers (104 worldwide at the end of 2019) in charge of promoting the values set out in the Code of Conduct among employees working in the Group’s subsidiaries and ensuring that the Group’s commitments are correctly implemented at the local level.

The Ethics Committee is a central and independent structure where representatives of all TOTAL’s business segments sit. Its key role is one of listener and support. Both employees and external stakeholders can refer matters to the Ethics Committee by email at ethics@total.com. The Committee ensures the confidentiality of the complaints, which can only be lifted with the agreement of the complainant.

Awareness raising and training

In order to disseminate the Group’s commitments, TOTAL raises its employees’ awareness via internal communication channels such as intranet websites or through events such as the annual *Business Ethics Day*, which is celebrated within all the Group’s subsidiaries around the world. In 2019, *Business Ethics Day* was held in December on International Human Rights Day. The theme of the event was “Speak Up”. The Human Rights Department focused its actions on the fight against discrimination of any kind at the workplace.

In addition to the Code of Conduct, the Group makes a Human Rights Guide available to its employees and other stakeholders. It aims to raise the Group’s employees’ awareness on issues relating to human rights in their industry and provides guidance as to the appropriate behavior to adopt in their activities and relationships with stakeholders.

The Group organizes specific trainings tailored to the challenges faced in the field by employees who are particularly exposed to these issues:

- in 2019, human rights training for the Group’s societal experts (including Community Liaison Officers – CLO), at the time of their annual seminar;
- annual training for members of the Human Rights Steering Committee (CPDH) by the Danish Institute for Human Rights;
- annual training in ethics and human rights for newly appointed senior executives (32 participants in 2019);
- since 2019, a dedicated module is integrated into the e-learning training for the Country Chairs. It is intended for the 112 Group’s representatives around the world;
- at the time of each ethics and human rights assessment at the Group’s entities, human rights awareness sessions are offered to the employees of the relevant subsidiaries (50 to 100 participants per session). For example, in Brazil, following the assessment carried out in June 2019 by GoodCorporation, more than 200 Group employees in that country received training on non-discrimination challenges at the workplace;
- in 2019, two training courses in the United Kingdom on the 2015 UK Modern Slavery Act for in-house lawyers of that country’s subsidiaries, in partnership with SHIFT.

5 Non-financial performance

Actions in support of human rights

In 2019, the year of the ILO's 100th anniversary and in response to the key issues related to the Group's activity, specific training courses on human rights at the workplace are developed. An e-learning course on the ILO Fundamental Conventions was launched by a member of the Executive Committee on Business Ethics Day. This training is mandatory for all the Group's management personnel.

Each year, the country security officers receive training in the principles on security and human rights (VPSHR) at their annual seminar. In addition to these courses, specific on-the-ground VPSHR training is offered to the Group's security providers.

Assessments

The practices of the Group's entities and the risks to which they may be exposed are regularly evaluated when it comes to human rights issues. The Group works with independent third parties and qualified experts to Conduct these assessments.

Since 2002, the British company GoodCorporation has assessed close to 140 entities with regard to the principles and values enshrined in the Group's Code of Conduct. In particular, working conditions in the Group's activities and at its service stations are assessed. In 2019, seven entities were assessed (Egypt, Brazil, South Korea, Russia, Nigeria, Cameroon). The assessed entities are identified following several criteria: the risk of human rights violation in the country, the entity's exposure, the date of the previous assessment and the number of alerts received the previous year. These assessments help identify entities' best practices, share them within the Group and recommend areas for improvement. The Group uses these assessments as opportunities to ensure proper knowledge of the Code of Conduct, encourage its employees to voice their ethical concerns in a confidential manner and report behaviors potentially contrary to the Code of Conduct. These assessments confirm that the Code of Conduct is well known by the Group's employees. TOTAL must nevertheless pursue its efforts to raise awareness among its commercial and industrial partners.

5.7.1 Human rights in the workplace



The prohibition of forced and child labor, non-discrimination, just and favorable conditions of work, as well as safety, all form part of the principles set out in TOTAL's Code of Conduct and are developed in the Human Rights Guide and in the Information Document on Human Rights (2016 and 2018 editions).

TOTAL's commitment to human rights in the workplace is demonstrated, in particular, by the signature of various agreements, as the one concluded for four years in 2015 with IndustriALL Global Union⁽¹⁾, which covers notably the promotion of human rights in the workplace, diversity and parenthood, working conditions, health, the participation of employees and their representatives in social dialogue and the recognition of health and safety at work as absolute priorities in the Group's activities and global supply chain.

In its activities

TOTAL cares about the working conditions of its employees which are governed by the Group's Human Resources policy (refer to point 5.3 of this chapter).

Safety is one of the Group's core values. Over the last few years, the Group has continued to develop occupational health and safety standards focusing on the right to live and fair and adequate working conditions (refer to point 5.4 of this chapter).

The suppliers' qualification and assessment process gradually being implemented by Total Global Procurement (TGP), as described in point 5.10 of this chapter, is helping to promote awareness among suppliers. So far, close to 80,000 people at the relevant sites have been assessed by TGP over the past three years.

Stand-alone human rights impact assessments may also be conducted in addition to the environmental and societal impact assessments in high-risk areas or conflict zones with the support of independent experts including the Danish Institute for Human Rights, a Danish public non-profit organization. In 2019, the impact study carried out by the Danish Institute for Human Rights concerning the exploration & production project in Papua New Guinea as well as the conclusions of the study concerning the pipeline project in Uganda and Tanzania carried out by LKL International Consulting and Triple R Alliance, as part of the corresponding environmental and social impact assessment, were made public.

In 2019, the Group conducted five human rights audits of its potential palm oil suppliers for La Mède biorefinery in France. These audits were carried out by independent third parties based on a framework which evaluates the implemented system and governance in regards to respecting human rights, working conditions and communities' rights.

Other non-profit partner organizations, such as the CDA Corporate Engagement Project, also contribute to the evaluation of the societal impact of the Group's activities or projects on nearby local communities, notably by interviewing local communities. CDA's reports are available on their website.

The human rights and ethics assessments are followed up within 18 months to ensure that action plans are implemented.

TOTAL is strongly committed to promoting diversity and endeavors to combat all forms of discrimination (origin, gender, sexual orientation, handicap, age, membership in a political and a union or a religious organization, etc.) (refer to point 5.3 of this chapter). The Group signed the LGBT (lesbian, gay, bisexual and transgender) Charter in 2014. Prepared by "L'Autre Cercle" association, it establishes a framework for combating discrimination related to sexual orientation or identity in the workplace in France.

For many years, TOTAL has developed a non-discrimination policy with regard to people with disabilities that focuses on issues related to integration into working life. This policy has resulted in dedicated hiring policies and practices and the promotion of diversity and the advantages it offers for the Group. These issues are coordinated for the entire Group through a "Disability Program" within the Group's Human resources department (refer to point 5.3.3.1 of this chapter).

In 2017, TOTAL also published a Practical guide to dealing with religious questions within the Group in order to provide practical solutions to the questions raised by the Group's employees and managers worldwide. It draws on the experiences of the business segments in various countries and encourages dialogue, respect and listening as a way to find solutions suited to the local context. Many internal and external experts helped draft this document, including representatives of various religious

(1) International union federation representing more than 50 million employees in the energy, mining, manufacturing and industrial sectors in 140 countries.

communities. This guide exists in 10 languages. It is available on the human rights intranet and is also distributed at each training course and on each Business Ethics Day.

In addition to the Group's reporting and internal control system, the working conditions of TOTAL's employees are assessed by GoodCorporation, an independent third party.

In the Group's value chain

The Fundamental Principles of Purchasing (FPP) set out the commitments expected from suppliers in various domains, including human rights in the workplace and safety. A Group directive reaffirms the obligation to annex the FPP or to transpose them in the selection process as well as in the contracts concluded with suppliers of goods or services.

The prevention of forced and child labor in the supply chain is a major area of concern. The supplier selection methodology was therefore strengthened in 2018 to better take into account the risks of human

rights violations, in particular forced and child labor. In addition, the partnership formed in 2016 between TOTAL and a third-party service provider to assess suppliers' practices in terms of fundamental rights in the workplace remains in effect (refer to point 5.10 of this chapter).

Finally, the working conditions of the employees of Group-branded service station dealers are assessed by GoodCorporation, an independent third party. Between 2016 and 2017, a baseline study on a group of 22 subsidiaries in the Marketing & Services segment across different continents was also conducted. One of the main recommendations identified is to improve service station dealers' awareness of the Group's Code of Conduct principles and of the fundamental Conventions of the ILO. In response, Marketing & Services is developing educational tools and enhancing the clauses related to human rights in contracts with service station dealers. In Africa, for example, clauses regarding respect for human rights are gradually being incorporated into standard agreements related to the activity of the service station network. These clauses are integrated by the African subsidiaries when contracts are renewed and negotiated.

5.7.2 Human rights and local communities



TOTAL's operational activities may have impacts on the human rights of local communities, in particular when TOTAL obtains temporary or permanent access to their land for the Group's projects that may involve the physical and/or economic displacement of these populations. In addition, noise and dust emissions and other potential impacts may also have consequences on the livelihood of neighboring communities. Consequently, the access to land of local communities and their right to health and an adequate standard of living are two salient issues for TOTAL.

In accordance with internationally recognized human rights standards, TOTAL requires the Group entities to maintain a regular dialogue with their stakeholders and make sure that their activities either have no negative consequences on local communities or, if these cannot be avoided, that they limit, mitigate and remedy them. The solutions proposed in response to the expectations of local communities are coordinated by the societal teams that work in close collaboration with the Human rights department and the legal, safety and environmental teams. The Group's approach to this topic is described in point 5.9 of this chapter.

5.7.3 Respect for human rights in security-related activities



In certain situations, intervention by government security forces or private security providers may be necessary to protect TOTAL staff and assets. In order to prevent any misuse of force, TOTAL is committed to implementing the Voluntary Principles on Security and Human Rights (VPSHR) issued by States, NGOs and Extractive Companies.

TOTAL has been a member of this initiative since 2012. Within this framework, the Group publishes an annual report setting out the challenges, lessons learned and good practices in relation to security and human rights and, if applicable, reports any incidents associated with the Group's activities. This report is available at sustainable-performance.total.com.

A new Group rule became effective in 2019 to define the Group's requirements for implementing the VPSHR. Self-assessment and risk analysis tools have been developed and are deployed, in particular, in the entities located in sensitive countries and conflict zones.

When government security forces are deployed to ensure the protection of the Group's staff and assets, an ongoing dialogue is maintained with the representatives of national or regional authorities in order to raise their awareness on the need to respect the VPSHR and encourage them to sign memorandums of understanding that comply with these principles. The Group promotes these principles and the VPSHR requirements to the private security companies it hires in connection with its activities. These companies incorporate them, for example, through the training provided to security staff on the VPSHR.

TOTAL regularly organizes training sessions and awareness-raising activities for its employees on the risk of misuse of force and, more generally, on the VPSHR. In 2019, the Group's Security Division offered a VPSHR seminar to 27 security employees worldwide. In addition to this seminar, there were training courses at the subsidiaries for private security companies (PSC) and awareness-raising activities for governmental security forces (GSF). These activities, organized by each

5 Non-financial performance

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subsidiary, took place for example in Republic of Congo (563 PSC and 189 GSF), Uganda (51 PSC), Papua New Guinea (13 PSC and 27 GSF), Gabon (110 PSC) and Angola (458 PSC). In addition, in December 2019, 16 security staff members in the Republic of Congo, a country where an

incident occurred in 2018, were trained by the Group's Security Division on the VPSHR, human rights and the rules and conditions applicable to the use of force.

Example: Yemen LNG

The Balhaf facility is operated by Yemen LNG, in which TOTAL has a 39.6% interest alongside U.S.-based Hunt Oil (17.2%); South Korea's SK Innovation, Hyundai and Kogas (a combined 21.4%); and Yemen's state-owned YGC and state organization GASSP (a combined 21.7%). TOTAL therefore does not have a controlling interest in Yemen LNG and does not intervene directly at the Yemen LNG-operated Balhaf site. It acts indirectly, as a shareholder or via personnel assigned to the joint-venture.

TOTAL's expatriate employees left Yemen in 2015.

TOTAL's actions since 2015 as a Yemen LNG shareholder have been solely intended to (i) ensure the safety of local employees, and (ii) preserve the Balhaf site so that it can resume LNG production once peace has been restored in Yemen.

In April 2017, Yemen LNG informed TOTAL that the U.N.-recognized government of Yemen had requisitioned some of the Balhaf facilities, which were de facto unused, for the coalition forces supporting the government.

Yemen LNG complied with the order by the Yemeni government. Two distinct areas were established. They are fenced off and have their own separate entrances. Responsibility for managing the requisitioned areas has been transferred in full to the coalition forces. TOTAL does not have any specific information on how the coalition is using the requisitioned areas.

Since 2015, neither Yemen LNG nor TOTAL have received any profit, compensation or advantage of any kind related to this situation.

In fact, since 2015, TOTAL and the other foreign shareholders have continued to finance Yemen LNG at a loss, to preserve the site and continue supplying power and water to local communities. The Balhaf plant has therefore remained in good condition.

5.8 Fighting corruption and tax evasion

5.8.1 Fighting corruption



TOTAL is a major player in the energy sector where public authorities regularly play a role and where the amounts invested may be very high. In addition, the Group is present in more than 130 countries, some of which have a high perceived level of corruption according to the index drawn up by Transparency International. Aware that it is highly exposed to the risk of corruption, TOTAL applies a principle of zero tolerance.

To prevent risks of corruption, TOTAL has implemented a robust, regularly updated anti-corruption compliance program that has been rolled out throughout the Group. The aim of this program is to promote a culture of compliance and transparency, which is key in ensuring the sustainability of the Group's operations and activities, as well as to comply with legal requirements, such as those resulting from the U.S. Foreign Corrupt Practices Act, the UK Bribery Act and the French law on transparency, the fight against corruption and the modernization of the economy. Failure to comply with such legislation is likely to expose the Group to a high criminal, financial and reputation risk, as well as the enforcement of measures such as the review and reinforcement of the compliance program under the supervision of an independent third party.

The commitment of the entire Group and the efforts undertaken are unrelenting in order to ensure the sustainability and continuous improvement of the anti-corruption compliance program, which the U.S. authorities deemed to be appropriate in 2016, thus putting an end to the monitorship that was introduced in 2013.

This program is drawn up by a dedicated organization acting at the Group and business segment levels, namely the Compliance and Legal Risk Management Department, headed by the Chief Compliance Officer, and the Branch Compliance Officers. They coordinate a network of nearly 370 Compliance Officers in charge of rolling out and running the program at the subsidiary level. This structured organization lies in close proximity to operational activities while having its own dedicated reporting line.

TOTAL's anti-corruption compliance program is based primarily on the following seven pillars: management commitment or "tone at the top", risk assessment, adoption of internal standards, awareness raising and training of the employees, feedback of information, including the whistleblowing system, mechanisms for assessing and monitoring the implementation of the program, and imposition of disciplinary sanctions in the event of misconduct.

5.8.1.1 Management commitment

The constant high level of commitment by the General Management is reflected by the principle of zero tolerance for corruption that is clearly set out in the Group's Code of Conduct. Managers have a duty to lead by example and are responsible for promoting a culture of integrity and dialogue. This commitment is also expressed in regular statements made by the Chairman and Chief Executive Officer as well as through large-scale communication actions, such as the annual Business Ethics Day organized on the occasion of the UN's International Anti-Corruption Day and Human Rights Day. The fifth edition held in December 2019 was dedicated to the speak up culture: various activities were organized, including in the subsidiaries, to encourage employees to report any potential violations of the Code of Conduct.

The commitment of the management bodies is also expressed externally by TOTAL joining anti-corruption initiatives and supporting collaborative and multipartite approaches. TOTAL joined the Partnering Against Corruption Initiative (PACI)⁽¹⁾ in 2016, thereby adhering to the PACI Principles for Countering Corruption. TOTAL's Chairman and Chief Executive Officer became a member of the PACI Board in 2018 and subsequently Co-Chairman of the initiative late 2019. TOTAL is also a member of other initiatives that contribute to the global effort to fight against corruption, such as the UN Global Compact since 2002 or the Extractive Industries Transparency Initiative (EITI)⁽²⁾ ever since it was launched in 2002.

5.8.1.2 Risk assessment

To regularly adapt the compliance program to the risks to which TOTAL is exposed, these must first be identified and assessed. In addition to the Group's risk mapping, which includes the risk of corruption, a specific corruption risk mapping was produced in 2016 and will be reviewed to reflect the methodology formalized in a rule adopted in early 2020. At the business segments' level, the main types of risk are assessed (purchasing, sales, conflicts of interest, gifts and hospitality, human resources, representatives dealing with public officials, mergers and acquisitions, joint-ventures, donations and sponsoring, and influence peddling). A risk mapping is also produced per entity under the guidance of the Compliance Officer. This two-tier analysis is aimed at establishing action plans that are appropriate to the identified risks and so at reflecting the realities on the ground. In addition, employees are provided with tools that help them identify the risk of corruption, e.g. the Typological guide of corruption risks.

Specific rules have been adopted and incorporated within the Group referential in order to mitigate the identified risks.

5.8.1.3 Internal standards

As an essential element of the Group referential, the Code of Conduct sets out the behavior to be adopted, in particular with regard to the question of integrity. It prohibits corruption, including influence peddling, and advocates "zero tolerance" in this area.

The Code of Conduct is complemented by a regularly updated set of anti-corruption standards. The Anti-Corruption Compliance Directive, which was updated in 2016, recalls the main principles and organizes the roll-out of the anti-corruption program. It deals, among others, with commitment, training and awareness raising, accounting and bookkeeping, the assessment system and whistleblowing mechanisms. This directive is complemented by rules that deal with more specific subjects in order to prevent the various identified risks.

In January 2020, the Group adopted a single rule to standardize the anti-corruption due diligence processes, to be performed before entering into business relations with third parties (suppliers, representatives dealing with public officials, agents with a commercial activity, beneficiaries of donations,

contributions or sponsorship, counterparties in corporate transactions, etc.). In addition, an IT supplier qualification tool, which incorporates the due diligence process, was developed to gradually be rolled-out within the Group.

Due diligence involves collecting information, identifying any risks of corruption and taking the appropriate mitigation measures. This process is performed by the relevant business persons with support from their Compliance Officer, who may call on the Branch Compliance Officer if necessary.

Early 2020, a rule was also adopted to deal with the recording and accounting of expenses covered by the anti-corruption compliance rules.

Other standards deal with high-risk areas, such as gifts and hospitality, which have to be registered and approved by the line manager above given thresholds; conflicts of interest, which must be reported to the line manager and addressed; anti-corruption measures implemented within joint-ventures; and human resources-related processes such as recruitment.

5.8.1.4 Awareness raising and training

Awareness raising actions are carried out toward all employees. The Group's intranet contains a section on the fight against corruption which provides employees with various media, e.g. the internal standards or guides such as the booklet entitled Prevention and fight against corruption. Poster campaigns communicating the key messages in the risk areas are organized on a regular basis; the latest one was launched in mid-2018. An initial anti-corruption e-learning course was rolled out in 2011 in 12 languages, followed by a more in-depth e-learning module in 2015. This module is accessible to all employees and mandatory for the targeted personal (approximately 45,000 employees) and new hires.

More targeted training courses are also provided for the functions viewed as highly exposed (such as procurement and human resources), whether by the corporate or segments Compliance teams or by the Compliance Officers in the subsidiaries. Several online and face-to-face training sessions are organized every year for the Compliance Officers.

5.8.1.5 Feedback of information

The feedback of information is ensured primarily through an annual reporting process. This is performed by the Compliance Officers, reviewed by their Branch Compliance Officer and sent to the Chief Compliance Officer. This reporting contributes to monitor the roll-out and implementation of the anti-corruption program, through figures on key elements of the program, for example the number of training courses or due diligences performed.

The consolidated data resulting from this reporting, which reflects the results of the implemented policies, is presented once a year to the Executive Committee and the Board of Directors via the Governance and Ethics Committee. This presentation provides an opportunity to report the results of the undertaken actions at the very highest level and to review the roadmap aligned with the identified areas of improvement.

In addition, TOTAL takes actions in order to develop a speak-up culture and asks its employees to report any situations that they consider to be contrary to the Code of Conduct. This culture is encouraged by regular communications about the various speak-up channels; employees, depending on the option they feel is most appropriate, can contact any manager, human resources, the Compliance Officers or Ethics Officers, or the Group Ethics Committee. Both employees and third parties can refer to this Committee by writing to ethics@total.com. The Group will tolerate no retaliation measure toward anyone submitting a report in good faith and undertakes to respect confidentiality.

(1) Launched in 2004 within the World Economic Forum, PACI now numbers approximately 90 major corporations and forms a platform for discussion that brings together business leaders and governmental and non-governmental organizations, allowing them to share their experiences and ideas and develop best practices.

(2) The EITI brings together representatives of the governments of the member countries as well as representatives of civil society and business in order to strengthen transparency and governance with regard to income from oil, gas and mineral resources.

5.8.1.6 Assessment and monitoring

The anti-corruption program is monitored at the first level by the line managers and the Compliance Officers who are in charge of ensuring the day-to-day implementation of the rules. At the second level, controls are performed by the Compliance function, in particular through assessment missions (referred to as compliance reviews) that are undertaken by a dedicated team within the Group's Compliance and Legal Risk Management Department. In addition, the Group's Audit and Internal Control Division performs an annual off-site inspection to verify the quality of the reporting performed by the Compliance Officers, as well as missions relating to the Sarbanes-Oxley regulations. At the third level, Group Audit also helps monitor the anti-corruption program through audits performed according to a framework that includes compliance topics.

5.8.1.7 Sanctions

In line with the principle of zero tolerance and in application of the Code of Conduct and the Anti-Corruption Directive, any infringement of the anti-corruption standards must give rise to disciplinary sanctions, up to dismissal. The Group's resolve in this matter is recalled in communication media intended for employees as well as on the intranet. This resolve, which results from the management commitment, contributes, with the other pillars described above, to the robustness of the anti-corruption compliance program.

5.8.2 Fighting tax evasion



With a presence in more than 130 countries through 1,134 consolidated affiliates, TOTAL carries out its operations in a constantly changing environment and is subject to an increasingly complex set of tax regulations, which may be in conflict when combined or subject to varying interpretations, thus giving rise to potential tax risk.

In this context, TOTAL has developed a responsible tax approach based on clear principles of action and rigorous governance rules as set out in its tax policy statement, which was released in 2014 and is available to the public at sustainable-performance.total.com.

Tax policy:

Tax payments of TOTAL represent a substantial part of our Group's economic contribution to the countries in which we operate.

TOTAL is mindful of its responsibility and is committed to paying its fair share of taxes to the host countries of its operations, in compliance with applicable laws and conventions and in accordance with our Code of Conduct.

Our intercompany transactions are thus based on arm's length terms and our tax strategy is aligned with our business strategy. The formation of affiliates worldwide is driven by business operations, as well as regulatory constraints and JV requirements. It is the Group's long-term commitment not to create affiliates in countries generally acknowledged as tax havens and to repatriate or liquidate existing affiliates, where feasible.

Our tax policy's prime focus is certainty and sustainability in the long term. We believe that the expected short-term tax benefit derived from artificial or aggressive tax planning will often be outweighed by the reputational and future tax litigation risks inherent in such schemes.

The Group takes a responsible approach to the management and control of taxation issues, relying on well-documented and controlled processes to manage risk and ensure compliance with tax disclosure and filing obligations.

The management of tax risks is fully integrated in the Group's global risk management process. As part of this process, the Group VP Tax regularly reports to the Audit Committee and the Group Risk Committee on TOTAL's global tax position, risk monitoring and associated improvement actions.

We engage with a broad range of stakeholders, and especially with tax authorities, in a timely, transparent and professional manner which is the basis of a constructive and long-term relationship.

As a permanent member of the Extractive Industries Transparency Initiative (EITI) since its creation in 2002, TOTAL fully supports initiatives for greater transparency and accountability. We encourage governments to ensure that the tax reporting obligations they will impose upon multinational groups are consistent, coordinated and proportionate.

TOTAL publishes in its Registration Document an annual report covering the payments made by the Group's extractive affiliates to governments⁽¹⁾ and the full list of its consolidated entities, along with their countries of incorporation and of operations.

Since 2017, the Group also files a country-by-country reporting to the French tax authorities.

In 2019, in accordance with its tax policy, TOTAL entered into the Tax Partnership with the French authorities, upon inception of the program, thus pursuing greater transparency, dialogue and trust. In May 2019, TOTAL also endorsed the Responsible Tax Principles developed by the B Team, a non-profit organization bringing together business leaders and

representatives of civil society with the aim of promoting a sustainable form of economic and social development. This is a new step in the Group's efforts to promote a global responsible tax environment and encourage best practices.

As part of the 2019 fiscal year, the consolidated current income taxes amounted to \$5,469 million, representing an average tax rate of 34.1%.

(1) Refer to point 9.3 of chapter 9.

5.9 Value creation for host regions



In line with its ambition to become the responsible energy major and based on the values and principles formally set forth in its Code of Conduct and its Safety Health Environment Quality Charter, TOTAL wants to be a positive change agent for society and bring its contribution through its societal actions.

At a national level, the Group's activities generate value for the countries where it operates, and TOTAL intends to contribute to the development of economic opportunities for its host regions and the communities. At a local level, the Group's activities can be a source of opportunities for the people, but may also have an impact on the living conditions of local communities and residents. Finally, in order to address society's global concerns, the Group is committed to public interest.

Within this context, the Group has identified its main challenges in regards to creating and sharing value:

- fostering the economic development of the regions;
- managing societal challenges related to the Group's activities;
- engaging in citizenship initiatives.

In an effort to offer practical responses to its societal challenges that are adapted to the multitude of realities it encounters in the field, several divisions at the head office support the Group's subsidiaries in their societal initiatives.

5.9.1 Fostering the economic development of the regions



Recruiting local people and supporting the creation of businesses

In addition to contributing directly to job creation in the countries where the Group operates (refer to point 5.3 of this chapter), the Group is committed to recruiting local people and subcontractors, if its operational imperatives so permit.

Each of the Group's major industrial projects with high local content is part of an industrial strategy that aims to maximize the impact on the host country measured in terms of new jobs. This strategy is based on the analysis of all the local industrial and human capacities and the associated risks, resulting in a plan of specific actions. These action plans help to structure technical resources, in particular through training courses, which strengthen human skills, and supporting economic development by supporting SMEs and recruiting local people. For example, for the Kaombo project in Angola, in cooperation with Angola's national oil company, Sonangol, TOTAL required more than 21 million hours to be worked locally, which was above the initial objective of 13.5 million hours, to produce and assemble complex equipment. The equivalent of 2,600 jobs have been created (on average over 2.5 years) with a peak of over 4,000 jobs (excluding indirect jobs and new jobs created).

In addition, through the entrepreneurial contest, the Startupper of the Year Challenge, TOTAL confirms its desire to support the socio-economic development of the countries worldwide where the Group is present. It contributes locally to the strengthening of the social fabric by helping the most innovative entrepreneurs to turn their projects into reality. Following the success of the first contest in 2015-2016 in 34 African countries, the 2018-2019 challenge was extended to 55 countries worldwide. With 13,100 projects submitted, it rewarded 165 young local entrepreneurs who launched a project or created a company within the last two years, irrespective of the segment of activity, and 55 female entrepreneurs were awarded a "Female favorite".

During the second contest, six grand winners were invited to a week-long training session at the top Parisian incubators and to participate in Vivatech (Paris) and One Young World (London) – two international events relating to entrepreneurship. The third contest has been announced and is expected to take place in 2021-2022.

Leveraging the reindustrialization of the Group's platforms

In France, the Group supports SMEs through its *Total Développement Régional* (TDR) subsidiary. TDR proposes various measures that contribute to creating and keeping jobs in the long term, such as financial support for the creation, development or takeover of SMEs in the form of loans, support for setting up industrial projects with actors in local development, or support for exports and international development. Between 2017 and 2019, loans were granted to more than 530 SME projects, amounting to a total of more than €30 million, and more than 11,000 jobs were supported.

Additionally, TOTAL implements a specific approach to support the conversion of its industrial sites through two additional projects carried out at the same time:

- a project for the future is carried out by the sector concerned, taking into account an analysis on market developments. The objective is to adapt the industrial tool in order to make the Group's industrial sites competitive over the long term; and
- a Voluntary Agreement for Economic and Social Development (CVDES) is implemented to support the site and its ecosystem (subcontractors, stakeholders, etc.) during this period of change.



On Carling's industrial platform (France), following the shutdown of the second steam cracker in 2015, TOTAL led a project for the future without any job losses and in keeping with its contractual commitments to its customers and partner companies. TOTAL invested €190 million to develop new activities in the growing hydrocarbon resins (Cray Valley) and polymers markets. TDR managed a fund to support subcontractor companies. TDR also helped to set up industrial projects which benefit from a shared services offer and new governance implemented on the platform.

The CVDES relating to Carling's site was ended in 2018 with a final commitment of €12 million in grants. TDR also committed to support these industrial projects until the effective start-up of the production units. In this way, TOTAL confirms its responsibility towards the employment areas in which the Group operates as well as its commitment to maintain a strong and lasting industrial presence in the Lorraine region.

The conversion of the La Mède refinery (France), through an initial investment greater than €275 million, is underway with the start-up of

the first French biorefinery and an Adblue⁽¹⁾ production workshop in July 2019. The site also has an 8 MW solar farm, which was commissioned in 2018, and a training center, OLEUM, which started up in 2017. This project has been carried out without any lay offs.

The CVDES signed for La Mède for 2016-2019 has been extended for 2020. TDR is supporting the subcontractors and putting the Group's commitments into action. In 2018 and 2019, TDR also supported financially seven industrial projects and one industrial demonstrator to create 262 new jobs.

On the Lacq platform in France, a TDR unit, hosted by Sobegi, the platform's controller, researches and examines third-party industrial projects that could join the platform. A working group comprising the Pau-Béarn chamber of commerce and industry, the Chemparc public interest group, the Lacq-Orthez district authority, Sobegi and TDR, is actively looking for investors in Europe and Asia, with the help of two expert consulting firms.

5.9.2 Managing societal/society challenges related to the Group's activities



5.9.2.1 Operational societal approach

The Group includes societal challenges when conducting its operations through its One MAESTRO reference framework (refer to point 5.4 of this chapter) and focuses in particular on managing relationships with stakeholders and local impacts. Guides, manuals, video tutorials and a community of practices, available on the Group intranet site and updated in 2019, help the subsidiaries to implement their operational societal approach, which is adapted to the specific local requirements of the regions and communities. The Group's framework defines a structured process, the main stages of which are:

- the analysis of the challenges and local societal context;
- the development of a societal strategy integrated with operations; and
- implementing and monitoring societal actions and projects.

Analysis of the challenges and the societal context

Prior to investment, acquisition and divestment decisions, the projects presented to the Group's Risk Committee are assessed according to their societal potential risks. When a new industrial site is developed, an initial pre-project survey must be conducted in advance to identify any potentially affected stakeholders and to describe and assess the main socio-economic and cultural challenges in the impacted area. It is complemented by societal impact assessments that measure and analyze the impacts –actual and potential, positive and negative, direct and indirect, in the short, medium and long term– of the project. In 2019, eight assessments were conducted, seven by Exploration & Production and one by Integrated Gas Renewables and Power (Benin).

With respect to the East African Crude Oil Pipeline (EACOP) project in Uganda and Tanzania, and the project in Papua New Guinea, the impact assessments is carried out in accordance with national and international standards, in particular those of the International Finance Corporation (IFC) which are among the most stringent in terms of environmental and societal standards. In November 2019, the supervisory authority in Tanzania (the Ministry of the Environment) approved the final report of the ESIA for the EACOP project which started in January 2017.

In addition, the Group's One MAESTRO framework provides an assessment of the local societal context of the subsidiaries (sensitivity of the socio-economic and cultural context, including human rights). This assessment must be updated at least every five years. It depends largely on dialogue with stakeholders: authorities, neighboring communities, local business players or civil society. One of the tools developed by TOTAL is the internal Stakeholder Relationship Management (SRM+) methodology which was introduced in 2006 in most of the Group's subsidiaries and gradually in those recently created or acquired.

Development of a societal strategy integrated with operations

Every subsidiary pays close attention to local issues by defining short-term and long-term societal targets and its priority fields of action that take account of:

- the need to remain within the regulatory and contractual framework, as well as meeting the applicable international standards;
- the analysis of the challenges and the societal context in terms of risks, impacts and opportunities;
- the Group's voluntary commitments on citizenship initiatives.

These targets are built into a structured operational action plan, based on three pillars:

- dialogue and involvement of local stakeholders;
- avoiding and reducing the societal impacts of the Group's activities;
- taking initiatives to create a positive impact on neighboring local communities.

Implementing and monitoring societal actions and projects

The societal teams reporting to HSE division and their local correspondents lend their expertise to the operational subsidiaries to implement the One MAESTRO framework. Societal aspects are included within the scope of the One MAESTRO audits that produce recommendations to reinforce the control of operations. Moreover, the subsidiaries must conduct an annual self-assessment of their societal initiative and an annual internal report to list the societal actions taken locally.

(1) Fuel additive intended for road transport and designed to lower nitrogen oxide (NOx) compound emissions.

In addition to the global training covering all the HSE topics, specific training is given to managers and operational personnel in charge of societal matters, such as *The basics of societal engineering* (two sessions in 2019, with 30 participants), or advanced and specific training modules in the operations of Exploration & Production (two sessions in 2019, in Nigeria, with 20 trainees).

5.9.2.2 Local stakeholders engagement

TOTAL sets up dialogue procedures based on the consultation and involvement of stakeholders in order to develop constructive and transparent relations with them.

The One MAESTRO framework provides that subsidiaries shall establish a structured and regular dialogue process with their stakeholders to inform and listen to them and take into account their concerns and expectations, to report on mitigation actions or compensation, to measure their satisfaction and to identify means of improving their societal policy. In the Refining & Chemicals segment, there are structures for dialogue with local stakeholders, such as the Community Advisory Panels in the United States or the special local commissions on some European platforms. The Marketing & Services segment has developed tools to engage stakeholders and which are adapted to the diversity of its businesses (oil terminals, filling sites, lubricant plants, road transport or service stations) which may easily be extended over large regions such as, for example, in South Africa or in China in 2019.

TOTAL acknowledges the specificities of indigenous and tribal peoples (as referred to in International Labor Organization Convention No. 169) and has developed a Charter of Principles and Guidelines to be followed with these communities which may be affected by its activities. This charter encourages the use of experts in order to identify and understand these peoples' expectations and specificities, consult them and contribute to their socio-economic development. This initiative is also consistent with the United Nations Guiding Principles on Business and Human Rights.

The approach to dialogue at Exploration & Production is managed in certain subsidiaries by local community liaison officers who speak the language and understand the customs. They play a decisive role in establishing a good relationship and paying special attention to listening to the most vulnerable populations (ethnic minorities, natives, women). In 2019, they conducted more than 2,800 meetings on the EACOP project, involving 50,000 people in 226 villages and 533 hamlets. Different communication tools and media are used to disseminate information on the subsidiaries' operational activities: public meetings, letters of information or posters in villages.

5.9.2.3 Managing the societal impacts of the Group's activities

Avoid, reduce and compensate

Following the analysis of the challenges and the societal context, various actions have been taken by subsidiaries to minimize the impacts. For examples in 2019:

Impacts for local communities on access to land and maritime space

In Papua New Guinea, an environmental and societal impact assessment for the Upstream part of the Papua LNG project was submitted, in accordance with regulations, the IFC standards and the Group's framework, to the Conservation and Environment Protection Authority (CEPA) after a review by a panel of external experts. Particular attention was given to issues relating to access to land and maritime space.

Impacts on cultural and religious practices and heritage

Archaeological heritage is taken into account before any type of work in Papua New Guinea. Archaeological and cultural heritage assessments were carried out before the geotechnical and geophysical studies and preparatory works in 2019. These studies are always submitted for approval to the National Museum and Art Gallery. As part of the EACOP project in Tanzania, a team of archaeologists from the University of Dar es Salam assisted the teams throughout the geophysical and geotechnical acquisitions, giving rise to adjustments in the acquisition zones and unexpected discoveries of pottery shards and flint, which was promising for increasing knowledge in these areas.

Handling grievances from neighboring communities

In accordance with the One MAESTRO framework, the Group's operational entities are implementing procedures to handle grievances in order to provide residents and local communities with a preferential channel to voice their problems and grievances. Handling these grievances locally makes it possible to offer a response to anyone who feels that they have suffered damage and to improve internal processes in order to reduce nuisances or impacts that may be caused by the operations. Within the One MAESTRO perimeter (refer to point 5.11.4 of this chapter), 100% of Refining & Chemicals sites have an operational grievance mechanism. Deployment is gradual in the Group's other segments.

In 2019, the Exploration & Production segment carried out continuous improvement initiatives, for example, in Bolivia, to reduce the grievance settlement period to less than 30 days for simple cases. In the Refining & Chemicals segment, residents joined forces in the search for solutions to control the impacts of activities. At Marketing & Services, a kit has been developed to help the operational subsidiaries to set up a dedicated management that is separate from the business claims.

5.9.2.4 Taking socio-economic initiatives in favor of local communities

First and foremost, the local projects address the issues of development and solidarity identified thanks to consultations with local communities and favor cooperation and skills development.

Providing access to basic needs (access to energy, water, health, etc.)

The Integrated Gas, Renewables & Power branch is developing an access-to-energy offer based on clean and affordable solutions. Thanks to the involvement of 38 of the Group's subsidiaries, with 37,000 individuals receiving training in solutions and sales, 14.6 million people were able to benefit from the program at the end of November 2019. In France, TOTAL is pursuing its actions against fuel poverty, by helping low-income households to renovate thermally their homes alongside the French government and other energy suppliers in the Habiter Mieux (Living Better) program (€31.5 million in 2019), as well as the initiatives for social housing (€4.6 million in 2019).

In 2019, Exploration & Production made several contributions to human development. Literacy courses were given to local inhabitants of Djeno in the Republic of Congo to enable them to obtain a basic level in French and facilitate access to jobs, particularly in the neighboring oil terminal operated by TOTAL. Since the launch, 436 people (around 60% of women) have already benefited from these courses. In Papua New Guinea, a national identification program was set up in partnership with the authorities (PNG Civil & Identity Registry). The first campaign has made it possible for 7,500 people to be registered and who will be issued identity cards.

Contributing to the development of local communities

At Exploration & Production in Nigeria, the OML 58 project supports the development of micro-sized agricultural enterprises: in 2019, 625 fish farmers and 300 poultry farmers received a donation of animals and food to increase their production and, as a result, pass the poverty line

themselves. In Bolivia, TOTAL supports, in partnership with Adapicruz, the honey producers association, and the NGO SNV development, training initiatives among 30 producers, the supply of equipment and promotion of this economic activity among young people.

5.9.3 Engaging in citizenship initiatives: the Total Foundation program



In addition to the solutions proposed by TOTAL in response to the direct expectations of the people and related to its operations, the Group wants to contribute to the local actions in the countries where it operates by addressing global societal challenges.

5.9.3.1 The Total Foundation program

In the face of growing inequality and environmental challenges, the Group’s wish has been to strengthen its public interest initiatives and efforts in the development of the regions in which it is present by favoring in particular actions that benefit young people first. In 2017, it has therefore decided to structure its actions within the framework of the *Total Foundation* program, which covers the citizenship initiatives undertaken every day worldwide by the Group’s subsidiaries and by its corporate foundation.

The *Total Foundation* program focuses on four areas of action: youth education and inclusion, road safety, forests and climate, cultural dialogue and heritage.

Through the *Total Foundation* program, the Group and its corporate foundation are partnering with all the stakeholders of a region (associations, government authorities, businesses, experts, etc.) to propose solutions adapted to the local needs. They want to broaden the scope for action beyond financial support and develop new sustainable models by experimenting through social innovation projects. Their involvement also includes advising and supporting partners in their development and skills sponsorship. Since 2018, the *Action!* program, for example, allows TOTAL employees to spend up to three days a year of their working time on solidarity projects. At the end of 2019, *Action!* had been implemented in 25 countries.

The *Total Foundation* program contributes in this way to the United Nations Sustainable Development Goals, particularly in reducing inequalities (SDG 10), youth inclusion (SDG 4) and collective action (SDG 17).

5.9.3.2 Four areas of action

The *Total Foundation* program is structured around four societal challenges, in line with the Group’s history, values and businesses.

Youth education and inclusion

The professional inclusion of young people is a real challenge on all continents. The first area of the *Total Foundation* program aims to empower young people, particularly socially at-risk young people, by means of support and guidance, training, particularly in industry, and insertion in the workplace.

In this context, and by way of example, in 2019, the first stone of L’INDUSTREET, a campus for the industry of tomorrow, was laid in Stains in the Paris region. This new industry professions training center will provide free training and offer innovative teaching to young people

who have not found their place in the traditional education system. Over time, it will welcome 400 young people between 18 and 25 years old.

The *Fondation d’entreprise Total* continues to support the *Ecoles de Production* that enable young people to learn a trade using the “learning by doing” teaching method. As a result, five new schools were opened in 2019 with the *Fondation d’entreprise Total* support. TOTAL also supports four Eiffel high schools in Angola which provide free, quality teaching to young people in socially vulnerable situations.

Road safety

Road accidents are the leading cause of death among young people worldwide. The *Total Foundation* program aims to take action for safer mobility by educating youth, training and raising drivers’ awareness and supporting road safety policies.

In this context, for example, in 2019, the *Fondation d’entreprise Total* continued the deployment of the VIA youth awareness program through interactive and innovative methods, in Cameroon, France, India, Romania and Myanmar.

It has partnered with the NGO YOURS to organize the World Youth Assembly for Road Safety in February 2020 in Stockholm in order to contribute to target 3.6 of the SDGs: halving the number of road accident victims. The *Fondation d’entreprise Total* also signed a partnership agreement with the International Bank for Reconstruction and Development (IBRD) to make its financial contribution to the Global Road Safety Facility, the objective of which is to develop the skills of authorities on the collection and analysis of road data as part of the creation of the African Road Safety Observatory.

Forests and climate

Global warming is a major challenge for humanity, biodiversity and the socio-economic balance. The *Total Foundation* program aims to take action to protect sensitive ecosystems through the natural storage of carbon, improve biodiversity and the quality of life of local communities, and raise awareness of young people in environmental conservation.

In this context, for example, the partnerships set up in 2018 by the *Fondation d’entreprise Total* continued in 2019 in France, with the National Forests Office or with the School and Nature Network. In 2019, new partnerships were established for the preservation and conservation of sensitive ecosystems:

- with the AGROPOLIS Foundation to identify sustainable agricultural practices in France, Senegal, Kenya and Zimbabwe, in order to improve soil fertility and identify sustainable agricultural practices (food security challenges) but also to promote carbon storage in soils (climate change issues);
- with the Tessékéré International Man-Environment Observatory (OHMI) to support the Great Green Wall program (fight against desertification in the sub-Saharan region) through research and planting in Senegal and Burkina Faso.

Cultural dialogue and heritage

Cultural diversity is a driver of peace and prosperity. The *Total Foundation* program aims to promote heritage and the cultural openness of young people through actions to conserve heritage, to support contemporary creation by young people and to encourage access to artistic and cultural education.

In this context, and by way of example, in 2019, TOTAL pledged, within the framework of the historic partnership between the *Fondation d'entreprise Total* and the *Fondation du Patrimoine*, €100 million to the reconstruction of Notre-Dame Cathedral in Paris. The *Fondation d'entreprise Total* supports initiatives to combat social reproduction mechanisms, such as the Paris Philharmonic Orchestra's "Demos" program. It also supports events promoting contemporary creation locally such as *Gigantisme* in Dunkirk, the Contemporary Art Biennale in Lyon or *Traversées* in Poitiers.

5.10 Contractors and suppliers



TOTAL's activities generate hundreds of thousands of direct and indirect jobs worldwide. Present in more than 130 countries, the Group currently works with a network of more than 100,000 suppliers of goods and services. In 2019, the Group's purchases of goods and services (excluding petroleum products and vessel chartering by Trading & Shipping) represented approximately \$26 billion worldwide. The allocation of expenditures on the Group level is approximately 31% for goods (products, materials, etc.) and approximately 69% for services (in particular consulting services, work with supply of materials, transport, etc.).

Through their activities, the Group's subcontractors and suppliers may face the same risks that the Group encounters in its own activities notably in terms of societal and environmental risks. The most prominent risks relate mainly to human rights in the workplace (forced labor, child labor, discrimination, fair and equitable working conditions and safety), health, security and safety, corruption, conflicts of interest, fraud and the environment.

TOTAL's success as a responsible company is played out all along its value chain, and the Group is convinced of the importance of working with suppliers that respect human rights and take care of their employees. The Group expects its suppliers to adhere to principles equivalent to those in its own Code of Conduct, as set out in the Fundamental Principles of Purchasing. To this end, the Group wanted the management of its supplier relations to be coordinated by the dedicated cross-functional Total Global Procurement entity, which is tasked, in particular, with delivering Purchasing services and assisting the Group's entities and sites, mainly in Exploration & Production, Refining & Petrochemicals, Marketing & Services and Integrated Gas, Renewables & Power. This approach is complemented by employee training programs and actions to raise awareness amongst the Group's, customers and suppliers. Its success is also based on TOTAL's involvement in international initiatives or collaborative approaches specific to the energy sector that promote the emergence of good practices.

5.10.1 The Group's responsible procurement policy



The Group ensures that contractual conditions are negotiated in an equitable manner with its suppliers. The Code of Conduct restates this requirement and the three essential principles that guide TOTAL's relations with its suppliers: dialogue, professionalism and the fulfillment of commitments.

These principles are also set forth in the Fundamental Principles of Purchasing, launched in 2010, that specify the commitments that TOTAL expects its employees and suppliers to adhere to in the following areas: respect for human rights at work, the protection of health, security and safety, preservation of the environment, prevention of corruption and of conflicts of interest and the fight against fraud, respect for competition law, as well as the promotion of economic and social development. These principles uphold the fundamental principles defined in particular in the United Nations Universal Declaration of Human Rights, the fundamental conventions of the International Labor Organization, the United Nations Global Compact and the OECD Guidelines for multinational enterprises.

In early 2020, as part of its continual improvement strategy, Total Global Procurement finalized an update to the CSR risk map associated with the Group's procurement for each category of goods and services. This map can be credited to the methodological work carried out with support from AFNOR during the second half of 2019. The process involved over 80 internal employees, CSR experts and buyers. A Responsible Procurement roadmap, which was updated in 2019, defines TOTAL's guidelines for 2019-2023 in terms of respecting human rights throughout the supply chain, environment and economic development. Representatives of the Management Committee of Total Global Procurement and the Civil Society Engagement, HSE and Legal divisions as well as of the Ethics Committee are invited at least once a year to participate to the Responsible Procurement Committee which is tasked with monitoring the implementation of the Group's Responsible Procurement roadmap.

Employee awareness-raising actions and training

TOTAL has set up a number of channels of communication to raise employee awareness of the risks and issues related to its supply chain. Training modules explaining the Group's ethical commitments and the Fundamental Principles of Purchasing have been developed for and made available to Group procurement representatives. In 2019, more than 300 buyers were raised and/or trained on respect of human rights and working conditions by suppliers, and 134 on anti-corruption rules.

The Group provides its buyers with supporting materials, such as the "Sustainable Purchasing Awareness Cards". These factsheets cover various topics relating to human rights at work (such as forced labor and child labor, etc.). A set of communication tools intended to help procurement representatives enter discussions on the Fundamental Principles of Purchasing was also distributed within Total Global Procurement. The materials used in the annual performance review have been revised to include a section on human rights.

In June 2019, the Total Global Procurement seminar was attended by 239 participants (buyers and procurement support functions) and addressed a focus on responsible procurement. When updating the CSR risk map relating to the Group's procurement, workshops were held to alert buyers to the issue of responsible procurement.

With respect to the development of good practices in business relations, TOTAL has consistently raised its employees' awareness of mediation as an alternative method for resolving disputes since 2013. In 2019, an open day for employees of the Group, lawyers and operational staff, enabled participants to learn about the benefits of mediation. A brochure designed to increase awareness of the mediation process is available to all Group employees. In addition, an email address (mediation.fournisseurs@total.com) is available on the TOTAL website to allow the Group's suppliers to contact the dedicated internal mediator, who is tasked with facilitating relations between the Group and its French and international suppliers. The general purchasing terms and conditions also mention the possibility of recourse to mediation.

5.10.2 The Group's policy applied to the supply chain



TOTAL expects its suppliers to:

- adhere to the Fundamental Principles of Purchasing and ensure that they are adhered to in their activities;
- accept to be audited according to these principles;
- remain attentive to the everyday working conditions of their employees and their suppliers' employees;
- ensure that their own suppliers and subcontractors adhere to these Fundamental Principles of Purchasing;
- refer to the Group Ethics Committee in case of doubt or in the event of any malfunction.

The rules set out in these Principles must be included or transposed into the agreements concluded with suppliers. To this end, these Principles are available for consultation by all suppliers in both French and English on TOTAL's website (under "Suppliers").

For example, when renewing its office equipment in 2019, environmental transition experts from the Greenflex subsidiary assisted buyers with defining the Group's recyclability and energy performance requirements in the specifications.

The supplier qualification process

The supplier qualification process was harmonized at Group level in 2017 by Total Global Procurement. A new internal framework was published in 2018. A new computerized qualification tool was developed in 2019 and will gradually be rolled out in over 100 countries. In 2019, more than 4,000 suppliers managed by Total Global Procurement in France have been incorporated into the application.

It is designed to automate and document the supplier qualification process, which unfolds in four stages:

1. confirmation from the technical expert of the value in launching the qualification process;
2. a risk pre-analysis to decide whether an in-depth analysis of each criterion is necessary (HSE, anti-corruption, societal responsibility, financial, technical);
3. determination of the qualification status;
4. monitoring and renewal of qualification. Qualifications are valid for three years.

The supplier assessment process

Simultaneously, the Group has set up a supplier assessment process to identify and prevent risks of severe impacts on human rights and fundamental freedoms, human health and safety. Thus, since 2016, the Group conducts audit campaigns on working conditions of its suppliers. A targeted annual audit plan is defined every year and includes the suppliers put forward by the subsidiaries based in countries that have been identified as having a certain level of risk of human rights violations. The number of audits performed in 2019 was quadrupled compared to 2018. Since 2016, those audits have covered a population of close to 80,000 people worldwide.

Moreover, TOTAL, BP, Equinor and Shell are continuing their efforts to develop a common collaborative platform to assess the respect of human rights by their suppliers. TOTAL remains firmly convinced of the importance of working with suppliers that respect human rights, on the one hand, and take care of their employees, on the other hand. Together, the partner companies are pursuing the goal of encouraging the improvement of working conditions in the supply chain of the companies involved. This initiative addresses the United Nations SDG N° 8: "to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all".

Supplier awareness-raising actions

The deployment of the anti-corruption policy in purchasing continued in 2019. In addition to numerous initiatives taken in previous years, approximately 120 suppliers underwent an anti-corruption analysis in the perimeter of Total Global Procurement through the issuing of specific questionnaires, completed, in some cases, by external inspections.

Awareness-raising actions are also carried out during meetings with suppliers, particularly the *Suppliers Day* event that brings the Group's strategic suppliers together every two years. During Suppliers Day in 2019, the Fundamental Principles of Purchasing and the Group's new Code of Conduct were distributed to all participants. Particular emphasis was given to responsible procurement and the Group's principle of zero tolerance towards corruption.

Every year, the International Procurement Office (TOTAL IPO in Shanghai, China) organizes a compliance day. During the event, one of the qualified suppliers is invited to share the actions that it has taken regarding anti-corruption compliance, the concrete problems encountered and how it deals with them. Special focus was given to the issue of respect for human rights, which was also addressed during the Suppliers Day event organized by the IPO in Shanghai in December 2019.

Finally, pursuant to Rule 13p-1 of the Securities Exchange Act of 1934, as amended, which implemented certain provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, TOTAL

has submitted since 2014 to the SEC an annual document relating to “conflict minerals”⁽¹⁾ sourced from the Democratic Republic of the Congo or an adjoining country. The document indicates whether, during the preceding calendar year, any such minerals were necessary to the functionality or production of a product manufactured (or contracted to be manufactured) by TOTAL S.A. or one of its affiliates. The main objective of the rule’s obligation to publish this information is to prevent the direct or indirect funding of armed groups in central Africa. For more information, refer to TOTAL’s most recent publication available at: sustainable-performance.total.com or www.sec.gov.

5.10.3 The Group’s responsible procurement actions



Since 2010, TOTAL is a signatory to the French Economy and Finances Ministry’s Responsible Supplier Relations Charter, which aims to allow more sustainable and balanced relations between customers and suppliers.

Since 2018, TOTAL has been a member of the United Nations Global Compact platform on Decent Work in Global Supply Chains, and, in this capacity, takes part in various workshops that aim to help the member companies of the Global Compact make progress in this area. In December 2018, the Group committed to pursuing its efforts in terms of decent work and respecting human rights in its supply chain by signing the “Six Commitments” of the United Nations Global Compact. In October 2019, TOTAL welcomed participants at its offices for the platform’s fourth and last round table meeting.

The Group’s buyers also take part in international working groups on responsible procurement. TOTAL belongs to the IPIECA’s Supply Chain Working Group. Building on the workshops held since 2015, TOTAL continued to participate in the Operationalization of the UN Guiding Principles work organized by the IPIECA, aimed at both oil and gas companies and engineering, procurement and construction (EPC) contractors.

TOTAL is also involved in driving local economic development both in France and abroad. In April 2019, TOTAL launched the “Total SME Pool” program to help 10 of the Group’s small and mid-cap suppliers grow their business. For a year, these 10 companies will have the free opportunity

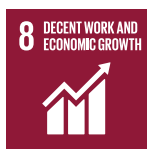
of networking with other large organizations, receiving support and guidance for their executives and obtaining assistance with ramping up their international development through the “Total Développement Régional” entity.

Finally, the Group pays special attention to the disabled and protected employment sectors. In France, the Group’s purchases from this sector enabled the achievement of an indirect employment rate of nearly 1% in 2019. TOTAL is a member of the Pas@Pas association and provides its buyers with an online directory that can be used to identify potential suppliers and service providers (disabled or protected employment sectors) by geographical area and by category. Various meetings were organized in liaison with the Disability Program to familiarize the relevant buyers in Total Global Procurement with the Group’s commitments and the new application available.

In 2019, TOTAL supported, for the first time, the “Awards for Women in Disability-Inclusive Companies” spearheaded by the Handiréseau association and took part in the jury paying tribute to the exemplary careers of disabled women working in the disabled and protected employment sectors. In October 2019, the Group signed UNEA’s (National Union of Disability-Inclusive Companies) charter during the Inclusive Tour organized for a corporate audience. This commitment was made in the presence of France’s Minister for Employment and is aimed at accelerating the process of creating jobs and promoting disability-inclusive companies.

(1) Rule 13p-1 defines “conflict minerals” as follows (irrespective of their geographical origin): columbite-tantalite (coltan), cassiterite, gold, wolframite as well as their derivatives, which are limited to tantalum, tin and tungsten.

5.10.4 Payment terms



The payment terms for invoices from suppliers and customers of TOTAL S.A. as of December 31, 2019, in application of the provisions of Article D. 441-4 of the French Commercial Code, are as follows:

As of December 31, 2019
(M€)

	SUPPLIERS						CUSTOMERS					
	Invoices received and outstanding at the closing date of the previous fiscal year						Invoices issued and outstanding at the closing date of the previous fiscal year					
	0 days (provisional)	1 to 30 days	31 to 60 days	61 to 90 days	91 days or more	Total (1 day and more)	0 days (provisional)	1 to 30 days	31 to 60 days	61 to 90 days	91 days or more	Total (1 day and more)
(A) Late payment brackets												
Number of invoices affected	5,219					2,008	182					14,925
Total value of invoices affected (including tax)	31	7	2	2	9	20	164	30	175	46	278	529
Percentage of the total value of purchases for the fiscal year (including tax)	1%	0%	0%	0%	0%	0%						
Percentage of sales for the fiscal year (including tax)							2.8%	0.5%	3.0%	0.8%	4.8%	9.1%
(B) Invoices excluded from (A) relating to disputed or unrecorded liabilities and receivables												
Number of invoices excluded			None								None	
Total value of invoices excluded			None								None	
(C) Reference payment terms used (contractual or legal – Article L. 441-6 or Article L. 443-1 of the French Commercial Code)												
Payment terms used for late payment penalties						Legal payment terms						Legal payment terms

5.11 Reporting scopes and method

5.11.1 Frameworks

The Group's reporting is based:

- for social indicators, on a practical handbook titled "Corporate Social Reporting Protocol and Method";
- for safety indicators, on the Corporate Guidance on Event and Statistical Reporting;

- for environmental indicators, on a Group reporting procedure, together with segment-specific instructions.

These documents are available to all companies of the Group and can be consulted at Corporate headquarters, in the relevant departments.

5.11.2 Scopes

Social reporting is based on two surveys: the Global Workforce Analysis, and the complementary Worldwide Human Resources Survey. Two centralized tools (Sogreat and HR4U) facilitate performance of the above surveys.

The Global Workforce Analysis is conducted once a year, on December 31, in all the controlled, consolidated Group companies (refer to Note 18 to the Consolidated Financial Statements, point 8.7 of chapter 8) having employees, i.e., 321 companies in 102 countries on December 31, 2019. This survey mainly covers worldwide workforces, hiring under permanent and fixed-term contracts (non-French equivalents of *contrats à durée déterminée* or *indéterminée*) as well as employee turnover at the worldwide level. This survey produces a breakdown of the workforce by gender, professional category (managers and other employees and non-French equivalents), age and nationality.

The Worldwide Human Resources Survey (WHRS) is an annual survey that comprises 231 social indicators, including the health indicators described in chapter 5.4. The indicators are selected in cooperation with the relevant counterparties and cover major components of the Group Human Resources policy, such as mobility, career management, training, work conditions, social dialogue, Code of Conduct deployment, human rights, health, compensation, retirement benefits and insurance. The survey covers a representative sample of the consolidated scope. The data published in this document is extracted from the most recent survey, carried out in December 2019 and January 2020 at 127 companies in 52 countries, representing 88,7% of the consolidated Group workforce (95,604 employees) replied to the survey.

The "Socle social commun" scope covers the following companies in France: TOTAL S.A., Elf Exploration Production, Total Marketing Services, Total Marketing France, Total Additifs et Carburants Spéciaux, Total Lubrifiants, Total Fluides, Total Raffinage Chimie, Total Petrochemicals France, Total Raffinage France, Total Global Information Technology Services, Total Global Financial Services, Total Global Procurement, Total Global Human Resources Services, Total Learning Solutions, Total Facilities Management Services and Total Consulting.

Reporting on environmental and climate change-related indicators covers all activities, sites and industrial assets in which TOTAL S.A., or one of the companies it controls exclusively, is the operator, i.e., either operates or contractually manages the operations ("operated domain"). Compared to the scope of financial consolidation, this corresponds to fully consolidated companies, with some exceptions⁽¹⁾. The subsidiaries operated by the Group that are not fully consolidated because they are not material from a financial standpoint are consolidated in the reporting on environmental indicators.

Greenhouse gas (GHG) emissions "based on the Group's equity interest" are also published for the "equity interest domain". This scope, which is different from the "operated domain", includes all the assets in which the consolidated subsidiaries have a financial interest or rights to production. This scope includes the entire statutory scope of the consolidated non-financial performance statement and the emissions of some 30 equity affiliates.

The list of environmental and climate change-related indicators on which an entity must report is drawn up on the basis of the materiality thresholds for 2019 (refer to the section entitled *Consolidation method*).

Safety reporting covers employees of subsidiaries controlled exclusively by the Group, employees of contractors working on sites, assets or for activities operated by these subsidiaries and employees of transport companies under long-term contracts. Compared to the scope of accounting consolidation, this corresponds to fully consolidated companies, with some exceptions⁽²⁾. The subsidiaries operated by the Group that are not fully consolidated because they are not material from a financial standpoint are consolidated in the reporting on safety indicators.

In 2019, the Group safety reporting scope covered 467 million hours worked, equivalent to approximately 260,000 people.

Reporting on the Voluntary Principles on Security and Human Rights (VPSHR) covers the Group entities and subsidiaries that are particularly exposed to the disproportionate use of force. It is based on an internal survey, whose results are consolidated by the Security division. In 2018, the VPSHR report covered approximately 100 entities.

Consolidation method

For the scopes defined above, the safety and social indicators are fully consolidated.

For the "operated domain" scope, the environmental indicators are fully consolidated. For the "equity interest domain", greenhouse gas emissions are consolidated based on the Group's equity interest in the assets or on its share of production for oil and gas production assets. For non-operated assets, TOTAL relies on information provided by its partner operators. In cases where this information is not available, estimates are made based on past data, budget data or by pro rata with similar assets.

(1) As an exception, the scope of reporting on environmental and climate change-related indicators does not include Polyblend, which is controlled exclusively, Naphtachimie, BASF TOTAL Petrochemicals and Appryl, which are controlled jointly, and approximately 80 jointly-controlled assets operated by third parties in Exploration & Production.

(2) As an exception, the scope of reporting on safety indicators does not include Polyblend, which is controlled exclusively, Naphtachimie, BASF TOTAL Petrochemicals and Appryl, which are controlled jointly, and approximately 80 jointly-controlled assets operated by third parties in Exploration & Production. The scope includes Hanwha TOTAL Petrochemicals Co. Limited and Bayport Polymers LLC, which are financially consolidated as equity affiliates.

5 Non-financial performance

Reporting scopes and method

The list of environmental and climate change-related indicators on which an entity must report is drawn up on the basis of the materiality thresholds (refer to the section entitled *Consolidation method*). These thresholds were calibrated in order to report 99% of greenhouse gas emissions and 95% of the Group's other emissions observed or modeled based on data related on fiscal year 2018. In addition, no site accounting for more than 2% of an indicator excludes this indicator from their reporting.

Changes in scope of consolidation

Social indicators are calculated on the basis of the consolidated scope of the Group as of December 31, 2019. These social data are presented on the basis of the operational business segments identified in the 2019 Consolidated Financial Statements.

5.11.3 Adopted principles

Indicator selection and relevance

The data published in the Registration Document is intended to inform stakeholders about the Group's annual results in social and environmental responsibility. The environmental indicators include the Group's performance indicators with reference made, to a large extent, to the IPIECA reporting guidelines, updated in 2015.

Methodological specificities

The methodology may be adjusted, in particular due to the diversity of TOTAL's activities, the integration of newly acquired entities, lack of regulations or standardized international definitions, practical procedures for collecting data, or changes in methods.

Restatement of previous years' published data, unless there is a specific statement, is now limited to changes of methodology.

5.11.4 Details of certain indicators

Social definitions and indicators

Outside of France, "management staff" refers to any employee whose job level is the equivalent of 300 or more Hay points. Permanent contracts correspond to *contrats à durée indéterminée* (CDI) and fixed-term contracts to *contrats à durée déterminée* (CDD), according to the terminology used in the Group's social reporting.

Employees present: employees present are employees on the payroll of the consolidated scope, less employees who are not present, i.e., persons who are under suspended contract (sabbatical, business development leave, etc.), absent on long-term sick leave (more than six months), assigned to a company outside the Group, etc.

Safety definitions and indicators

TRIR (Total Recordable Injury Rate): number of recorded injuries per million hours worked.

LTIR (Lost Time Injury Rate): number of lost time injuries per million hours worked.

SIR (Severity Injury Rate): average number of days lost per lost time injury.

Regarding safety indicators, acquisitions are taken into consideration as soon as possible and by no later than January 1 of the following year. Approximately 10 subsidiaries acquired in 2019 will be included in the reporting published in 2021 on fiscal year 2020⁽¹⁾. All facilities sold are taken into consideration up to the date of the sale.

For environmental and climate change-related indicators, acquisitions are taken into account as of January 1 of the current year to the extent possible or as of the following year. Approximately 10 subsidiaries acquired in 2019 will be included in the reporting published in 2021 on fiscal year 2020⁽¹⁾. Any facility sold before December 31 is excluded from the Group's reporting scope for the current year.

Consolidation and internal control

The social, environmental, climate change-related, health and industrial safety data are consolidated and checked by each operational unit and business segment, before being checked at Group level. Data pertaining to certain specific indicators is calculated directly by the business segments. These processes undergo regular internal audits.

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

Employees of contractors: any employee of a contractor working at a site that is part of the safety reporting scope or assigned by a transport company under a long-term contract.

Tier 1 and Tier 2: indicator of the number of loss of primary containment events with more or less significant consequences, as defined by the API 754 (for downstream) and IOGP 456 (for upstream) standards.

Near miss: sudden event which, under slightly different circumstances, could have resulted in an accident. Near misses have a potential but no actual severity.

Incidents and near misses are assessed in terms of actual or potential severity based on a scale that consists of six levels. Events with an actual or potential severity level of four or more are considered serious.

Environmental or climate change-related definitions and indicators

Upstream hydrocarbons activities: the Group Upstream hydrocarbons activities include the oil and gas exploration and production activities of the Exploration & Production and the Integrated Gas, Renewables & Power segments. It does not include power generation facilities based on renewable sources or natural gas such as combined-cycle natural gas power plants.

(1) Example: Synova (RC), Go Electric (IGRP), Epping (M&S), lubricant plant in Tanzania (M&S), Total Lubricant do Brasil (MS&S), AS24 network in the Netherlands (MS). No subsidiaries in the EP segment were sold in 2019.

Non-routine flaring: flaring other than routine flaring and safety flaring occurring primarily during occasional and intermittent events.

Routine flaring: flaring during normal production operations conducted in the absence of sufficient facilities or adequate geological conditions permitting the reinjection, on-site utilization or commercialization of produced gas (as defined by the working group of the Global Gas Flaring Reduction program within the framework of the World Bank's Zero Routine Flaring initiative). Routine flaring does not include safety flaring.

Safety flaring: flaring to ensure the safe performance of operations conducted at the production site (emergency shutdown, safety-related operations etc.).

Waste: all waste is counted, with the exception of drilling debris, mining cuttings and polluted soil at inactive sites, which are counted separately.

Hydrocarbon spills with an environmental impact: spills with a volume greater than 1 barrel (≈159 liters) are counted. These are accidental spills of which at least part of the volume spilled reaches the natural environment (including non-waterproof ground). Spills resulting from sabotage or malicious acts are excluded. Spills that do not affect the environment are also excluded.

Fresh water: water with salinity below 1.5 g/l.

GEEI (Group Energy Efficiency Index): a combination of energy intensity ratios (ratio of net primary energy consumption to the level of activity) per business reduced to base 100 in 2010 and consolidated with a weighting by each business's net primary energy consumption. The scope of the indicator relates to the "operated domain" of the Group's upstream oil and gas activities and the Refining & Chemicals segment, with the exception of Hutchinson. It does not include power generation facilities based on renewable sources or natural gas such as combined-cycle natural gas power plants.

GHG: the six greenhouse gases of the Kyoto protocol, which are CO₂, CH₄, N₂O, HFCs, PFCs and SF₆, with their respective GWP (Global Warming Potential) as described in the 2007 IPCC report. HFCs, PFCs and SF₆ are almost absent from the Group's emissions or are considered as non-material, and are therefore no longer counted in 2018.

GHG based on the Group's equity interest: greenhouse gases emitted by the sites and activities that are part of the Group's "equity interest domain" (refer to point 5.11.2 Scopes). They are calculated on a pro rata basis according to the Group's share in the entity or in the production (in the case of Group upstream hydrocarbons activities).

Scope 1 GHG: direct emissions of greenhouse gases from sites or activities that are part of the scope of reporting on climate change-related indicators. Sites with GHG emissions and activities of less than 30 kt CO₂e/y are excluded.

Scope 2 GHG emissions: indirect emissions attributable to brought-in energy (electricity, heat, steam), excluding purchased industrial gases (H₂).

Scope 3 GHG emissions: other indirect emissions. The Group usually follows the oil & gas industry reporting guidelines published by IPIECA and which conform to the GHG Protocol methodologies. In this Registration Document, only item 11 of Scope 3 (use of sold products), which is the most significant, is reported. Emissions for this item are calculated based on sales of finished products for which the next stage

is end use, in other words, combustion of the products to obtain energy. A stoichiometric emission factor is applied to these sales (oxidation of molecules to carbon dioxide) to obtain an emission volume.

Carbon intensity: this indicator measures the average GHG emissions of energy products used by the Group's customers, from production in TOTAL facilities to end use by customers. This indicator takes into account:

- in the numerator:
 - the emissions connected to the production and conversion of energy products used by the customers on the basis of the Group's average emission rates,
 - the emissions connected to the use of sold products. For each product, stoichiometric emission factors⁽¹⁾ are applied to these sales to obtain an emission volume. Non-fuel use products (bitumen, lubricants, plastics, etc.) are not taken into account,
 - negative emissions stored thanks to CCUS and natural carbon sinks;
- in the denominator: the quantity of energy sold, knowing that electricity is placed on an equal footing with fossil fuels by taking into account the average capacity factor and average efficiency ratio.

Operated oil & gas facilities: facilities operated in the Group Upstream hydrocarbons activities as well as in the Refining & Chemicals and Marketing & Services segments of the Group. It does not include power generation facilities based on renewable sources or natural gas such as combined-cycle natural gas power plants.

Oil spill preparedness:

- an oil spill scenario is deemed "important" as soon as its consequences are at a minimum on a small scale and with limited impacts on the environment (orders of magnitude of several hundred meters of shores impacted, and several tons of hydrocarbons);
- an oil spill preparedness plan is deemed operational if it describes the alert mechanisms, if it is based on pollution scenarios that stem from risk analyses and if it describes mitigation strategies that are adapted to each scenario, if it defines the technical and organizational means, internal and external, to be implemented and, lastly, if it mentions elements to be taken into account to implement a follow-up of the environmental impacts of the pollution; and
- oil spill preparedness exercise: only exercises conducted on the basis of one of the scenarios identified in the oil spill preparedness plan and which are played out until the stage of equipment deployment are included for this indicator.

Other definitions

One MAESTRO (Management and Expectations Standards Toward Robust Operations): Group's operational Health, Safety, Environment and Societal reference framework. This reference framework applies to subsidiaries controlled exclusively by TOTAL with the following exceptions: subsidiaries acquired in 2019, Hutchinson (RC segment), Zeeland Refinery (RC segment), Polyblend (RC segment), Sobegi (RC segment), Saft and subsidiaries acquired by the iGRP segment less than 3 years ago (these subsidiaries are in the process of being rolled out), TEP Barnett (iGRP segment) and Sunpower (iGRP segment).

(1) The emission factors used are taken from a technical note from the CDP: Guidance methodology for estimation of scope 3 category 11 emissions for oil and gas companies.

6

TOTAL and its shareholders

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6.1 Listing details

6.1.1 Listing

Stock exchanges and markets

- Paris (Euronext Paris);
- Brussels (Euronext Brussels);
- London (London Stock Exchange); and
- New York (New York Stock Exchange).

Codes

ISIN	FR0000120271
Reuters	TOTF.PA
Bloomberg	FP FP
Mnemonic/Ticker	FP

Inclusion and weight in the main stock indices as of December 31, 2019

Index	Weighting in the index	Ranking in the index
CAC 40	9.31%	1 st
Euro Stoxx 50	4.83%	2 nd
Stoxx Europe 50	3.19%	6 th
DJ Global Titans	1.06%	36 th

Sources: Euronext, Stoxx and Bloomberg.

Inclusion in the ESG (Environment, Social and Governance) indices

DJSI World, DJSI Europe and FTSE4Good.

Market capitalization as of December 31, 2019⁽¹⁾

Market	Market capitalization	Closing price
Euronext	€128.0 B	€49.20
NYSE	\$143.9 B	\$55.30

Taking into account the context created by the Covid-19 epidemic which affects the prospects for world growth and the financial markets and the decision, on March 6, 2020, of OPEC and Russia to cease their cooperation on the oil markets which caused a sharp decline in the oil prices, the Company's share fell sharply by almost 50% between January 1, 2020 and March 18, 2020.

Market capitalization on Euronext Paris and in the eurozone as of December 31, 2019

TOTAL S.A. is the third-largest capitalization on the Euronext Paris regulated market and is the sixth-largest market capitalization among the companies that make up the Euro Stoxx 50. The largest market capitalizations in the eurozone are:

As of December 31, 2019^(a) (in € B)

LVMH S.E.	209.3
SAP S.E.	147.8
L'Oréal S.A.	147.3
AB InBev S.A.	146.8
Unilever N.V.	134.9
TOTAL S.A.^(b)	128.0

(a) Source: Bloomberg for the market capitalizations in the eurozone other than TOTAL S.A.
 (b) Based on a share capital divided into 2,601,881,075 shares as of December 31, 2019 and on Total's share price at closing on Euronext Paris (€49.20) at the same date.

Percentage of free float

As of December 31, 2019, the free float factor determined by Euronext Paris for calculating TOTAL S.A.'s weight in the CAC 40 was 95%. The free float factor determined by Stoxx for calculating TOTAL's weight in the Euro Stoxx 50 was 100%⁽²⁾.

Par value

€2.50.

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

(1) Based on a share capital divided into 2,601,881,075 shares as of December 31, 2019.

(2) Based on the last quarterly calculation available as of the end of December 2019.

6.1.2 Share performance

6.1.2.1 Change in share prices between January 1 and December 31, 2019

The change in Total's share price in 2019, compared with that of the share prices of the major oil and gas companies listed in Europe and the United States, is shown in the following tables:

In Europe

(% calculated on the basis of the closing price in local currency)

Total (euro)	6.5%
Royal Dutch Shell A (euro)	2.0%
Royal Dutch Shell B (pound sterling)	-4.3%
BP (pound sterling)	-4.9%
ENI (euro)	0.7%

Source: Bloomberg.

In the United States (American Depository Receipts prices for European companies)

(% calculated on the basis of the closing price in US\$)

Total	6.0%
ExxonMobil	2.3%
Chevron	10.8%
Royal Dutch Shell A	1.2%
Royal Dutch Shell B	0.1%
BP	-0.5%
ENI	-1.7%

Source: Bloomberg.

6.1.2.2 Shareholder's annual return

€1,000 invested in Total shares by an individual residing in France, assuming that the dividends are reinvested in Total shares, would have generated the following returns as of December 31, 2019 (excluding tax and social withholding):

Investment term	Shareholder's annual return		Value as of December 31, 2019, of €1,000 invested	
	Total	CAC 40 ^(b)	Total	CAC 40
1 year	10.81%	30.45%	1,108	1,305
5 years	8.37%	10.43%	1,495	1,642
10 years	6.55%	7.99%	1,886	2,157
15 years	6.71% ^(a)	6.65%	2,648	2,628

(a) Total's share prices, used for the calculation of the annual returns, take into account the adjustment made by Euronext Paris in 2006 following the detachment of Arkema's share allocation rights.

(b) CAC 40 prices taken into account to calculate the annual returns include all dividends distributed by the companies that are in the index.

Sources: Euronext Paris, Bloomberg.

6.1.2.3 Market information summary

Share price over the 2015 – 2019 period (€)	2015	2016	2017	2018	2019
Highest (during trading session)	50.30	48.89	49.50	56.82	52.27
Lowest (during trading session)	36.92	35.21	42.23	43.09	42.65
End of the year (closing)	41.27	48.72	46.05	46.18	49.20
Average of the last 30 trading sessions (closing)	43.57	46.22	47.00	47.96	48.32
Trading volume (average per session)^(a)					
Euronext Paris	7,412,179	6,508,817	5,380,909	6,199,835	5,549,490
NYSE ^(b)	1,853,669	2,109,802	1,667,928	1,855,274	1,770,853

(a) Number of shares traded.

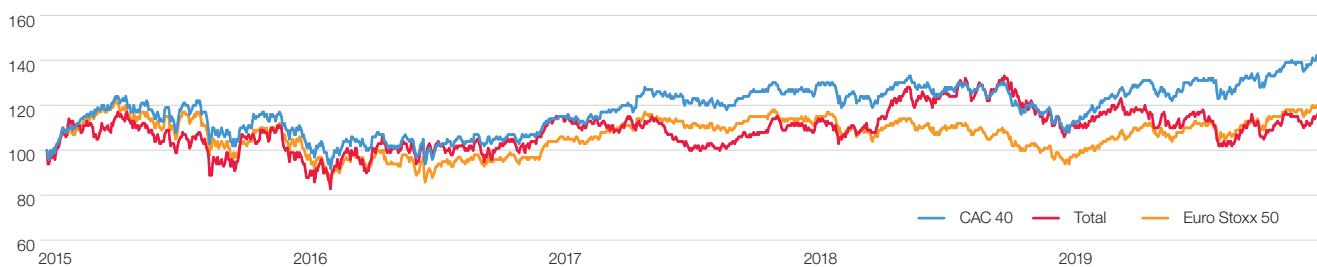
(b) Number of American Depository Receipts ("ADR").

Sources: Euronext Paris, NYSE.

6 TOTAL and its shareholders

Listing details

Change in Total share price at closing on Euronext Paris (2015-2019)



Change in Total ADR price at closing on NYSE (2015-2019)



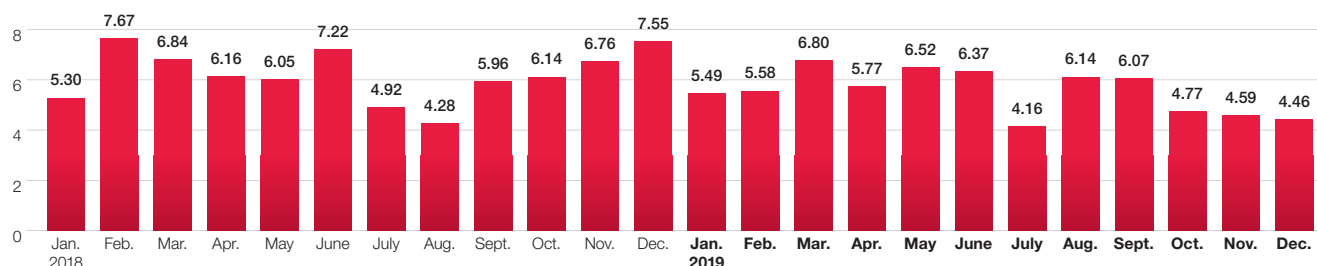
Change in Total share price at closing on Euronext Paris (2018-2019)

(in €)



Average number of Total shares traded on Euronext Paris (2018-2019)

(in millions of shares)



6.1.2.4 Arkema spin-off

Within the framework of the spin-off of Arkema's chemical activities from the Group's other chemical activities, TOTAL S.A.'s Annual Shareholders' Meeting on May 12, 2006, approved TOTAL S.A.'s contribution to Arkema, under the regulation governing spin-offs, of all its interests in the businesses within Arkema's scope, as well as the allocation for each Total share (prior to share division by four) of an allotment right for Arkema shares, with ten allotment rights entitling the holder to one Arkema share. Additionally, since May 18, 2006, Arkema's shares have been traded on Euronext Paris.

In accordance with the provisions of the notice prior to the sale of unclaimed shares ("Avis préalable à la mise en vente de titres non réclamés") published on August 3, 2006, in the French newspaper Les Échos, Arkema shares corresponding to allotment rights for fractional shares which were unclaimed as of August 3, 2008, were sold on Euronext Paris at an average price of €32.5721 per share. BNP Paribas Securities Services paid an indemnity to the financial intermediaries on remittance of corresponding allotment rights for Arkema shares.

The unclaimed amounts are held by BNP Paribas Securities Services where the holders are still able to claim them for a period of 30 years after the payment of the indemnity. Past this time limit, the amounts will permanently become the property of the French State.

6.2 Dividend

6.2.1 Shareholder return policy

At its meeting of September 23, 2019, the Board of Directors reviewed the outlook for the Group through 2025. TOTAL is demonstrating its ability to maintain a sustainable pre-dividend breakeven below 30\$/b and a solid financial position with a gearing objective below 20%.

The Board of Directors noted that the Group delivering on its strategy for sustainable and profitable growth in oil and gas activities, as well as investing in growing energy markets, notably LNG and low-carbon electricity, provides stronger visibility on the future of the Group. This results notably in a projected increase in the Group's cash flow of more than \$5 billion by 2025 in a 60\$/b environment, or an average increase of about \$1 billion per year.

Consequently, the Board of Directors decided to accelerate dividend growth in the coming years, with a guidance of increasing the dividend by 5 to 6% per year so as to reflect the anticipated growth of cash flows in an environment at 60\$/b.

The Group will continue in 2020 to buyback its shares with an anticipated amount of \$2 billion for 2020 in an environment at 60\$/b. As of March 18, 2020, the Group bought back shares for an approximate amount of \$550 million. The buybacks ceased after the sharp decline in the price of the barrel to a level far from the environment at 60\$/b.

6.2.2 Dividend payment policy

On October 28, 2010, TOTAL S.A.'s Board of Directors adopted a policy based on quarterly dividend payments starting in fiscal year 2011.

The decision of TOTAL S.A.'s subsidiaries to declare dividends is made by their relevant Shareholders' Meetings and is subject to the provisions of applicable local laws and regulations. As of December 31, 2019, there is no restriction under such provisions that would materially restrict the distribution to TOTAL S.A. of the dividends declared by those subsidiaries.

Dividends for the fiscal year 2019

On February 5, 2020, the Board of Directors, after approving the financial statements for the fiscal year 2019, decided to propose to the Shareholders' Meeting on May 29, 2020 the payment of a €2.68 dividend per share for the fiscal year 2019. Subject to the Shareholders' decision, considering the first three interim dividends already decided by the Board of Directors, the final dividend for the fiscal year 2019 will amount to €0.68 per share, up 3% compared to the first and second interim dividends and equal to the third interim dividend for the 2019 fiscal year.

2019 Dividend	First interim	Second interim	Third interim	Final
Amount	€0.66	€0.66	€0.68	€0.68
Set date	April 25, 2019	July 24, 2019	October 29, 2019	May 29, 2020
Ex-dividend date	September 27, 2019	January 6, 2020	March 30, 2020	June 29, 2020
Payment date	October 1, 2019	January 8, 2020	April 1, 2020	July 1, 2020

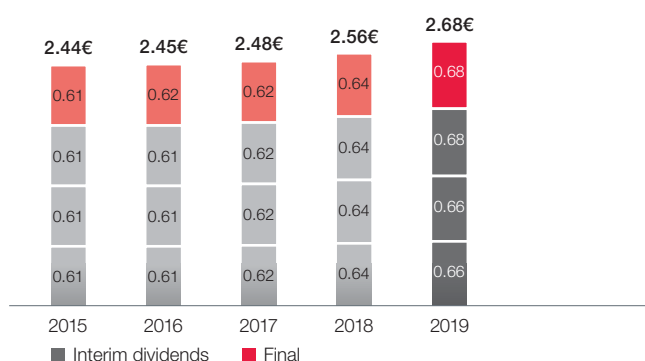
Dividends for the fiscal year 2020

Subject to the applicable legislative and regulatory provisions, as well as the pending approval by the Board of Directors and by the Shareholders' Meeting to be held on May 29, 2020, the ex-date calendar for the interim and final dividends for fiscal year 2020 is expected to be as follows:

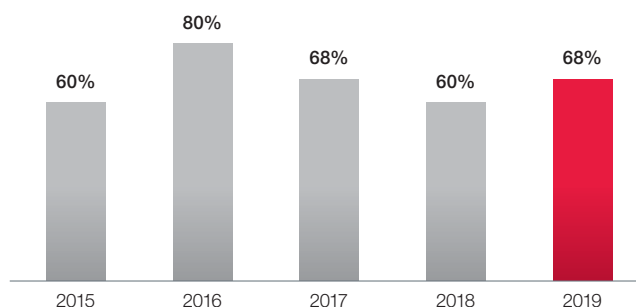
	Ex-dividend date
First interim dividend	September 25, 2020
Second interim dividend	January 4, 2021
Third interim dividend	March 25, 2021
Final dividend	June 24, 2021

The provisional ex-dividend dates above relate to the shares admitted for trading on Euronext Paris.

Dividends for the last five fiscal years⁽¹⁾



TOTAL's payout ratio for the fiscal year 2019 was 68%⁽²⁾. Changes in the payout ratio⁽³⁾ over the past five fiscal years are as follows:



6.2.3 Dividend payment

Société Générale Securities Services manages the payment of the dividend, which is made through financial intermediaries using the Euroclear France direct payment system.

JP Morgan Chase Bank N.A. (4 New York Plaza, New York, NY 10005-1401, USA) manages the payment of dividends to holders of Total ADR.

Dividend payment on stock certificates

TOTAL issued stock certificates (*certificats représentatifs d'actions*, CR Actions) as part of the public exchange offer for Total Petrochemicals & Refining SA/NV (formerly PetroFina) shares.

The CR Actions is a stock certificate provided for by French rules, issued by Euroclear France, intended to circulate exclusively outside of France, and which may not be held by French residents. The CR Actions is freely convertible from a physical certificate into a security registered on a custody account. However, in compliance with the Belgian law of December 14, 2005, on the dematerialization of securities in Belgium, CR Actions may only be issued in the form of a dematerialized certificate since January 1, 2008. In addition, ING Belgique is the bank handling the payment of all coupons detached from outstanding CR Actions.

No fees are applicable to the payment of coupons detached from CR Actions, except for any income or withholding taxes; the payment may be received on request at the following bank branches:

- ING Belgique, avenue Marnix 24, 1000 Brussels, Belgium;
- BNP Paribas Fortis, avenue des Arts 45, 1040 Brussels, Belgium; and
- KBC BANK N.V., avenue du Port 2, 1080 Brussels, Belgium.

(1) Subject to approval at the Annual Shareholders' Meeting on May 29, 2019. Since January 1, 2018, dividends received by individuals having their tax residence in France are subject to a 30% flat rate on gross amount (i.e., 12.8% for income tax and 17.2% for social security contributions). However, with respect to income tax, taxpayers can opt for the taxation of their dividend income at the progressive scale with a 40% rebate.

(2) Based on adjusted fully diluted earnings per share of €3.92 and a dividend of €2.68 per share pending approval at the Shareholders' Meeting on May 29, 2020.

(3) Based on adjusted fully diluted earnings for the relevant year.

6.2.4 Coupons

Fiscal year	Ex-dividend date	Payment date	Date of expiration	Type of coupon	Net amount (€)
2013	09/24/2013	09/27/2013	09/27/2018	Interim dividend	0.59
	12/16/2013	12/19/2013	12/19/2018	Interim dividend	0.59
	03/24/2014	03/27/2014	03/27/2019	Interim dividend	0.59
	06/02/2014	06/05/2014	06/05/2019	Final dividend	0.61
2014	09/23/2014	09/26/2014	09/26/2019	Interim dividend	0.61
	12/15/2014	12/17/2014	12/17/2019	Interim dividend	0.61
	03/23/2015	03/25/2015	03/25/2020	Interim dividend	0.61
	06/08/2015	07/01/2015	07/01/2020	Final dividend	0.61
2015	09/28/2015	10/21/2015	10/21/2020	Interim dividend	0.61
	12/21/2015	01/14/2016	01/14/2021	Interim dividend	0.61
	03/21/2016	04/12/2016	04/12/2021	Interim dividend	0.61
	06/06/2016	06/23/2016	06/23/2021	Final dividend	0.61
2016	09/27/2016	10/14/2016	10/14/2021	Interim dividend	0.61
	12/21/2016	01/12/2017	01/12/2022	Interim dividend	0.61
	03/20/2017	04/06/2017	04/06/2022	Interim dividend	0.61
	06/05/2017	06/22/2017	06/22/2022	Final dividend	0.62
2017	09/25/2017	10/12/2017	10/12/2022	Interim dividend	0.62
	12/19/2017	01/11/2018	01/11/2023	Interim dividend	0.62
	03/19/2018	04/09/2018	04/09/2023	Interim dividend	0.62
	06/11/2018	06/28/2018	06/28/2023	Final dividend	0.62
2018	09/25/2018	10/12/2018	10/12/2023	Interim dividend	0.64
	12/18/2018	01/10/2019	01/10/2024	Interim dividend	0.64
	03/19/2019	04/05/2019	04/05/2024	Interim dividend	0.64
	06/11/2019	06/13/2019	06/13/2024	Final dividend	0.64
2019 ^(a)	09/27/2019	10/01/2019	10/01/2024	Interim dividend	0.66
	01/06/2020	01/08/2020	01/08/2025	Interim dividend	0.66
	03/30/2020	04/01/2020	04/01/2025	Interim dividend	0.68
	06/29/2020	07/01/2020	07/01/2025	Final dividend	0.68

(a) A resolution will be submitted to the Shareholders' Meeting on May 29, 2020, to pay a dividend of €2.68 per share for fiscal year 2019, exclusively in cash.

6.3 Share buybacks

The Shareholders' Meeting on May 29, 2019, after considering the report from the Board of Directors, authorized the Board of Directors, with the possibility to sub-delegate such authority under the terms provided for by French law, pursuant to the provisions of Article L. 225-209 of the French Commercial Code, of Regulation (EU) N°596/2014 of April 16, 2014, on market abuse and of the General Regulation (*règlement général*) of the French Financial Markets Authority (*Autorité des marchés*

financiers, AMF), to buy or sell shares of the Company within the framework of a share buyback program. The maximum purchase price was set at €80 per share and the number of shares acquired may not exceed 10% of the share capital. This authorization was granted for a period of 18 months and replaced the previous authorization granted by the Shareholders' Meeting on June 1, 2018.

6.3.1 Share buybacks and cancellations in 2019

In 2019, TOTAL S.A. bought back 52,389,336 Total shares on the market, i.e. 2.01% of the share capital as of December 31, 2019.

48,800,301 Total shares were bought back for cancellation, including:

- 16,076,936 shares in order to cancel the dilution related to the shares issued for payment of the second and third interim dividends for the fiscal year ended December 31, 2018; and
- 32,723,365 shares for an amount of \$1.75 billion⁽¹⁾, within the framework of the \$5 billion share buyback program over the 2018-2020 period.

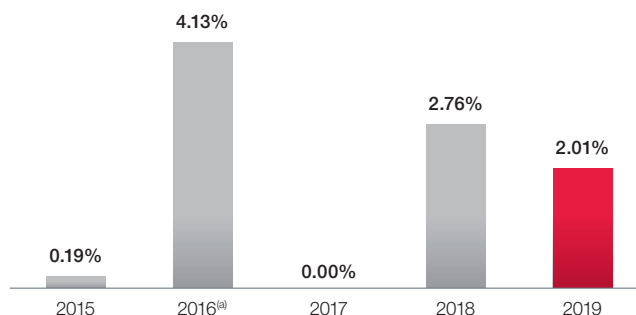
3,589,035 Total shares were bought back in order to cover the performance share plans approved by the Board of Directors.

Finally, the Board of Directors, at a meeting held on December 11, 2019, decided, following the authorization of the Extraordinary Shareholders' Meeting on May 26, 2017, to cancel 65,109,435 treasury shares including:

- 34,860,133 shares issued, with no discount, in 2019 for payment of the first, second and third interim dividends, for the fiscal year ended December 31, 2018; and

– 30,249,302 shares repurchased within the framework of the \$5 billion share buyback program over the 2018-2020 period.

Percentage of share capital bought back



(a) Buyback of treasury shares off-market in order to cancel them immediately after.

6.3.2 Board of Directors' report on share buybacks and sales

6.3.2.1 Share buybacks during fiscal year 2019

Following the Board of Directors' decision on February 7, 2018, and pursuant to the authorizations granted by the Shareholders' Meetings of June 1, 2018, and May 29, 2019, the Company bought back 48,800,301 Total shares during fiscal year 2019, i.e. 1.88% of the share capital as of December 31, 2019, in order to cancel them, including:

- 16,076,396 shares for a total amount of €0.77 billion, at an average unit price of €47.69, in order to cancel the dilution related to the same number of shares issued for payment of the second and third interim dividends for the fiscal year ended December 31, 2018; and

- 32,723,365 shares for a total amount of €1.56 billion, at an average unit price of €47.75, equivalent to \$1.75 billion, at the average exchange rate for 2019, within the framework of the \$5 billion share buyback program over the 2018-2020 period.

In addition, also pursuant to the above-mentioned authorizations, in 2019 the Company bought back a total of 3,589,035 shares for a total amount of €0.17 billion, at an average unit price of €48.55, in order to cover the performance share plans approved by the Board of Directors.

6.3.2.2 Cancellation of Company shares during fiscal years 2017, 2018 and 2019

The Board of Directors, pursuant to the authorization granted by the Extraordinary Shareholders' Meeting on May 26, 2017, in the thirteenth resolution to reduce, on one or more occasions, the Company's share capital by canceling shares within the limits permitted by law, in accordance with the provisions of Articles L. 225-209 and L. 225-213 of the French Commercial Code, canceled Total shares bought back in order to cancel them, under the conditions set out below:

Fiscal year	Board of Directors' decision date	Number of shares bought back and cancelled	Buybacks carried out regarding the		Percentage of the share capital cancelled ^(c)
			Cancellation of the dilution ^(a)	Shareholder return policy ^(b)	
2019	December 11, 2019	65,109,435 shares bought back between October 29, 2018 and September 9, 2019	34,860,133 shares issued as payment for the 1 st , 2 nd and 3 rd 2018 interim dividends	30,249,302 shares	2.44%
2018	December 12, 2018	44,590,699 bought back between February 9 and October 11, 2018	28,445,840 shares issued as payment for the 2 nd and 3 rd interim dividends as well as for the final 2017 dividend	16,144,859 shares	1.66%
2017			n/a ^(d)		

(a) Cancellation of the dilution related to the shares issued, without discount, for payment of dividends.

(b) Up to an amount of \$5 billion over the 2018-2020 period.

(c) Percentage of the share capital that the cancelled shares represented on the operations' date.

(d) TOTAL S.A. did not cancel any shares in the fiscal year 2017.

(1) €1.56 billion at the average exchange rate for 2019.

6.3.2.3 Transfer of shares during fiscal year 2019

4,278,948 Total shares were transferred during fiscal year 2019 following the final award of Total shares under performance share plans decided by the Board of Directors.

6.3.2.4 Shares held in the name of the Company and its subsidiaries as of December 31, 2019

As of December 31, 2019, the Company held 15,474,234 treasury shares representing 0.59% of TOTAL S.A.'s share capital on that same date, including:

- 11,051,144 to be canceled; and
- 4,423,090 to cover the performance share plans.

In accordance with French law, these shares are deprived of voting rights and do not entitle holders to dividends.

In addition, for shares bought back in order to be allocated to Company or Group employees in line with the objectives referred to in Regulation (EU) No. 596/2014 of the European Parliament and of the Council of

April 16, 2014, on market abuse, it should be noted that, when such shares are held to cover share purchase option plans that have expired or performance shares that have not been granted by the end of the vesting period, they may be held under the conditions applicable to the holding by the Company of its own shares and used in accordance with the purposes specified for the buybacks by the Company of its own shares.

6.3.2.5 Reallocation for other purposes during fiscal year 2019

Treasury shares held by the Company were not, during fiscal year 2019, reallocated for purposes other than those initially planned when they were purchased.

6.3.2.6 Conditions for the share buybacks and use of derivative products

The Company did not use any derivative products as part of the share buyback programs successively authorized by the Shareholders' Meetings on June 1, 2018 and May 29, 2019. There was no open purchase or sale position as of December 31, 2019.

Transactions completed by the Company involving its treasury shares from January 1 to December 31, 2019

	Cumulative gross movements	
	Purchases	Sales/Transfers
Number of shares	52,389,336	4,278,948 ^(a)
Average transactions' price ^(b) (€)	47.79	–
Amount of transactions (€)	2,503,598,152.35 ^(c)	–

(a) Corresponding to final award of Total shares under the performance share plans.

(b) Including brokerage fees (excluding tax).

(c) Including €501,883.84 of brokerage fees (excluding tax).

Treasury shares as of December 31, 2019

Percentage of share capital held by TOTAL S.A.	0.59%
Number of shares held in portfolio	15,474,234 ^(a)
Nominal value of the portfolio (M€)	38.69 ^(b)
Book value of the portfolio (M€)	751.01
Market value of the portfolio (M€)	761.33 ^(c)

(a) Including 4,357,324 shares held to cover the performance share plans and 65,766 shares to be awarded under new share purchase option plans or new performance share plans.

(b) Based on a Total share par value of €2.50.

(c) Based on Total closing share price of €49.20 on Euronext Paris on December 31, 2019.

6.3.3 2020-2021 share buyback program

6.3.3.1 Description of the share buyback program under Article 241-1 et seq. of the general regulation of the French Financial Markets Authority

The objectives of the share buyback program are as follows:

- reduce the Company's capital through the cancellation of shares;
- honor the Company's obligations related to securities convertible or exchangeable into Company shares;
- honor the Company's obligations related to stock option programs or other share grants to the Company's executive directors or to employees of the Company or Group subsidiaries; and
- stimulate the secondary market or the liquidity of the Total share under a liquidity agreement.

6.3.3.2 Legal framework

Implementation of this share buyback program, which is covered by Articles L. 225-209 et seq. of the French Commercial Code, Article 241-1 et seq. of the General Regulation of the AMF) and the provisions of Regulation (EU) N°596/2014 on market abuse, is subject to approval by the TOTAL S.A. Shareholders' Meeting on May 29, 2020, under the fourth resolution that reads as follows:

“Upon presentation of the report by the Board of Directors and information appearing in the description of the program prepared pursuant to Articles 241-1 et seq. of the General Regulation (règlement général) of the French Financial Markets Authority (Autorité des marchés financiers, AMF), and voting under the conditions of quorum and majority required for Ordinary General Meetings, the shareholders hereby authorize the Board of Directors, with the possibility to sub-delegate such authority under the terms provided for by French law, pursuant to the provisions of Article L. 225-209 of the French Commercial Code and of Regulation (EU) N° 596/2014 of April 16, 2014, on market abuse and of the General Regulation of the AMF, to buy or sell shares of the Company within the framework of a share buyback program.

The purchase, sale or transfer of such shares may be transacted by any means on regulated markets, multilateral trading facilities or over the counter, including the purchase or sale by block trades, in accordance with the regulations of the relevant market regulatory authorities. Such transactions may include the use of any financial derivative instrument traded on regulated markets, and implementing option strategies.

These transactions may be carried out at any time, in accordance with the applicable rules and regulations at the date of the operations under consideration, except during any public offering periods applying to the Company’s share capital.

The maximum purchase price is set at €80 per share.

In the case of a share capital increase by incorporation of reserves and free share grants or in the case of a stock-split or a reverse-stock-split, this maximum price shall be adjusted by applying the ratio of the number of shares outstanding before the transaction to the number of shares outstanding after the transaction.

Pursuant to the provisions of Article L. 225-209 of the French Commercial Code, the maximum number of shares that may be bought back under this authorization may not exceed 10% of the total number of shares composing the capital as of the date on which this authorization is used. This limit of 10% is applicable to the share capital of the Company which may be adjusted from time to time as a result of transactions after the date of the present Meeting. Purchases made by the Company may under no circumstances result in the Company holding more than 10% of the share capital, either directly or indirectly through subsidiaries.

As of December 31, 2019, out of the 2,601,881,075 shares outstanding, the Company held 15,474,234 shares directly. Under these circumstances, the maximum number of shares that the Company could buy back is 244,713,873 shares and the maximum amount that the Company may spend to acquire such shares is €19,577,109,840 (excluding acquisition fees).

The purpose of this share buyback program is to reduce the number of outstanding shares of the Company or to allow it to fulfill its engagements in connection with:

- convertible or exchangeable securities that may give holders rights to receive shares of the Company upon conversion or exchange; and/or
- share purchase option plans, employee shareholding plans, Company Savings Plans or other share allocation programs for executive directors or employees of the Company or Group companies.

The purpose of buybacks may also be the implementation of the market practice accepted by the French Financial Markets Authority (Autorité des marchés financiers), i.e., support the secondary market or the liquidity of Total shares by an investment services provider by means of a liquidity agreement compliant with the deontology charter recognized by the French Financial Markets Authority (Autorité des marchés financiers).

This program may also be used by the Company to trade in its own shares, either on or off the market, for any other purpose that is authorized under the applicable law or any other permitted market practice that may be authorized at the date of the operations under consideration. In case of transactions other than the above-mentioned intended purposes, the Company will inform its shareholders in a press release.

According to the intended purposes, the treasury shares that are acquired by the Company through this program may, in particular, be:

- canceled, up to the maximum legal limit of 10% of the total number of shares composing the capital on the date of the operation, per each 24-month period;
- granted for no consideration to the employees and to the executive directors of the Company or of other companies of the Group;
- delivered to the beneficiaries of the Company’s shares purchase options having exercised such options;
- sold to employees, either directly or through the intermediary of Company savings funds;
- delivered to the holders of securities that grant such rights to receive such shares, either through redemption, conversion, exchange, presentation of a warrant or in any other manner; and
- used in any other way consistent with the purposes stated in this resolution.

While they are bought back and held by the Company, such shares will be deprived of voting rights and dividend rights.

This authorization is granted for an 18-month period from the date of this Meeting. It renders ineffective, up to the unused portion, any previous authorization having the same purpose.

The Board of Directors is hereby granted full authority, with the right to sub-delegate such authority, to undertake all actions authorized by this resolution.”

6.3.3.3 Conditions

Maximum share capital to be purchased and maximum funds allocated to the transaction

The maximum number of shares that may be purchased under the authorization provided by the Shareholders' Meeting on May 29, 2019, may not exceed 10% of the total number of shares composing the capital, with this limit applying to an amount of the Company's share capital that will be adjusted, if necessary, to include transactions affecting the share capital subsequent to this Meeting. Purchases made by the Company may under no circumstances result in the Company holding more than 10% of the share capital, either directly or indirectly through subsidiaries.

Before any share cancellation under the authorization granted by the Shareholders' Meeting on May 29, 2019, based on the number of shares outstanding as of December 31, 2019⁽¹⁾ and given the 15,474,234 shares held by the Company as of December 31, 2019, representing 0.59% of the share capital, the maximum number of shares that may be purchased would be 244,713,873, representing a theoretical maximum investment of €19,577,109,840 (excluding acquisition fees) based on the maximum purchase price of €80.

Conditions for buybacks

Such shares may be bought back by any means on regulated markets, multilateral trading facilities or over the counter, including through the purchase or sale of blocks of shares, under the conditions authorized by the relevant market regulatory authorities. These means include the use of any financial derivative instrument traded on a regulated market or over the counter and the implementation of option strategies, with the Company taking measures, however, to avoid increasing the volatility of its stock. The portion of the program carried out through the purchase of blocks of shares will not be subject to quota allocation, up to the limit set by this resolution. These transactions may be carried out at any time, in accordance with the applicable rules and regulations, except during any public offering periods applying to the Company's share capital.

Duration and schedule of the share buyback program

In accordance with the fourth resolution, which will be submitted to the Shareholders' Meeting on May 29, 2020, the share buyback program may be implemented over an 18-month period following the date of this Meeting, i.e. until November 29, 2021.

Transactions carried out under the previous program

Transactions carried out under the previous program are listed in the special report of the Board of Directors on share buybacks (refer to point 6.3.2 of this chapter).

6.4 Shareholders

6.4.1 Major shareholders

6.4.1.1 Changes in major shareholders' holdings

TOTAL S.A.'s major shareholders⁽²⁾ as of December 31, 2019, 2018 and 2017 were as follows:

As of December 31	2019			2018		2017	
	% of share capital	% of voting rights	% of theoretical voting rights ^(a)	% of share capital	% of voting rights	% of share capital	% of voting rights
BlackRock, Inc. ^(b)	6.3	5.4	5.3	6.1	5.3	6.3	5.5
Group employees ^(c)	5.3	9.0	9.0	4.8	8.4	5.0	8.8
<i>of which FCPE Total Actionnariat France</i>	3.5	6.4	6.4	3.4	6.2	3.5	6.4
Other shareholders	88.4	85.6	85.7	89.1	86.3	88.7	85.7
<i>of which holders of ADRs^(d)</i>	8.2	7.8	7.7	8.1	7.7	7.9	7.4

(a) Pursuant to Article 223-11 of the AMF General Regulation, the number of theoretical voting rights is calculated on the basis of all outstanding shares to which voting rights are attached, including treasury shares that are deprived of voting rights.

(b) Information taken from Schedule 13G/A filed by BlackRock, Inc. ("BlackRock") with the SEC on February 6, 2020, in which BlackRock declared a holding of 163,907,117 shares of the Company as of December 31, 2019 (i.e., 6.3% of the Company's share capital). BlackRock stated that it has the exclusive right to dispose of its holding and of 147,171,194 voting rights (i.e., 5.4% of the Company's voting rights). In addition, BlackRock stated that it does not have any joint voting rights or joint right to dispose of these shares.

(c) On the basis of the definition of employee shareholding set forth in Article L. 225-102 of the French Commercial Code. Amundi, the Holding company of Amundi Asset Management, which in turn manages the Total Actionnariat France collective investment fund (see below), filed a Schedule 13G/A with the SEC on February 14, 2020, declaring a holding of 208,434,156 shares of the Company as of December 31, 2019 (i.e., 8.0% of the Company's share capital). Amundi stated that it does not have any exclusive voting rights or exclusive right to dispose of these shares and that it has joint voting rights on 38,359,547 of these shares (i.e., 1.4% of the Company's voting rights) and a joint right to dispose of all of these shares.

(d) Including all of the American Depositary Shares represented by ADR admitted to trading on the NYSE.

(1) 2,601,881,075 shares.

(2) Major shareholders are defined herein as shareholders whose interest exceeds 5% of the share capital or voting rights.

The percentage of the holdings of the major shareholders was calculated based on the below data:

	December 31, 2019	December 31, 2018	December 31, 2017
Number of shares composing the share capital	2,601,881,075	2,640,602,007	2,528,989,616
Number of voting rights attached to the shares	2,747,986,237	2,766,134,802	2,678,015,444
Number of theoretical voting rights	2,763,460,471 ^(a)	2,798,608,083 ^(b)	2,686,392,200 ^(c)

(a) Exercisable at the Shareholders' Meeting taking into account 15,474,234 voting rights attached to the 15,474,234 Total shares held by TOTAL S.A. that are deprived of voting rights.

(b) Exercisable at the Shareholders' Meeting as of December 31, 2018.

(c) Exercisable at the Shareholders' Meeting as of December 31, 2017.

6.4.1.2 Holdings above the legal thresholds

In accordance with Article L. 233-13 of the French Commercial Code, to TOTAL's knowledge, two known shareholders hold 5% or more of TOTAL's share capital or voting rights at year-end 2019:

- the Total Actionnariat France collective investment fund held, as of December 31, 2019, 3.5% of the share capital representing 6.4% of the voting rights exercisable at Shareholders' Meetings and 6.4% of the theoretical voting rights;
- BlackRock held, as of December 31, 2019, 6.3% of the share capital representing 5.4% of the voting rights exercisable at Shareholders' Meetings and 5.3% of the theoretical voting rights.

6.4.1.3 Legal threshold notifications in fiscal year 2019

No legal threshold notifications were transmitted to the AMF during the fiscal year 2019.

6.4.1.4 Threshold notifications required by the bylaws

In addition to the legal obligation to inform the Company and the French Financial Markets Authority when the number of shares (or securities similar to shares or voting rights pursuant to Article L. 233-9 of the French Commercial Code) held represents more than 5%, 10%, 15%, 20%, 25%, 30%, one third, 50%, two thirds, 90% or 95% of the share capital or theoretical voting rights, such information being made at the latest on the close of the fourth trading day after the threshold is exceeded (Article L. 233-7 of the French Commercial Code and Article 223-14 of the AMF General Regulation), any individual or legal entity who directly or indirectly comes to hold a percentage of the share capital, voting rights or rights giving future access to the Company's share capital that is equal to or greater than 1%, or a multiple of this percentage, is required to notify the Company, within 15 days of the date on which each of the above thresholds is exceeded, by registered mail with return receipt requested, and indicate the number of shares held.

If not declared, any shares held in excess of the threshold that should have been declared will be deprived of voting rights at Shareholders' Meetings if, at a Shareholders' Meeting, the failure to make a declaration is acknowledged and if one or more shareholders holding collectively at least 3% of the Company's share capital or voting rights so request at that Meeting.

Any individual or legal entity is also required to notify the Company in due form and within the time limits stated above when their direct or indirect holdings fall below each of the aforementioned thresholds.

Notifications must be sent to the Senior Vice President of Investor Relations in London (contact details in point 6.6.6 of this chapter).

6.4.1.5 Temporary transfer of securities

Pursuant to legal provisions, any legal entity or individual (with the exception of those described in paragraph IV-3 of Article L. 233-7 of the French Commercial Code) holding alone or in concert a number of shares representing more than two hundredth of the Company's voting rights pursuant to one or more temporary transfers or similar operations as described in Article L. 225-126 of the aforementioned Code is required to notify the Company and the AMF of the number of shares temporarily owned no later than the second business day preceding the Shareholders' Meeting at midnight (Paris time).

Notifications must be e-mailed to the Company at the following address: holding.df-declarationdeparticipation@total.com

If no notification is sent, any shares acquired under any of the above temporary transfer operations will be deprived of voting rights at the relevant Shareholders' Meeting and at any Shareholders' Meeting that may be held until such shares are transferred again or returned.

6.4.1.6 Shareholders' agreements

TOTAL S.A. is not aware of any agreements among its shareholders.

6.4.2 Employee shareholding

Based on the definition of employee shareholding set forth in Article L. 225-102 of the French Commercial Code, the Group's employees held 137,993,878 Total shares, representing 5.3% of the Company's share capital and 9.0% of the voting rights as of December 31, 2019. These shares, held directly or indirectly by the Group's employees as of December 31, 2019, were as follows:

FCPE Total Actionnariat France	91,885,058
FCPE Total Actionnariat International Capitalisation	28,449,294
FCPE Total France Capital +	7,480,878
FCPE Total International Capital	3,249,511
Shares subscribed by employees in the U.S.	1,091,161
Shares subscribed by employees in Italy, Germany and Denmark	615,870
Total shares from the exercise of the Company's stock options and held as registered shares within a Company Savings Plan	1,672,155
Total performance shares granted to employees under the plan decided on July 27, 2016	3,549,951
TOTAL SHARES HELD BY EMPLOYEES	137,993,878

The management of each of the Collective investment funds (FCPEs) mentioned above is controlled by a dedicated Supervisory Board, two thirds of its members representing holders of fund units and one third representing the Company. The Supervisory Board is responsible for reviewing the Collective investment fund's management report and annual financial statements, as well as the financial, administrative and accounting management of the fund, exercising voting rights attached to portfolio securities, deciding contributions of securities in case of a public tender offer, deciding mergers, spin-offs or liquidations, and granting its approval prior to changes in the rules and procedures of the Collective investment fund in the conditions provided for by the rules and procedures.

These rules and procedures also stipulate a simple majority vote for decisions, except for decisions requiring a qualified majority vote of two-thirds plus one related to a change in a fund's rules and procedures, its conversion or disposal.

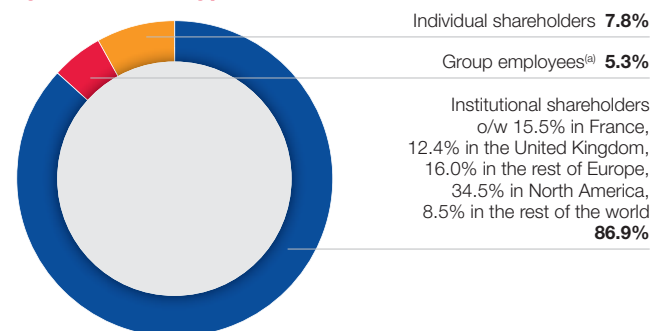
For employees holding shares outside of the employee collective investment funds mentioned in the table above, voting rights are exercised individually.

The information regarding shares held by the administration and management bodies is set forth in point 4.1.6 of chapter 4.

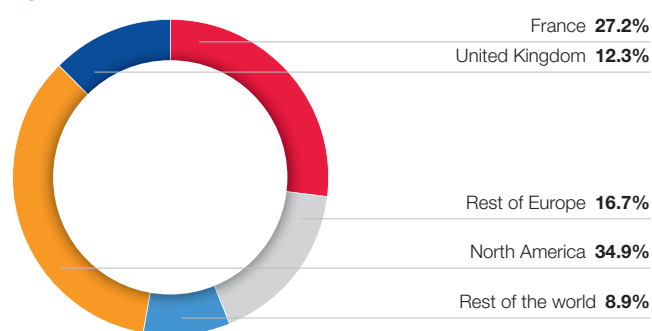
6.4.3 Shareholding structure

Estimates below are as of December 31, 2019, excluding treasury shares, based on the survey of identifiable holders of bearer shares conducted on that date.

By shareholder type



By area



a) Based on the definition of employee shareholding set forth in Article L. 225-102 of the French Commercial Code, excluding treasury shares (5.3% of the entire share capital, see point 6.3.2.6 in this chapter).

The number of individual and institutional TOTAL shareholders is estimated at approximately 450,000.

6.6 Investor relations

6.6.1 Documents on display

Information and documents regarding TOTAL S.A., its bylaws and the Company's Statutory and Consolidated Financial Statements for the year ended December 31, 2019, or previous fiscal years, may be consulted at its registered office pursuant to the legal and regulatory provisions in force, as well as on the Company website.

In addition, the French version of TOTAL S.A.'s Registration Documents (including the annual financial reports) and midyear financial reports filed with the French Financial Markets Authority (Autorité des marchés financiers) for each of the past 10 financial years are available on

its website: total.com (under Investors/Publications and regulated information). The Group's biannual presentations of its results and outlook, as well as the quarterly financial information, are also available on its website.

Furthermore, in order to meet its obligations related to the listing of its shares in the United States, the Company also files an annual report on Form 20-F, in English, with the SEC. This report is also available on the Company website.

6.6.2 Relationships with institutional investors, financial analysts and individual shareholders

Members of the Group's General Management and Investor Relations regularly meet with institutional investors and financial analysts in the leading financial centers throughout the world. In 2019, the Group organized more than 1,000 meetings.

Each year, two main presentations are given to the financial community: one in February following the publication of the results for the previous fiscal year, and one in September to present the Group's outlook and objectives. A series of meetings is held after each of these presentations. In addition, each year the Chief Financial Officer hosts three conference calls to discuss results for the first, second and third quarters of the year.

The information presented and broadcasted at these events is available on the Group's website.

With a dedicated team, the Group maintains an active dialogue with shareholders in the field of *Environment, Social, and Governance* (ESG). More than 100 meetings covering these themes were organized in France and worldwide in 2019.

In addition, the Group has a team dedicated to relationships with individual shareholders. This department, which is ISO 9001 certified, offers a comprehensive communication package, featuring:

- a direct line, e-mail address, and postal address (refer to point 6.6.6 of this chapter);
- documentation and material provided for individual shareholders (e.g., the shareholders' newsletter, individual shareholders pages available on the Company's website, and a Total Investors mobile app for digital tablets and smartphones);
- shareholder meetings and investor fairs held in France and worldwide;
- the Shareholders' Club, which organizes visits to industrial facilities, visits to natural sites and cultural events sponsored by the TOTAL Foundation, and conferences about the Group;
- the Shareholders' e-Advisory Committee, which expresses its views on the communication service as a whole.

This team also organizes the Annual Shareholders' Meeting, which was held on May 29, 2019, and attended by nearly 2,000 people.

The documentation on relationships with individual shareholders is available on the Company's website (total.com, under Investors/Individual shareholders).

6.6.3 Registered shareholding

Total shares can be held in bearer form or registered form. In the latter case, shareholders are identified by TOTAL S.A., in its capacity as the issuer, or by its agent, which is responsible for keeping the register of shareholders' registered shares. BNP Paribas Securities Services until January 17, 2020 and Société Générale Securities Services since January 20, 2020.

Registered shares

There are two forms of registration:

- administered registered shares: shares are registered with TOTAL through the Company's agent, but the holder's financial intermediary continues to administer them (sales, purchases, coupons, etc.);
- pure registered shares: TOTAL holds and directly administers shares on behalf of the holder through the Company's agent (sales, purchases, coupons, Shareholders' Meeting notices, etc.), so that the shareholder does not need to appoint a financial intermediary.

Main advantages of registered shares

The advantages of registered shares include:

- double voting rights if the shares are held continuously for more than two successive years (refer to point 7.2.4.1 of chapter 7);
- a Nomilia customer relations center available in six languages 24/7 by phone on +33 (0)2 51 85 67 89 (local call rate) with access to an advisor from Société Générale Securities Services, from Monday to Friday (business days) from 8:30 a.m. to 6:00 p.m. GMT+1;
- registration as a recipient of all information published by the Group for its shareholders;
- the ability to join the TOTAL Shareholders' Club by holding at least 50 shares.

The advantages of pure registered shares, in addition to those of administered registered shares, include:

- no custodial fees;
- easier placement of market orders⁽¹⁾ (phone, mail, fax, Internet);
- brokerage fees of 0.19% (before tax) of the gross amount of the trade, with no minimum charge and up to €1,000 per trade;

- the option to view and manage shareholdings online via the Sharinbox site.

To convert Total shares into pure registered shares, shareholders must fill out a form that can be obtained upon request from the Individual Shareholder Relations Department and send it to their financial intermediary.

6.6.4 2020 financial calendar

February 6	Results of the fourth quarter and full year 2019 and Investors' Day – Aberdeen
March 30	Ex-dividend date for the 2019 third interim dividend
April 30	Results of the first quarter 2020
May 29	2020 Annual Shareholders' Meeting in Paris
June 29	Ex-dividend date for the 2019 final dividend ^(a)
July 30	Results of the second quarter and first half 2020
September 22	Investors' Day (outlook and objectives)
September 25	Ex-dividend date for the 2020 first interim dividend ^(b)
October 30	Results of the third quarter and first nine months of 2020

(a) Subject to approval at the Annual Shareholders' Meeting on May 29, 2020.

(b) Subject to the Board of Directors' decision.

The full calendar including Shareholders' Meetings and investor fairs is available on the Company's website total.com (under Investors).

6.6.5 2021 financial calendar

January 4	Ex-dividend date for the 2020 second interim dividend ^(a)
March 25	Ex-dividend date for the 2020 third interim dividend ^(a)
May 28	2021 Annual Shareholders' Meeting in Paris
June 24	Ex-dividend date for the 2020 final dividend ^(b)

(a) Subject to the Board of Directors' decision.

(b) Subject to approval at the Annual Shareholders' Meeting on May 28, 2021.

6.6.6 Contacts

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Head of Individual Shareholder Relations

TOTAL S.A. Individual Shareholder Relations Department
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92078 Paris La Défense Cedex, France
e-mail: actionnaires@total.com

Phone (Monday to Friday from 9 a.m. to 12:30 p.m. and from 1:30 p.m. to 5:30 p.m., GMT+1):

- from France: 0800 039 039 (toll-free number from a landline);
- from Belgium: 02 288 3309;
- from the United Kingdom: 020 7719 6084;
- from Germany: 30 2027 7700;
- from other countries: +33 1 47 44 24 02.

(1) Provided the subscriber has signed the market service agreement. Signing this agreement is free of charge.

7**General
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[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

7.1 Share capital

7.1.1 Amount of share capital as of December 31, 2019

As of December 31, 2019, the share capital amounted to €6,504,702,687.50, consisting of 2,601,881,075⁽¹⁾ ordinary shares, with a par value of €2.50 per share. All the shares issued have been fully paid up.

7.1.2 Features of the shares

There is a single category of shares. The shares are registered or in bearer form, at the shareholder's discretion. Double voting rights are granted to registered shares under the conditions set out in point 7.2.4.1 of this chapter. The shares are in book-entry form and registered in an account.

7.1.3 Potential capital as of December 31, 2019

The potential share capital consists of the existing share capital to which are added the new Total shares that could be issued in the event of (i) the conversion or reimbursement in shares of all the rights giving access to the share capital, or (ii) the exercise of all the share subscription options. As of December 31, 2019, there were no financial instruments likely to result in the creation of new Total shares.

7.1.4 History of changes in share capital since 2017

Transaction acknowledgment date	Shares created/ (canceled) (number of shares)	Type of transaction (share capital increase/reduction)	Nominal amount of the transaction (euros)	Issue/share premium per share (euros)	Share capital after the transaction (euros)	Shares composing the capital after the transaction (number of shares)
Fiscal year 2017						
January 12, 2017	2,237,918	Increase – Exercise of share subscription options in fiscal year 2016	5,594,795.00	^(a)	6,075,914,655.00	2,430,365,862
January 12, 2017	23,206,171	Increase – Payment of the 2016 second interim dividend	58,015,427.50	39.37	6,133,930,082.50	2,453,572,033
April 6, 2017	19,800,590	Increase – Payment of the 2016 third interim dividend	49,501,475.00	42.14	6,183,431,557.50	2,473,372,623
April 26, 2017	9,532,190	Share capital increase reserved for employees	23,830,475.00	35.60 ^(b)	6,207,262,032.50	2,482,904,813
June 22, 2017	17,801,936	Increase – Payment of the 2016 final dividend	44,504,840.00	42.36	6,251,766,872.50	2,500,706,749
October 12, 2017	25,633,559	Increase – Payment of the 2017 first interim dividend	64,083,897.50	38.62	6,315,850,770.00	2,526,340,308

(a) The shares created result from the exercise of share subscription options in fiscal year 2016 under the 2008, 2009, 2010 and 2011 share subscription options plans. The issue premiums corresponding to the creation of these shares under the 2008, 2009, 2010 and 2011 plans respectively amount to €40.40, €37.40, €35.70 and €30.50.

(b) Only the 9,350,220 shares subscribed by the employees as part of the share capital increase included an issue premium. The 181,970 shares created for the matching contribution, in the form of free shares pursuant to Article L. 3332-21 of the French Labor Code, did not include an issue premium.

(1) Based on the number of shares composing the share capital as of December 31, 2019, published by the Company in accordance with article 223-16 of the General Regulation of the French Financial Markets Authority.

Transaction acknowledgment date	Shares created/ (canceled) (number of shares)	Type of transaction (share capital increase/reduction)	Nominal amount of the transaction (euros)	Issue/share premium per share (euros)	Share capital after the transaction (euros)	Shares composing the capital after the transaction (number of shares)
Fiscal year 2018						
January 11, 2018	2,649,308	Increase – Exercise of share subscription options in fiscal year 2017	6,623,270.00	^(a)	6,322,474,040.00	2,528,989,616
January 11, 2018	7,087,904	Increase – Payment of the 2017 second interim dividend	17,719,760.00	44.05	6,340,193,800.00	2,536,077,520
March 8, 2018	97,522,593	Increase – Consideration for the contribution of Mærsk Oilie og Gas A/S shares	243,806,482.50	40.70	6,584,000,282.50	2,633,600,113
April 9, 2018	15,559,601	Increase – Payment of the 2017 third interim dividend	38,899,002.50	43.20	6,622,899,285.00	2,649,159,714
May 3, 2018	9,354,889	Share capital increase reserved for employees	23,387,222.50	34.70 ^(b)	6,646,286,507.50	2,658,514,603
June 28, 2018	5,798,335	Increase – Payment of the 2017 final dividend	14,495,837.50	49.53	6,660,782,345.00	2,664,312,938
October 12, 2018	18,783,197	Increase – Payment of the 2018 first interim dividend	46,957,992.50	50.45	6,707,740,337.50	2,683,096,135
December 12, 2018	(44,590,699)	Reduction – Cancellation of treasury shares	(111,476,747.50)	n/a	6,596,263,590.00	2,638,505,436

(a) The shares created result from the exercise of share subscription options in fiscal year 2017 under the 2009, 2010 and 2011 share subscription options plans.

(b) Only the 9,174,817 shares subscribed by the employees as part of the share capital increase included an issue premium. The 180,072 shares created for the matching contribution, in the form of free shares pursuant to Article L. 3332-21 of the French Labor Code, did not include an issue premium.

Transaction acknowledgment date	Shares created/ (canceled) (number of shares)	Type of transaction (share capital increase/reduction)	Nominal amount of the transaction (euros)	Issue/share premium per share (euros)	Share capital after the transaction (euros)	Shares composing the capital after the transaction (number of shares)
Fiscal year 2019						
January 14, 2019	2,096,571	Increase – Exercise of share subscription options in fiscal year 2018	5,241,427.50	^(a)	6,601,505,017.50	2,640,602,007
January 14, 2019	1,212,767	Increase – Payment of the 2018 second interim dividend	3,031,917.50	45.77	6,604,536,935.00	2,641,814,774
April 8, 2019	14,864,169	Increase – Payment of the 2018 third interim dividend	37,160,422.50	46.80	6,641,697,357.50	2,656,678,943
June 6, 2019	10,047,337	Share capital increase reserved for employees	25,118,342.50	37.60 ^(b)	6,666,815,700.00	2,666,726,280
October 29, 2019	264,230	Increase – Exercise of share subscription options in fiscal year 2019	660,575.00	30.50 ^(c)	6,667,476,275.00	2,666,990,510
December 11, 2019	(65,109,435)	Reduction – Cancellation of treasury shares	(162,773,587.50)	n/a	6,504,702,687.50	2,601,881,075

(a) The shares created result from the exercise of share subscription options in fiscal year 2018 under the 2010 and 2011 share subscription options plans.

(b) Only the 9,845,111 shares subscribed by the employees as part of the share capital increase included an issue premium. The 202,226 shares created for the matching contribution, in the form of free shares pursuant to Article L. 3332-21 of the French Labor Code, did not include an issue premium.

(c) The shares created result from the exercise of share subscription options in fiscal year 2019 under the 2011 share subscription options plan.

7.2 Articles of incorporation and bylaws; other information

The Board of Directors has decided to submit to the Annual Shareholders' Meeting on May 29, 2020 a project to transform TOTAL S.A. into a European company (Societas Europaea or SE). The legal status of a European company is common to all the countries in the European Union and is used by an increasing number of companies in France and in Europe. This status will better reflect the economic and social reality of the Group and fully recognize its European dimension. The Group has a strong European presence, with activities in 25 European countries, representing more than 60% of its employees and more than 70% of the Group's sales.

The conversion of TOTAL S.A. into a European company will have no impact on its governance, activities, tax affairs, the organization of the Company, where it is listed or the location of the head office, which will remain in France. The Company bylaws that are amended as a result of this conversion project, which will be submitted to the Shareholders' Meeting on May 29, 2020, will also include various adaptations, related in particular to the French law n°2019-486 of May 22, 2019 on the growth and the transformation of businesses, known as the "Pacte" law, particularly with regard to the participation of employees in the Company's Board of Directors.

7.2.1 General information concerning the Company

The Company's name is TOTAL S.A.

TOTAL S.A. is a French limited liability company (société anonyme). The headquarters are located at 2, place Jean Millier, La Défense 6, 92400 Courbevoie, France. It is registered in the Nanterre Trade and Companies Register under No. 542 051 180.

The Company's term was extended for 99 years from March 22, 2000, to expire on March 22, 2099, unless dissolved prior to this date or extended.

Fiscal year: from January 1 to December 31 of each year.

LEI (Legal Entity Identifier): 529900S21EQ1BO4ESM68.

EC Registration Number: FR 59 542 051 180.

APE Code (NAF): 111Z until January 7, 2008; 7010Z since January 8, 2008.

The Company's bylaws are on file with K.L. Associés, Notaries in Paris. The telephone number is +33 (0)1 47 44 45 46 and its internet address is total.com⁽¹⁾.

7.2.2 Summary of the Company's corporate purpose

The purpose of the Company is, directly and indirectly all activities relating to production and distribution of all forms of energy, to search for and extract mining deposits in all countries, particularly hydrocarbons in all forms, and to perform industrial refining, transport, processing and trading in said materials as well as their derivatives and by-products,

as well as all activities relating to the chemicals sector in all of its forms and to the rubber sector. The complete details of the Company's corporate purpose are set forth in Article 3 of the bylaws.

7.2.3 Provisions of the bylaws governing the administration and management bodies

7.2.3.1 Election of directors and term of office

Directors are elected by the Shareholders' Meeting for a 3-year term up to a maximum number of directors authorized by law (currently 18), subject to the legal provisions that allow the term to be extended until the next Ordinary Shareholders' Meeting called to approve the financial statements for the previous fiscal year.

In addition, one director representing the employee shareholders is also elected by the Shareholders' Meeting for a 3-year term from a list of at least two candidates preselected by the employee shareholders under the conditions provided for by the laws, regulations and bylaws in force. However, his or her term shall expire automatically once this Director is no longer an employee or a shareholder. The Board of Directors may meet and conduct valid deliberations until the date his or her replacement is named.

Furthermore, a director representing the employees is designated by the Company's Central Social and Economic Committee (previously Central Works Council). Where the number of directors appointed by the

Shareholders' Meeting is greater than 12⁽²⁾, a second director representing the employees is designated by the Company's Central Social and Economic Committee. Law n°2019-486 of May 22, 2019 on the growth and transformation of businesses amended Article L. 225-27-1 of the French Commercial Code to reduce to eight the number of directors over which a second director representing employees must be appointed. TOTAL S.A.'s bylaws are expected to be amended accordingly at the Shareholders' Meeting on May 29, 2020. In accordance with applicable legal provisions, the director elected by the Central Works Council must have held an employment contract with the Company or one of its direct or indirect subsidiaries, whose registered office is based in mainland France, for at least two years prior to appointment. The second director elected by the European Works Council must have held an employment contract with the Company or one of its direct or indirect subsidiaries for at least two years prior to appointment. The term of office for a director representing the employees is three years. However, the term of office ends following the Ordinary Shareholders' Meeting called to approve the financial statements for the last fiscal year and held in the year during which the said director's term of office expires.

(1) Information on total.com does not form part of the Universal Registration Document unless that information is incorporated by reference into it.

(2) Neither the director representing employee shareholders, elected by the Annual Shareholders' Meeting, nor the director(s) representing employees are taken into consideration when calculating the 12-member threshold, which is assessed on the date on which the employee director(s) is/are elected.

7.2.3.2 Age limit of directors

On the closing date of each fiscal year, the number of individual directors over the age of 70 may not be greater than one third of the directors in office. If this percentage is exceeded, the oldest Board member is automatically considered to have resigned. The director permanent representative of a legal entity must be under 70 years old.

7.2.3.3 Age limit of the Chairman of the Board and the Chief Executive Officer

The duties of the Chairman of the Board automatically cease on his or her 70th birthday at the latest.

To hold this office, the Chief Executive Officer must be under the age of 67. When the age limit is reached during his or her duties, such duties automatically cease, and the Board of Directors elects a new Chief Executive Officer. However, his or her duties as Chief Executive Officer will continue until the date of the Board of Directors' meeting aimed at electing his or her successor. Subject to the age limit specified above, the Chief Executive Officer can always be re-elected.

The age limits specified above are stipulated in the Company's bylaws. They were approved by the Annual Shareholders' Meeting held on May 16, 2014.

7.2.3.4 Minimum interest in the Company held by directors

Each director (other than the director representing the employee shareholders or the directors representing the employees) must own at least 1,000 shares during his or her term of office. If, however, any director ceases to own the required number of shares, they may adjust their position subject to the conditions set by law. The director representing employee shareholders must hold, during his or her term of office,

either individually or through a Company Savings Plan (Fonds Commun de Placement d'Entreprise, FCPE) governed by Article L. 214-165 of the French Monetary and Financial Code, at least one share or a number of units in said fund equivalent to at least one share. The directors representing the employees are not required to be shareholders.

7.2.3.5 Majority rules for Board meetings

Decisions are adopted by a majority vote of the directors present or represented. In the event of a tie vote, the person chairing the meeting shall cast the deciding vote.

7.2.3.6 Rules of procedure and Committees of the Board of Directors

Refer to point 4.1.2 of chapter 4.

7.2.3.7 Form of management

Management of the Company is assumed either by the Chairman of the Board of Directors (who then holds the title of the Chairman and Chief Executive Officer), or by another person appointed by the Board of Directors with the title of Chief Executive Officer. It is the responsibility of the Board of Directors to choose between these two forms of management under the majority rules described above.

At its meeting on December 16, 2015, the Board of Directors decided to reunify the positions of Chairman and Chief Executive Officer of TOTAL S.A. as of December 19, 2015. Since that date, Mr. Pouyanné has held the position of Chairman and Chief Executive Officer of TOTAL S.A. After his term of office as director was renewed for a three-year period at the Shareholders' Meeting on June 1, 2018, the Board of Directors reappointed Mr. Pouyanné as Chairman and Chief Executive Officer of TOTAL S.A. for the same period. For additional information on the governance structure, refer to point 4.1.5.1 of chapter 4.

7.2.4 Rights, privileges and restrictions attached to the shares

In addition to the right to vote, each share entitles the holder to a portion of the corporate assets, distributions of profits and liquidation dividend that is proportional to the number of shares issued, subject to the laws and regulations in force, as well as the bylaws.

With the exception of double voting rights, no privilege is attached to a specific class of shares or to a specific class of shareholders.

7.2.4.1 Double voting rights

Double voting rights, in relation to the portion of share capital they represent, are granted to all fully paid-up registered shares held continuously in the name of the same shareholder for at least two years⁽¹⁾, and to additional registered shares allotted to a shareholder in connection with a share capital increase by capitalization of reserves, profits or premiums on the basis of the existing shares which entitle the shareholder to a double voting right.

7.2.4.2 Limitation of voting rights

Article 18 of the Company's bylaws provides that at Shareholders' Meetings, no shareholder may cast, by himself or through his agent, on the basis of the single voting rights attached to the shares he holds directly or indirectly and the shares for which he holds powers, more than 10% of the total number of voting rights attached to the Company's shares. In the case of double voting rights, by himself or through his

agent, this limit may be exceeded, taking only the resulting additional voting rights into account, provided that the total voting rights that he exercises do not exceed 20% of the total voting rights associated with the shares in the Company.

Additionally, Article 18 of the bylaws also provides that the limitation on voting rights no longer applies, absent any decision of the Shareholders' Meeting, if an individual or a legal entity acting solely or together with one or more individuals or entities acquires at least two thirds of the Company's shares following a public tender offer for all the Company's shares. In that case, the Board of Directors acknowledges that the limitation no longer applies and carries out the necessary procedure to modify the Company's bylaws accordingly.

Once acknowledged, the fact that the limitation no longer applies is final and applies to all Shareholders' Meetings following the public tender offer under which the acquisition of at least two thirds of the overall number of shares of the Company was made possible, and not solely to the first meeting following that public tender offer.

Since in such circumstances the limitation no longer applies, such limitation on voting rights cannot prevent or delay any takeover of the Company, except in case of a public tender offer where the bidder does not acquire at least two thirds of the Company's shares.

(1) This term is not interrupted and the right acquired is retained in case of a conversion of bearer to bearer pursuant to intestate or testamentary succession, share of community property between spouses or donation to the spouse or relatives entitled to inherit (Article 18 § 6 of the bylaws).

7.2.4.3 Fractional rights

Whenever it is necessary to own several shares in order to exercise a right, a number of shares less than the number required does not give the owners any right with respect to the Company; in such case, the shareholders are responsible for aggregating the required number of shares.

7.2.4.4 Statutory allocation of profits

The Company may distribute dividends under the conditions provided for by the French Commercial Code and the Company's bylaws.

The net profit for the period is equal to the net income minus general expenses and other personnel expenses, all amortization and depreciation of the assets, as well as all provisions for commercial and industrial contingencies.

From this profit, minus prior losses, if any, the following items are deducted in the order indicated:

- 5% to constitute the legal reserve fund, until said fund reaches 10% of the share capital;

7.2.5 Amending shareholders' rights

Any amendment to the bylaws must be approved or authorized by the Shareholders' Meeting voting with the quorum and majority required

- the amounts set by the Shareholders' Meeting in order to fund reserves for which it determines the allocation or use; and
- the amounts that the Shareholders' Meeting decides to retain.

The remainder is paid to the shareholders as dividends.

The Board of Directors may pay interim dividends.

The Shareholders' Meeting held to approve the financial statements for the fiscal year may decide to grant shareholders an option, for all or part of the dividend or interim dividends, between payment of the dividend in cash or in shares.

The Shareholders' Meeting may decide at any time, but only based on a proposal by the Board of Directors, to make a full or partial distribution of the amounts in the reserve accounts, either in cash or in Company shares.

Dividends that have not been claimed at the end of a five-year period are forfeited to the French State.

7.2.6 Shareholders' Meetings

Refer to point 4.4.3 of chapter 4 for the terms and conditions of the notice and admission to Shareholders' Meetings.

by the laws and regulations governing Extraordinary Shareholders' Meetings.

7.2.7 Identification of the holders of bearer shares

In accordance with Article 9 of its bylaws, TOTAL S.A. is authorized, to the extent permitted under applicable law, to identify the holders of securities that grant an immediate or future voting right at the Company's Shareholders' Meetings.

Law n° 2019-486 of May 22, 2019 on the growth and transformation of businesses amended Article L. 228-2 of the French Commercial Code to stipulate that this ability to make use of the procedure is a matter of law, and any provision of the bylaws to the contrary shall be deemed unwritten.

7.2.8 Thresholds to be declared according to the bylaws

Any individual or entity who directly or indirectly acquires a percentage of the share capital, voting rights or rights giving future access to the share capital of the Company that is equal to or greater than 1%, or a multiple of this percentage, is required to notify the Company within 15 days as from the crossing of each threshold, by registered mail with return receipt requested, and declare the number of securities held.

Shareholders' Meetings if, at a Shareholders' Meeting, the failure to make a declaration is acknowledged and if one or more shareholders holding collectively at least 3% of the Company's share capital or voting rights so request at that meeting.

In case the shares above these thresholds are not declared, as specified in the preceding paragraph, any shares held in excess of, the threshold that should have been declared will be deprived of voting rights at

All individuals and entities are also required to notify the Company, in due form and within the time limits stated above, when their direct or indirect holdings fall below each of the thresholds mentioned in the first paragraph.

7.2.9 Changes in the share capital

The Company's share capital may be changed only under the conditions stipulated by the legal and regulatory provisions in force. No provision of the bylaws, charter, or internal regulations provide for more stringent conditions than the law governing changes in the Company's share capital.

The French Commercial Code stipulates that shareholders hold, in proportion to their number of shares, a preemptive subscription right to shares issued for cash to increase the share capital. The Extraordinary Shareholders' Meeting can decide, under the conditions provided for by law, to remove this preemptive subscription right.

8

Consolidated Financial Statements

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

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8.2 Consolidated statement of income

TOTAL

For the year ended December 31, (M\$) ^(a)		2019	2018	2017
Sales	(Notes 3, 4, 5)	200,316	209,363	171,493
Excise taxes	(Notes 3 & 5)	(24,067)	(25,257)	(22,394)
Revenues from sales	(Notes 3 & 5)	176,249	184,106	149,099
Purchases, net of inventory variation	(Note 5)	(116,221)	(125,816)	(99,411)
Other operating expenses	(Note 5)	(27,255)	(27,484)	(24,966)
Exploration costs	(Note 5)	(785)	(797)	(864)
Depreciation, depletion and impairment of tangible assets and mineral interests	(Note 5)	(15,731)	(13,992)	(16,103)
Other income	(Note 6)	1,163	1,838	3,811
Other expense	(Note 6)	(1,192)	(1,273)	(1,034)
Financial interest on debt		(2,333)	(1,933)	(1,396)
Financial income and expense from cash & cash equivalents		(19)	(188)	(138)
Cost of net debt	(Note 15)	(2,352)	(2,121)	(1,534)
Other financial income	(Note 6)	792	1,120	957
Other financial expense	(Note 6)	(764)	(685)	(642)
Net income (loss) from equity affiliates	(Note 8)	3,406	3,170	2,015
Income taxes	(Note 11)	(5,872)	(6,516)	(3,029)
CONSOLIDATED NET INCOME		11,438	11,550	8,299
Group share		11,267	11,446	8,631
Non-controlling interests		171	104	(332)
Earnings per share (\$)		4.20	4.27	3.36
Fully-diluted earnings per share (\$)		4.17	4.24	3.34

(a) Except for per share amounts.

8.3 Consolidated statement of comprehensive income

TOTAL

For the year ended December 31, (M\$)

		2019	2018	2017
CONSOLIDATED NET INCOME		11,438	11,550	8,299
Other comprehensive income				
Actuarial gains and losses	(Note 10)	(192)	(12)	823
Change in fair value of investments in equity instruments	(Note 15)	142	–	–
Tax effect		53	13	(390)
Currency translation adjustment generated by the parent company	(Note 9)	(1,533)	(4,022)	9,316
ITEMS NOT POTENTIALLY RECLASSIFIABLE TO PROFIT AND LOSS		(1,530)	(4,021)	9,749
Currency translation adjustment	(Note 9)	740	1,113	(2,578)
Available for sale financial assets	(Note 8)	–	–	7
Cash flow hedge	(Notes 15 & 16)	(599)	25	324
Variation of foreign currency basis spread	(Note 15)	1	(80)	–
Share of other comprehensive income of equity affiliates, net amount	(Note 8)	408	(540)	(677)
Other		(3)	(5)	–
Tax effect		202	14	(100)
ITEMS POTENTIALLY RECLASSIFIABLE TO PROFIT AND LOSS		749	527	(3,024)
TOTAL OTHER COMPREHENSIVE INCOME (NET AMOUNT)		(781)	(3,494)	6,725
COMPREHENSIVE INCOME		10,657	8,056	15,024
– Group share		10,418	8,021	15,312
– Non-controlling interests	(Note 9)	239	35	(288)

8.4 Consolidated balance sheet

TOTAL

ASSETS

As of December 31, (M\$)

		2019	2018	2017
Non-current assets				
Intangible assets, net	(Notes 4 & 7)	33,178	28,922	14,587
Property, plant and equipment, net	(Notes 4 & 7)	116,408	113,324	109,397
Equity affiliates: investments and loans	(Note 8)	27,122	23,444	22,103
Other investments	(Note 8)	1,778	1,421	1,727
Non-current financial assets	(Note 15)	912	680	679
Deferred income taxes	(Note 11)	6,216	6,663	5,206
Other non-current assets	(Note 6)	2,415	2,509	3,984
TOTAL NON-CURRENT ASSETS		188,029	176,963	157,683
Current assets				
Inventories, net	(Note 5)	17,132	14,880	16,520
Accounts receivable, net	(Note 5)	18,488	17,270	14,893
Other current assets	(Note 5)	17,013	14,724	14,210
Current financial assets	(Note 15)	3,992	3,654	3,393
Cash and cash equivalents	(Note 15)	27,352	27,907	33,185
Assets classified as held for sale	(Note 2)	1,288	1,364	2,747
TOTAL CURRENT ASSETS		85,265	79,799	84,948
TOTAL ASSETS		273,294	256,762	242,631

LIABILITIES & SHAREHOLDERS' EQUITY

As of December 31, (M\$)

		2019	2018	2017
Shareholders' equity				
Common shares		8,123	8,227	7,882
Paid-in surplus and retained earnings		121,170	120,569	112,040
Currency translation adjustment		(11,503)	(11,313)	(7,908)
Treasury shares		(1,012)	(1,843)	(458)
TOTAL SHAREHOLDERS' EQUITY – GROUP SHARE	(Note 9)	116,778	115,640	111,556
NON-CONTROLLING INTERESTS		2,527	2,474	2,481
TOTAL SHAREHOLDERS' EQUITY		119,305	118,114	114,037
Non-current liabilities				
Deferred income taxes	(Note 11)	11,858	11,490	10,828
Employee benefits	(Note 10)	3,501	3,363	3,735
Provisions and other non-current liabilities	(Note 12)	20,613	21,432	15,986
Non-current financial debt	(Note 15)	47,773	40,129	41,340
TOTAL NON-CURRENT LIABILITIES		83,745	76,414	71,889
Current liabilities				
Accounts payable		28,394	26,134	26,479
Other creditors and accrued liabilities	(Note 5)	25,749	22,246	17,779
Current borrowings	(Note 15)	14,819	13,306	11,096
Other current financial liabilities	(Note 15)	487	478	245
Liabilities directly associated with the assets classified as held for sale	(Note 2)	795	70	1,106
TOTAL CURRENT LIABILITIES		70,244	62,234	56,705
TOTAL LIABILITIES & SHAREHOLDERS' EQUITY		273,294	256,762	242,631

8.5 Consolidated statement of cash flow

TOTAL

For the year ended December 31, (M\$)	2019	2018	2017
CASH FLOW FROM OPERATING ACTIVITIES			
Consolidated net income	11,438	11,550	8,299
Depreciation, depletion, amortization and impairment (Note 5.3)	16,401	14,584	16,611
Non-current liabilities, valuation allowances, and deferred taxes (Note 5.5)	(58)	(887)	(384)
(Gains) losses on disposals of assets	(614)	(930)	(2,598)
Undistributed affiliates' equity earnings	(1,083)	(826)	42
(Increase) decrease in working capital (Note 5.5)	(1,718)	769	827
Other changes, net	319	443	(478)
CASH FLOW FROM OPERATING ACTIVITIES	24,685	24,703	22,319
CASH FLOW USED IN INVESTING ACTIVITIES			
Intangible assets and property, plant and equipment additions (Note 7)	(11,810)	(17,080)	(13,767)
Acquisitions of subsidiaries, net of cash acquired	(4,748)	(3,379)	(800)
Investments in equity affiliates and other securities	(1,618)	(1,108)	(1,368)
Increase in non-current loans	(1,061)	(618)	(961)
Total expenditures	(19,237)	(22,185)	(16,896)
Proceeds from disposals of intangible assets and property, plant and equipment	527	3,716	1,036
Proceeds from disposals of subsidiaries, net of cash sold	158	12	2,909
Proceeds from disposals of non-current investments	349	1,444	294
Repayment of non-current loans	1,026	2,067	1,025
Total divestments	2,060	7,239	5,264
CASH FLOW USED IN INVESTING ACTIVITIES	(17,177)	(14,946)	(11,632)
CASH FLOW FROM FINANCING ACTIVITIES			
Issuance (repayment) of shares:			
– Parent company shareholders	452	498	519
– Treasury shares	(2,810)	(4,328)	–
Dividends paid:			
– Parent company shareholders	(6,641)	(4,913)	(2,643)
– Non-controlling interests	(115)	(97)	(141)
Net issuance of perpetual subordinated notes (Note 9)	–	–	–
Payments on perpetual subordinated notes (Note 9)	(371)	(325)	(276)
Other transactions with non-controlling interests	10	(622)	(4)
Net issuance (repayment) of non-current debt (Note 15)	8,131	649	2,277
Increase (decrease) in current borrowings	(5,829)	(3,990)	(7,175)
Increase (decrease) in current financial assets and liabilities	(536)	(797)	1,903
CASH FLOW FROM / (USED IN) FINANCING ACTIVITIES	(7,709)	(13,925)	(5,540)
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(201)	(4,168)	5,147
Effect of exchange rates	(354)	(1,110)	3,441
Cash and cash equivalents at the beginning of the period	27,907	33,185	24,597
CASH AND CASH EQUIVALENTS AT THE END OF THE PERIOD (Note 15)	27,352	27,907	33,185

8.6 Consolidated statement of changes in shareholders' equity

TOTAL

(M\$)	Common shares issued		Paid-in surplus and retained earnings	Currency translation adjustment	Treasury shares		Shareholders' equity - Group share	Non-controlling interests	Total shareholders' equity
	Number	Amount			Number	Amount			
AS OF JANUARY 1, 2017	2,430,365,862	7,604	105,547	(13,871)	(10,587,822)	(600)	98,680	2,894	101,574
Net income 2017	-	-	8,631	-	-	-	8,631	(332)	8,299
Other comprehensive income	-	-	718	5,963	-	-	6,681	44	6,725
Comprehensive income	-	-	9,349	5,963	-	-	15,312	(288)	15,024
Dividend	-	-	(6,992)	-	-	-	(6,992)	(141)	(7,133)
Issuance of common shares	98,623,754	278	4,431	-	-	-	4,709	-	4,709
Purchase of treasury shares	-	-	-	-	-	-	-	-	-
Sale of treasury shares ^(a)	-	-	(142)	-	2,211,066	142	-	-	-
Share-based payments	-	-	151	-	-	-	151	-	151
Share cancellation	-	-	-	-	-	-	-	-	-
Net issuance (repayment) of perpetual subordinated notes	-	-	-	-	-	-	-	-	-
Payments on perpetual subordinated notes	-	-	(302)	-	-	-	(302)	-	(302)
Other operations with non-controlling interests	-	-	(8)	-	-	-	(8)	4	(4)
Other items	-	-	6	-	-	-	6	12	18
AS OF DECEMBER 31, 2017	2,528,989,616	7,882	112,040	(7,908)	(8,376,756)	(458)	111,556	2,481	114,037
Net income 2018	-	-	11,446	-	-	-	11,446	104	11,550
Other comprehensive income	-	-	(20)	(3,405)	-	-	(3,425)	(69)	(3,494)
Comprehensive income	-	-	11,426	(3,405)	-	-	8,021	35	8,056
Dividend	-	-	(7,881)	-	-	-	(7,881)	(97)	(7,978)
Issuance of common shares	156,203,090	476	8,366	-	-	-	8,842	-	8,842
Purchase of treasury shares	-	-	-	-	(72,766,481)	(4,328)	(4,328)	-	(4,328)
Sale of treasury shares ^(a)	-	-	(240)	-	4,079,257	240	-	-	-
Share-based payments	-	-	294	-	-	-	294	-	294
Share cancellation	(44,590,699)	(131)	(2,572)	-	44,590,699	2,703	-	-	-
Net issuance (repayment) of perpetual subordinated notes	-	-	-	-	-	-	-	-	-
Payments on perpetual subordinated notes	-	-	(315)	-	-	-	(315)	-	(315)
Other operations with non-controlling interests	-	-	(517)	-	-	-	(517)	(99)	(616)
Other items	-	-	(32)	-	-	-	(32)	154	122
AS OF DECEMBER 31, 2018	2,640,602,007	8,227	120,569	(11,313)	(32,473,281)	(1,843)	115,640	2,474	118,114
Net income 2019	-	-	11,267	-	-	-	11,267	171	11,438
Other comprehensive income	-	-	(659)	(190)	-	-	(849)	68	(781)
Comprehensive income	-	-	10,608	(190)	-	-	10,418	239	10,657
Dividend	-	-	(7,730)	-	-	-	(7,730)	(115)	(7,845)
Issuance of common shares	26,388,503	74	1,265	-	-	-	1,339	-	1,339
Purchase of treasury shares	-	-	-	-	(52,389,336)	(2,810)	(2,810)	-	(2,810)
Sale of treasury shares ^(a)	-	-	(219)	-	4,278,948	219	-	-	-
Share-based payments	-	-	207	-	-	-	207	-	207
Share cancellation	(65,109,435)	(178)	(3,244)	-	65,109,435	3,422	-	-	-
Net issuance (repayment) of perpetual subordinated notes	-	-	(4)	-	-	-	(4)	-	(4)
Payments on perpetual subordinated notes	-	-	(353)	-	-	-	(353)	-	(353)
Other operations with non-controlling interests	-	-	55	-	-	-	55	(42)	13
Other items	-	-	16	-	-	-	16	(29)	(13)
AS OF DECEMBER 31, 2019	2,601,881,075	8,123	121,170	(11,503)	(15,474,234)	(1,012)	116,778	2,527	119,305

(a) Treasury shares related to the restricted stock grants.

Changes in equity are detailed in Note 9.

8.7 Notes to the Consolidated Financial Statements

On February 5, 2020, the Board of Directors established and authorized the publication of the Consolidated Financial Statements of TOTAL S.A. for the year ended December 31, 2019, which will be submitted for approval to the Shareholders' Meeting to be held on May 29, 2020.

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Basis of preparation of the consolidated financial statements

The Consolidated Financial Statements of TOTAL S.A. and its subsidiaries (the Group) are presented in U.S. dollars and have been prepared on the basis of IFRS (International Financial Reporting Standards) as adopted by the European Union and IFRS as issued by the IASB (International Accounting Standard Board) as of December 31, 2019.

The accounting principles applied for the consolidated financial statements at December 31, 2019, were the same as those that were used for the financial statements at December 31, 2018, with the exception of those texts or amendments that must be applied for periods beginning January 1, 2019.

First-time application of IFRS 16 “Leases”

As part of the first application of IFRS 16 “Leases” as of January 1, 2019, the Group:

- applied the simplified retrospective transition method, accounting for the cumulative effect of the initial application of the standard at the date of first application, without restating the comparative periods;
- used the following simplification measures provided by the standard in the transitional provisions:
 - exclusion of contracts that the Group had not previously identified as containing a lease under IAS 17 and IFRIC 4,
 - exclusion of leases whose term ends within 12 months of the date of first application;
- recognized each lease component as a separate lease, separately from non-lease components of the lease (services);
- applied the two exemptions of the standard on short-term leases and leases of low-value assets.

The impact of the application of this standard as at January 1, 2019 is \$5,698 million on fixed assets, \$(5,505) million on net debt and \$(193) million on other assets and liabilities. The weighted average incremental borrowing rate of 4.5% at transition date was determined on the basis of the initial duration of the contracts.

Major judgments and accounting estimates

The preparation of financial statements in accordance with IFRS for the closing as of December 31, 2019 requires the executive management to make estimates, assumptions and judgments that affect the information reported in the Consolidated Financial Statements and the Notes thereto.

These estimates, assumptions and judgments are based on historical experience and other factors believed to be reasonable at the date of preparation of the financial statements. They are reviewed on an on-going basis by management and therefore could be revised as circumstances change or as a result of new information.

Different estimates, assumptions and judgments could significantly affect the information reported, and actual results may differ from the amounts included in the Consolidated Financial Statements and the Notes thereto.

The following summary provides further information about the key estimates, assumptions and judgments that are involved in preparing the Consolidated Financial Statements and the Notes thereto. It should be read in conjunction with the sections of the Notes mentioned in the summary.

Estimation of hydrocarbon reserves

The estimation of oil and gas reserves is a key factor in the Successful Efforts method used by the Group to account for its oil and gas activities.

The impact on fixed assets is broken down as follows:

(in M\$)

Right of use of buildings	2,278
Right of use of machinery, plant and equipment (including transportation equipment)	2,632
Other right of use	788
Total	5,698

Other information related to the application of IFRS 16 “Leases” are presented in note 13.2 “Leases”.

Further to the review of leases entered into as part of joint operations, in accordance with the IFRS Interpretations Committee (IFRIC) decision, all liabilities related to such leases have been recognized as at September 30, 2019 when the group has primary responsibility of the lease payments. When the right of use of the asset is jointly controlled by the group and the other partners, a financial receivable has been recognized for the portion of the asset transferred to the partners.

First-time application of IFRIC 23, “Uncertainty over Income Tax Treatments”

The Group applied IFRIC 23 “Uncertainty over Income Tax Treatments” as of January 1st 2019. IFRIC 23 clarifies application of the recognition, measurement and presentation of IAS 12 “Income Taxes” provisions, when there is uncertainty over income tax treatments under that standard.

The effect of the first application of the standard on the Group’s financial statements, as at January 1, 2019, is non-material.

The Group’s oil and gas reserves are estimated by the Group’s petroleum engineers in accordance with industry standards and SEC (*U.S. Securities and Exchange Commission*) regulations.

Proved oil and gas reserves are those quantities of oil and gas, which, by analysis of geosciences and engineering data, can be determined with reasonable certainty to be recoverable (from a given date forward, from known reservoirs, and under existing economic conditions, operating methods, and government regulations), prior to the time at which contracts providing the rights to operate expire, unless evidence indicates that renewal is reasonably certain, regardless of whether deterministic or probabilistic methods are used for the estimation.

Proved oil and gas reserves are calculated using a 12-month average price determined as the unweighted arithmetic average of the first-day-of-the-month price for each month of the relevant year unless prices are defined by contractual arrangements, excluding escalations based upon future conditions. The Group reassesses its oil and gas reserves at least once a year on all its properties.

The Successful Efforts method and the mineral interests and property and equipment of exploration and production are presented in Note 7 “Intangible and tangible assets”.

Impairment of property, plant and equipment, intangible assets and goodwill

As part of the determination of the recoverable value of assets for impairment (IAS36), the estimates, assumptions and judgments mainly concern hydrocarbon prices scenarios, operating costs, production volumes and oil and gas proved reserves, refining margins and product marketing conditions (mainly petroleum, petrochemical and chemical products as well as renewable industry products). The estimates and assumptions used by the executive management are determined in specialized internal departments in light of economic conditions and external expert analysis. The discount rate is reviewed annually.

Asset impairment and the method applied are described in Note 3 "Business segment information".

Employee benefits

The benefit obligations and plan assets can be subject to significant volatility due in part to changes in market values and actuarial assumptions. These assumptions vary between different pension plans and thus take into account local conditions. They are determined following a formal process involving expertise and Group internal judgments, in financial and actuarial terms, and also in consultation with actuaries and independent experts.

The assumptions for each plan are reviewed annually and adjusted if necessary to reflect changes from the experience and actuarial advice. The discount rate is reviewed quarterly.

Payroll, staff and employee benefits obligations and the method applied are described in Note 10 "Payroll, staff and employee benefits obligations".

Asset retirement obligations

Asset retirement obligations, which result from a legal or constructive obligation, are recognized based on a reasonable estimate in the period in which the obligation arises.

This estimate is based on information available in terms of costs and work program. It is regularly reviewed to take into account the changes in laws and regulations, the estimates of reserves and production, the analysis of site conditions and technologies.

The discount rate is reviewed annually.

Asset retirement obligations and the method used are described in Note 12 "Provisions and other non-current liabilities".

Income Taxes

A tax liability is recognized when in application of a tax regulation, a future payment is considered probable and can be reasonably estimated. The exercise of judgment is required to assess the impact of new events on the amount of the liability.

Deferred tax assets are recognized in the accounts to the extent that their recovery is considered probable. The amount of these assets is determined based on taxable profits existing at the closing date and future taxable profits which estimation is inherently uncertain and subject to change over time. The exercise of judgment is required to assess the impact of new events on the value of these assets and including changes in estimates of future taxable profits and the deadlines for their use.

In addition, these tax positions may depend on interpretations of tax laws and regulations in the countries where the Group operates. These interpretations may have uncertain nature. Depending on the circumstances, they are final only after negotiations or resolution of disputes with authorities that can last several years.

Incomes taxes and the accounting methods are described in Note 11 "Income taxes".

Judgments in case of transactions not addressed by any accounting standard or interpretation

Furthermore, when the accounting treatment of a specific transaction is not addressed by any accounting standard or interpretation, the management applies its judgment to define and apply accounting

policies that provide information consistent with the general IFRS concepts: faithful representation, relevance and materiality.

NOTE 1 General accounting policies

1.1 Accounting policies

A) Principles of consolidation

Entities that are directly controlled by the parent company or indirectly controlled by other consolidated entities are fully consolidated.

Investments in joint ventures are consolidated under the equity method. The Group accounts for joint operations by recognizing its share of assets, liabilities, income and expenses.

Investments in associates, in which the Group has significant influence, are accounted for by the equity method. Significant influence is presumed when the Group holds, directly or indirectly (e.g. through subsidiaries),

20% or more of the voting rights. Companies in which ownership interest is less than 20%, but over which the Company is deemed to exercise significant influence, are also accounted for by the equity method.

All internal balances, transactions and income are eliminated.

B) Business combinations

Business combinations are accounted for using the acquisition method. This method requires the recognition of the acquired identifiable assets and assumed liabilities of the companies acquired by the Group at their fair value.

The value of the purchase price is finalized up to a maximum of one year from the acquisition date.

The acquirer shall recognize goodwill at the acquisition date, being the excess of:

- The consideration transferred, the amount of non-controlling interests and, in business combinations achieved in stages, the fair value at the acquisition date of the investment previously held in the acquired company;
- Over the fair value at the acquisition date of acquired identifiable assets and assumed liabilities.

If the consideration transferred is lower than the fair value of acquired identifiable assets and assumed liabilities, an additional analysis is performed on the identification and valuation of the identifiable elements of the assets and liabilities. After having completed such additional analysis, any negative goodwill is recorded as income.

Non-controlling interests are measured either at their proportionate share in the net assets of the acquired company or at fair value.

In transactions with non-controlling interests, the difference between the price paid (received) and the book value of non-controlling interests acquired (sold) is recognized directly in equity.

C) Foreign currency translation

The presentation currency of the Group's Consolidated Financial Statements is the US dollar. However the functional currency of the parent company is the euro. The resulting currency translation adjustments are presented on the line "currency translation adjustment generated by the parent company" of the consolidated statement of comprehensive income, within "items not potentially reclassifiable to profit and loss". In the balance sheet, they are recorded in "currency translation adjustment".

The financial statements of subsidiaries are prepared in the currency that most clearly reflects their business environment. This is referred to as their functional currency.

Since 1st July 2018, Argentina is considered to be hyperinflationary. IAS 29 "Financial Reporting in Hyperinflationary Economies" is applicable to entities whose functional currency is the Argentine peso. The functional currency of the Argentine Exploration & Production subsidiary is the US dollar, therefore IAS 29 has no incidence on the Group accounts. Net asset of the other business segments is not significant.

(i) Monetary transactions

Transactions denominated in currencies other than the functional currency of the entity are translated at the exchange rate on the transaction date. At each balance sheet date, monetary assets and liabilities are translated at the closing rate and the resulting exchange differences are recognized in the statement of income.

(ii) Translation of financial statements

Assets and liabilities of entities denominated in currencies other than dollar are translated into dollar on the basis of the exchange rates at the end of the period. The income and cash flow statements are translated using the average exchange rates for the period. Foreign exchange differences resulting from such translations are either recorded in shareholders' equity under "Currency translation adjustments" (for the Group share) or under "Non-controlling interests" (for the share of non-controlling interests) as deemed appropriate.

1.2 Significant accounting policies applicable in the future

The standards or interpretations published respectively by the International Accounting Standards Board (IASB) and the International Financial Reporting Standards Interpretations Committee (IFRS IC) which were not yet in effect at December 31, 2019, are as follows:

Standards not yet adopted by the European Union at December 31, 2019

In September 2019, the IASB published an amendment to IFRS9, IAS39 and IFRS7 in response to the IBOR reform applicable as of January 1, 2020. As at December 31, 2019, IBOR rates are still reference rates on the financial markets and are used for the measurement of financial instruments with maturity dates exceeding the expected replacement date of those rates. As at December 31, 2019, the Group considers that the current market structure justifies the continuity of hedge accounting.

NOTE 2 Changes in the Group structure

2.1 Main acquisitions and divestments

In 2019, the main changes in the Group structure were as follows:

Integrated Gas, Renewables & Power

- On March 4, 2019, Total and Novatek signed a definitive agreement for the acquisition of a 10% direct interest by Total in Arctic LNG 2, a major liquefied natural gas development led by Novatek on the Gydan Peninsula, Russia.
- On March 15, 2019, TOTAL finalized the sale of 4% of its interest in the Ichthys liquefied natural gas (LNG) project in Australia to operating partner INPEX, reducing its interest in the project from 30% to 26%.
- On August 30, 2019, TOTAL finalized an agreement with Toshiba to take over its portfolio of liquefied natural gas (LNG) in the United States. This portfolio includes a 20-year tolling agreement and the corresponding gas transportation agreements. Under the transaction, TOTAL acquired all the shares of Toshiba America LNG corporation and was assigned all contracts related to their LNG business by Toshiba Energy Systems and Solutions Corp, and received \$815 million considering the risks of loss of the portfolio.
- On September 30, 2019, TOTAL finalized the acquisition of Anadarko's 26.5% interest in the Mozambique LNG project under the agreement with Occidental on May 3, 2019, to acquire Anadarko's assets in Africa (Mozambique, Algeria, Ghana and South Africa).

Exploration & Production

- On April 1, 2019, Total acquired all the share capital of Chevron Denmark Inc. which holds a 12% interest in the Danish Underground Consortium (DUC), a 12% interest in Licence 8/06, and a 7.5% interest in the Tyra West pipeline. The acquisition increased TOTAL's operated share of DUC from 31.2% to 43.2%.

2.2 Major business combinations

ACCOUNTING POLICIES

In accordance with IFRS 3 "Business combinations", TOTAL is assessing the fair value of identifiable acquired assets, liabilities and contingent liabilities on the basis of available information. This assessment will be finalised within 12 months following the acquisition date.

Integrated Gas, Renewables & Power

Anadarko Mozambique

On September 30, 2019, the Group acquired 100% of the shares of Anadarko Mozambique affiliate which holds a 26.5% interest in the Mozambique LNG project for a purchase price of \$4,426 million and recorded a preliminary goodwill for an amount of \$136 million at December 31, 2019.

The preliminary purchase price allocation is shown below:

(M\$)	At the acquisition date
Goodwill	136
Intangible assets	3,751
Tangible assets	767
Other assets and liabilities	(309)
Acquired cash	81
Fair value of consideration	4,426

2.3 Divestment projects

ACCOUNTING POLICIES

Pursuant to IFRS 5 "Non-current assets held for sale and discontinued operations", assets and liabilities of affiliates that are held for sale are presented separately on the face of the balance sheet. Depreciation of assets ceases from the date of classification in "Non-current assets held for sale".

Exploration & Production

- On July 10, 2019, TOTAL announced the signature of an agreement to divest several UK non-core assets to Petrogas NEO UK Ltd. The overall consideration for this deal amounts to \$635 million. The transaction remains subject to approval from the relevant authorities. At December 31, 2019, the assets and liabilities have been respectively classified in the consolidated balance sheet in "assets classified as held for sale" for an amount of \$449 million and "liabilities directly associated with the assets classified as held for sale" for an amount of \$349 million. The assets concerned mainly include intangible and tangible assets.
- On October 30, 2019, TOTAL has signed an agreement to sell wholly owned subsidiary Total E&P Deep Offshore Borneo BV which holds an 86.95% interest in Block CA1, located 100 kilometers off the coast of Brunei, to Shell. The overall consideration for this deal amounts to \$300 million. The transaction remains subject to approval from the relevant authorities. At December 31, 2019, the assets and liabilities have been respectively classified in the consolidated balance sheet in "assets classified as held for sale" for an amount of \$433 million and "liabilities directly associated with the assets classified as held for sale" for an amount of \$180 million. The assets concerned mainly include tangible assets.

NOTE 3 Business segment information

Description of the business segments

Financial information by business segment is reported in accordance with the internal reporting system and shows internal segment information that is used to manage and measure the performance of TOTAL and which is reviewed by the main operational decision-making body of the Group, namely the Executive Committee.

The operational profit and assets are broken down by business segment prior to the consolidation and inter-segment adjustments.

Sales prices between business segments approximate market prices.

The profitable growth in the gas and low carbon electricity integrated value chains is one of the key axes of TOTAL's strategy. In order to give more visibility to these businesses, a new reporting structure for the business segments' financial information has been put in place, effective January 1, 2019.

The organization of the Group's activities is structured around the four followings segments:

- An Exploration & Production segment;
- An Integrated Gas, Renewables & Power segment comprising integrated gas (including LNG) and low carbon electricity businesses. It includes the upstream and midstream LNG activity that was previously reported in the EP segment;
- A Refining & Chemicals segment constituting a major industrial hub comprising the activities of refining, petrochemicals and specialty chemicals. This segment also includes the activities of oil Supply, Trading and marine Shipping;
- A Marketing & Services segment including the global activities of supply and marketing in the field of petroleum products;

In addition the Corporate segment includes holdings operating and financial activities.

Certain figures for the years 2017 and 2018 have been restated in order to reflect the new organization.

Definition of the indicators

(i) Operating income (measure used to evaluate operating performance)

Revenue from sales after deducting cost of goods sold and inventory variations, other operating expenses, exploration expenses and depreciation, depletion, and impairment of tangible assets and mineral interests.

Operating income excludes the amortization of intangible assets other than mineral interests, currency translation adjustments and gains or losses on the disposal of assets.

(ii) Net operating income (measure used to evaluate the return on capital employed)

Operating income after taking into account the amortization of intangible assets other than mineral interests, currency translation adjustments, gains or losses on the disposal of assets, as well as all other income and expenses related to capital employed (dividends from non-consolidated companies, equity in income of affiliates, capitalized interest expenses...), and after income taxes applicable to the above.

The only income and expense not included in net operating income but included in net income Group share are interest expenses related to net financial debt, after applicable income taxes (net cost of net debt) and non-controlling interests.

(iii) Adjusted income

Operating income, net operating income, or net income excluding the effect of adjustment items described below.

(iv) Capital employed

Non-current assets and working capital, at replacement cost, net of deferred income taxes and non-current liabilities.

(v) ROACE (Return on Average Capital Employed)

Ratio of adjusted net operating income to average capital employed between the beginning and the end of the period.

Performance indicators excluding the adjustment items, such as adjusted incomes and ROACE are meant to facilitate the analysis of the financial performance and the comparison of income between periods.

Adjustment items

Adjustment items include:

(i) Special items

Due to their unusual nature or particular significance, certain transactions qualified as "special items" are excluded from the business segment figures. In general, special items relate to transactions that are significant, infrequent or unusual. However, in certain instances, transactions such as restructuring costs or assets disposals, which are not considered to be representative of the normal course of business, may be qualified as special items although they may have occurred within prior years or are likely to occur again within the coming years.

(ii) The inventory valuation effect

The adjusted results of the Refining & Chemicals and Marketing & Services segments are presented according to the replacement cost method. This method is used to assess the segments' performance and facilitate the comparability of the segments' performance with those of its main competitors.

In the replacement cost method, which approximates the LIFO (Last-In, First-Out) method, the variation of inventory values in the statement of income is, depending on the nature of the inventory, determined using either the month-end prices differential between one period and another or the average prices of the period rather than the historical value. The inventory valuation effect is the difference between the results according to the FIFO (First-In, First-Out) and the replacement cost methods.

(iii) Effect of changes in fair value

The effect of changes in fair value presented as adjustment items reflects for some transactions differences between internal measure of performance used by TOTAL's management and the accounting for these transactions under IFRS.

IFRS requires that trading inventories be recorded at their fair value using period end spot prices. In order to best reflect the management of economic exposure through derivative transactions, internal indicators used to measure performance include valuations of trading inventories based on forward prices.

Furthermore, TOTAL, in its trading activities, enters into storage contracts, which future effects are recorded at fair value in the Group's internal economic performance. IFRS precludes recognition of this fair value effect.

A) Information by business segment

For the year ended December 31, 2019 (M\$)	Exploration & Production	Integrated Gas, Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate	Intercompany	Total
Non-Group sales	7,261	18,167	87,598	87,280	10	–	200,316
Intersegment sales	31,329	2,825	32,390	659	125	(67,328)	–
Excise taxes	–	–	(3,015)	(21,052)	–	–	(24,067)
REVENUES FROM SALES	38,590	20,992	116,973	66,887	135	(67,328)	176,249
Operating expenses	(16,389)	(18,316)	(112,104)	(63,855)	(925)	67,328	(144,261)
Depreciation, depletion and impairment of tangible assets and mineral interests	(11,659)	(1,492)	(1,527)	(980)	(73)	–	(15,731)
OPERATING INCOME	10,542	1,184	3,342	2,052	(863)	–	16,257
Net income (loss) from equity affiliates and other items	610	2,330	322	101	42	–	3,405
Tax on net operating income	(4,572)	(741)	(470)	(598)	155	–	(6,226)
NET OPERATING INCOME	6,580	2,773	3,194	1,555	(666)	–	13,436
Net cost of net debt							(1,998)
Non-controlling interests							(171)
NET INCOME – GROUP SHARE							11,267

For the year ended December 31, 2019 (adjustments) ^(a) (M\$)	Exploration & Production	Integrated Gas, Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate	Intercompany	Total
Non-Group sales	–	(64)	–	–	–	–	(64)
Intersegment sales	–	–	–	–	–	–	–
Excise taxes	–	–	–	–	–	–	–
REVENUES FROM SALES	–	(64)	–	–	–	–	(64)
Operating expenses	(145)	(240)	397	(40)	(112)	–	(140)
Depreciation, depletion and impairment of tangible assets and mineral interests	(721)	(156)	(41)	(2)	–	–	(920)
OPERATING INCOME^(b)	(866)	(460)	356	(42)	(112)	–	(1,124)
Net income (loss) from equity affiliates and other items	(112)	974	(83)	(83)	–	–	696
Tax on net operating income	49	(130)	(82)	27	(73)	–	(209)
NET OPERATING INCOME^(b)	(929)	384	191	(98)	(185)	–	(637)
Net cost of net debt							(15)
Non-controlling interests							91
NET INCOME – GROUP SHARE							(561)

(a) Adjustments include special items, inventory valuation effect and the effect of changes in fair value.

(b) Of which inventory valuation effect

On operating income	–	–	477	(31)	–	
On net operating income	–	–	371	(14)	–	

For the year ended December 31, 2019 (adjusted) (M\$)	Exploration & Production	Integrated Gas, Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate	Intercompany	Total
Non-Group sales	7,261	18,231	87,598	87,280	10	–	200,380
Intersegment sales	31,329	2,825	32,390	659	125	(67,328)	–
Excise taxes	–	–	(3,015)	(21,052)	–	–	(24,067)
REVENUES FROM SALES	38,590	21,056	116,973	66,887	135	(67,328)	176,313
Operating expenses	(16,244)	(18,076)	(112,501)	(63,815)	(813)	67,328	(144,121)
Depreciation, depletion and impairment of tangible assets and mineral interests	(10,938)	(1,336)	(1,486)	(978)	(73)	–	(14,811)
ADJUSTED OPERATING INCOME	11,408	1,644	2,986	2,094	(751)	–	17,381
Net income (loss) from equity affiliates and other items	722	1,356	405	184	42	–	2,709
Tax on net operating income	(4,621)	(611)	(388)	(625)	228	–	(6,017)
ADJUSTED NET OPERATING INCOME	7,509	2,389	3,003	1,653	(481)	–	14,073
Net cost of net debt							(1,983)
Non-controlling interests							(262)
ADJUSTED NET INCOME – GROUP SHARE							11,828

For the year ended December 31, 2019 (M\$)	Exploration & Production	Integrated Gas, Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate	Intercompany	Total
Total expenditures	8,992	7,053	1,698	1,374	120		19,237
Total divestments	368	1,108	322	249	13		2,060
Cash flow from operating activities	16,917	3,461	3,837	2,604	(2,134)		24,685
Balance sheet as of December 31, 2019							
Property, plant and equipment, intangible assets, net	98,894	29,597	12,196	8,316	583		149,586
Investments & loans in equity affiliates	7,631	15,271	3,787	433	–		27,122
Other non-current assets	4,484	2,993	744	1,179	1,009		10,409
Working capital	2,617	(1,192)	796	178	(3,909)		(1,510)
Provisions and other non-current liabilities	(25,208)	(5,488)	(3,898)	(1,531)	153		(35,972)
Assets and liabilities classified as held for sale	426	368	–	–	–		794
CAPITAL EMPLOYED (BALANCE SHEET)	88,844	41,549	13,625	8,575	(2,164)		150,429
Less inventory valuation effect	–	–	(1,397)	(204)	–		(1,601)
CAPITAL EMPLOYED (BUSINESS SEGMENT INFORMATION)	88,844	41,549	12,228	8,371	(2,164)		148,828
ROACE as a percentage	8%	6%	26%	22%			10%

For the year ended December 31, 2018 (M\$)	Integrated Gas, Renewables & Power						Intercompany	Total
	Exploration & Production	Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate			
Non-Group sales	9,889	17,236	92,025	90,206	7	–	209,363	
Intersegment sales	30,337	2,198	35,462	979	64	(69,040)	–	
Excise taxes	–	–	(3,359)	(21,898)	–	–	(25,257)	
REVENUES FROM SALES	40,226	19,434	124,128	69,287	71	(69,040)	184,106	
Operating expenses	(17,532)	(17,679)	(120,393)	(66,737)	(796)	69,040	(154,097)	
Depreciation, depletion and impairment of tangible assets and mineral interests	(10,192)	(1,827)	(1,222)	(709)	(42)	–	(13,992)	
OPERATING INCOME	12,502	(72)	2,513	1,841	(767)	–	16,017	
Net income (loss) from equity affiliates and other items	1,365	1,639	782	307	77	–	4,170	
Tax on net operating income	(5,770)	(471)	(445)	(532)	375	–	(6,843)	
NET OPERATING INCOME	8,097	1,096	2,850	1,616	(315)	–	13,344	
Net cost of net debt							(1,794)	
Non-controlling interests							(104)	
NET INCOME – GROUP SHARE							11,446	

For the year ended December 31, 2018 (adjustments) ^(a) (M\$)	Integrated Gas, Renewables & Power						Intercompany	Total
	Exploration & Production	Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate			
Non-Group sales	–	56	–	–	–	–	56	
Intersegment sales	–	–	–	–	–	–	–	
Excise taxes	–	–	–	–	–	–	–	
REVENUES FROM SALES	–	56	–	–	–	–	56	
Operating expenses	(199)	(237)	(616)	(45)	(9)	–	(1,106)	
Depreciation, depletion and impairment of tangible assets and mineral interests	(707)	(1,065)	(2)	–	–	–	(1,774)	
OPERATING INCOME^(b)	(906)	(1,246)	(618)	(45)	(9)	–	(2,824)	
Net income (loss) from equity affiliates and other items	(128)	(247)	(116)	(5)	–	–	(496)	
Tax on net operating income	584	170	205	14	–	–	973	
NET OPERATING INCOME^(b)	(450)	(1,323)	(529)	(36)	(9)	–	(2,347)	
Net cost of net debt							(67)	
Non-controlling interests							301	
NET INCOME – GROUP SHARE							(2,113)	

(a) Adjustments include special items, inventory valuation effect and the effect of changes in fair value.

(b) Of which inventory valuation effect

On operating income	–	–	(589)	(6)	–
On net operating income	–	–	(413)	(5)	–

For the year ended December 31, 2018 (adjusted) (M\$)	Integrated Gas, Renewables & Power					Corporate	Intercompany	Total
	Exploration & Production	Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate			
Non-Group sales	9,889	17,180	92,025	90,206	7	–	209,307	
Intersegment sales	30,337	2,198	35,462	979	64	(69,040)	–	
Excise taxes	–	–	(3,359)	(21,898)	–	–	(25,257)	
REVENUES FROM SALES	40,226	19,378	124,128	69,287	71	(69,040)	184,050	
Operating expenses	(17,333)	(17,442)	(119,777)	(66,692)	(787)	69,040	(152,991)	
Depreciation, depletion and impairment of tangible assets and mineral interests	(9,485)	(762)	(1,220)	(709)	(42)	–	(12,218)	
ADJUSTED OPERATING INCOME	13,408	1,174	3,131	1,886	(758)	–	18,841	
Net income (loss) from equity affiliates and other items	1,493	1,886	898	312	77	–	4,666	
Tax on net operating income	(6,354)	(641)	(650)	(546)	375	–	(7,816)	
ADJUSTED NET OPERATING INCOME	8,547	2,419	3,379	1,652	(306)	–	15,691	
Net cost of net debt							(1,727)	
Non-controlling interests							(405)	
ADJUSTED NET INCOME – GROUP SHARE							13,559	

For the year ended December 31, 2018 (M\$)	Integrated Gas, Renewables & Power					Corporate	Intercompany	Total
	Exploration & Production	Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate			
Total expenditures	13,789	5,032	1,781	1,458	125	–	22,185	
Total divestments	3,674	2,209	919	428	9	–	7,239	
Cash flow from operating activities	18,537	596	4,308	2,759	(1,497)	–	24,703	
Balance sheet as of December 31, 2018								
Property, plant and equipment, intangible assets, net	100,997	24,023	10,493	6,343	390	–	142,246	
Investments & loans in equity affiliates	6,754	12,349	3,910	431	–	–	23,444	
Other non-current assets	4,780	3,114	663	1,155	881	–	10,593	
Working capital	1,911	420	32	194	(4,064)	–	(1,507)	
Provisions and other non-current liabilities	(25,042)	(6,288)	(3,615)	(1,465)	125	–	(36,285)	
Assets and liabilities classified as held for sale	–	1,128	151	–	–	–	1,279	
CAPITAL EMPLOYED (BALANCE SHEET)	89,400	34,746	11,634	6,658	(2,668)	–	139,770	
Less inventory valuation effect	–	–	(1,035)	(216)	–	–	(1,251)	
CAPITAL EMPLOYED (BUSINESS SEGMENT INFORMATION)	89,400	34,746	10,599	6,442	(2,668)	–	138,519	
ROACE as a percentage	10%	7%	31%	25%	–	–	12%	

For the year ended December 31, 2017 (M\$)	Integrated Gas, Renewables & Power						Intercompany	Total
	Exploration & Production	Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate			
Non-Group sales	6,527	14,804	75,505	74,634	23	–	171,493	
Intersegment sales	21,956	1,679	26,844	857	374	(51,710)	–	
Excise taxes	–	–	(3,008)	(19,386)	–	–	(22,394)	
REVENUES FROM SALES	28,483	16,483	99,341	56,105	397	(51,710)	149,099	
Operating expenses	(13,582)	(14,536)	(94,097)	(53,629)	(1,107)	51,710	(125,241)	
Depreciation, depletion and impairment of tangible assets and mineral interests	(12,611)	(1,721)	(1,074)	(657)	(40)	–	(16,103)	
OPERATING INCOME	2,290	226	4,170	1,819	(750)	–	7,755	
Net income (loss) from equity affiliates and other items	657	920	2,979	497	54	–	5,107	
Tax on net operating income	(1,836)	(537)	(944)	(561)	540	–	(3,338)	
NET OPERATING INCOME	1,111	609	6,205	1,755	(156)	–	9,524	
Net cost of net debt							(1,225)	
Non-controlling interests							332	
NET INCOME – GROUP SHARE							8,631	

For the year ended December 31, 2017 (adjustments) ^(a) (M\$)	Integrated Gas, Renewables & Power						Intercompany	Total
	Exploration & Production	Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate			
Non-Group sales	–	(20)	–	–	–	–	(20)	
Intersegment sales	–	–	–	–	–	–	–	
Excise taxes	–	–	–	–	–	–	–	
REVENUES FROM SALES	–	(20)	–	–	–	–	(20)	
Operating expenses	(119)	(389)	167	(11)	(64)	–	(416)	
Depreciation, depletion and impairment of tangible assets and mineral interests	(3,799)	(800)	(53)	(10)	–	–	(4,662)	
OPERATING INCOME^(b)	(3,918)	(1,209)	114	(21)	(64)	–	(5,098)	
Net income (loss) from equity affiliates and other items	(201)	(243)	2,177	102	–	–	1,835	
Tax on net operating income	689	132	124	(2)	(114)	–	829	
NET OPERATING INCOME^(b)	(3,430)	(1,320)	2,415	79	(178)	–	(2,434)	
Net cost of net debt							(29)	
Non-controlling interests							516	
NET INCOME – GROUP SHARE							(1,947)	

(a) Adjustments include special items, inventory valuation effect and the effect of changes in fair value.

(b) Of which inventory valuation effect

On operating income	–	–	344	13	–
On net operating income	–	–	298	(3)	–

For the year ended December 31, 2017 (adjusted) (M\$)	Integrated Gas, Renewables & Power					Corporate	Intercompany	Total
	Exploration & Production	Renewables & Power	Refining & Chemicals	Marketing & Services				
Non-Group sales	6,527	14,824	75,505	74,634	23	–	171,513	
Intersegment sales	21,956	1,679	26,844	857	374	(51,710)	–	
Excise taxes	–	–	(3,008)	(19,386)	–	–	(22,394)	
REVENUES FROM SALES	28,483	16,503	99,341	56,105	397	(51,710)	149,119	
Operating expenses	(13,463)	(14,147)	(94,264)	(53,618)	(1,043)	51,710	(124,825)	
Depreciation, depletion and impairment of tangible assets and mineral interests	(8,812)	(921)	(1,021)	(647)	(40)	–	(11,441)	
ADJUSTED OPERATING INCOME	6,208	1,435	4,056	1,840	(686)	–	12,853	
Net income (loss) from equity affiliates and other items	858	1,163	802	395	54	–	3,272	
Tax on net operating income	(2,525)	(669)	(1,068)	(559)	654	–	(4,167)	
ADJUSTED NET OPERATING INCOME	4,541	1,929	3,790	1,676	22	–	11,958	
Net cost of net debt							(1,196)	
Non-controlling interests							(184)	
ADJUSTED NET INCOME – GROUP SHARE							10,578	

For the year ended December 31, 2017 (M\$)	Integrated Gas, Renewables & Power					Corporate	Intercompany	Total
	Exploration & Production	Renewables & Power	Refining & Chemicals	Marketing & Services				
Total expenditures	10,005	3,594	1,734	1,457	106		16,896	
Total divestments	1,793	198	2,820	413	40		5,264	
Cash flow from operating activities ^(*)	10,719	3,157	7,411	2,221	(1,189)		22,319	
Balance sheet as of December 31, 2017								
Property, plant and equipment, intangible assets, net	87,225	19,287	10,820	6,253	399		123,984	
Investments & loans in equity affiliates	6,954	10,701	4,010	438	–		22,103	
Other non-current assets	5,480	3,204	677	1,060	496		10,917	
Working capital	3,749	(403)	876	792	(3,650)		1,365	
Provisions and other non-current liabilities	(22,372)	(2,687)	(3,839)	(1,544)	(106)		(30,549)	
Assets and liabilities classified as held for sale	1,475	–	–	166	–		1,641	
CAPITAL EMPLOYED (BALANCE SHEET)	82,511	30,102	12,544	7,165	(2,861)		129,461	
Less inventory valuation effect	–	–	(1,499)	(236)	1		(1,734)	
CAPITAL EMPLOYED (BUSINESS SEGMENT INFORMATION)	82,511	30,102	11,045	6,929	(2,860)		127,727	
ROACE as a percentage	5%	7%	33%	26%			9%	

(*) As of January 1st, 2018, for a better reflection of the operating performance of the segments, financial expenses were all transferred to the Corporate segment. 2017 comparative information has been restated.

B) Reconciliation of the information by business segment with Consolidated Financial Statements

The table below presents the impact of adjustment items on the consolidated statement of income:

For the year ended December 31, 2019 (M\$)	Adjusted	Adjustments ^(a)	Consolidated statement of income
Sales	200,380	(64)	200,316
Excise taxes	(24,067)	–	(24,067)
Revenues from sales	176,313	(64)	176,249
Purchases, net of inventory variation	(116,464)	243	(116,221)
Other operating expenses	(26,872)	(383)	(27,255)
Exploration costs	(785)	–	(785)
Depreciation, depletion and impairment of tangible assets and mineral interests	(14,811)	(920)	(15,731)
Other income	876	287	1,163
Other expense	(455)	(737)	(1,192)
Financial interest on debt	(2,318)	(15)	(2,333)
Financial income and expense from cash & cash equivalents	(19)	–	(19)
Cost of net debt	(2,337)	(15)	(2,352)
Other financial income	792	–	792
Other financial expense	(764)	–	(764)
Net income (loss) from equity affiliates	2,260	1,146	3,406
Income taxes	(5,663)	(209)	(5,872)
CONSOLIDATED NET INCOME	12,090	(652)	11,438
Group share	11,828	(561)	11,267
Non-controlling interests	262	(91)	171

(a) Adjustments include special items, inventory valuation effect and the effect of changes in fair value.

For the year ended December 31, 2018 (M\$)	Adjusted	Adjustments ^(a)	Consolidated statement of income
Sales	209,307	56	209,363
Excise taxes	(25,257)	–	(25,257)
Revenues from sales	184,050	56	184,106
Purchases, net of inventory variation	(125,134)	(682)	(125,816)
Other operating expenses	(27,060)	(424)	(27,484)
Exploration costs	(797)	–	(797)
Depreciation, depletion and impairment of tangible assets and mineral interests	(12,218)	(1,774)	(13,992)
Other income	1,518	320	1,838
Other expense	(448)	(825)	(1,273)
Financial interest on debt	(1,866)	(67)	(1,933)
Financial income and expense from cash & cash equivalents	(188)	–	(188)
Cost of net debt	(2,054)	(67)	(2,121)
Other financial income	1,120	–	1,120
Other financial expense	(685)	–	(685)
Net income (loss) from equity affiliates	3,161	9	3,170
Income taxes	(7,489)	973	(6,516)
CONSOLIDATED NET INCOME	13,964	(2,414)	11,550
Group share	13,559	(2,113)	11,446
Non-controlling interests	405	(301)	104

(a) Adjustments include special items, inventory valuation effect and the effect of changes in fair value.

For the year ended December 31, 2017 (M\$)	Adjusted	Adjustments(a)	Consolidated statement of income
Sales	171,513	(20)	171,493
Excise taxes	(22,394)	–	(22,394)
Revenues from sales	149,119	(20)	149,099
Purchases, net of inventory variation	(99,534)	123	(99,411)
Other operating expenses	(24,427)	(539)	(24,966)
Exploration costs	(864)	–	(864)
Depreciation, depletion and impairment of tangible assets and mineral interests	(11,441)	(4,662)	(16,103)
Other income	772	3,039	3,811
Other expense	(389)	(645)	(1,034)
Financial interest on debt	(1,367)	(29)	(1,396)
Financial income and expense from cash & cash equivalents	(138)	–	(138)
Cost of net debt	(1,505)	(29)	(1,534)
Other financial income	957	–	957
Other financial expense	(642)	–	(642)
Net income (loss) from equity affiliates	2,574	(559)	2,015
Income taxes	(3,858)	829	(3,029)
CONSOLIDATED NET INCOME	10,762	(2,463)	8,299
Group share	10,578	(1,947)	8,631
Non-controlling interests	184	(516)	(332)

(a) Adjustments include special items, inventory valuation effect and the effect of changes in fair value.

C) Additional information on adjustment items

The main adjustment items for 2019 consist of the “Asset impairment charges” of the non-current assets amounting to \$(920) million in operating income and \$(465) million in net income Group share. Impairment testing methodology and asset impairment charges recorded during the year are detailed in the paragraph D of Note 3.

Adjustments to operating income

For the year ended December 31, 2019 (M\$)	Exploration & Production	Integrated Gas, Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate	Total
Inventory valuation effect	–	–	477	(31)	–	446
Effect of changes in fair value	–	(19)	–	–	–	(19)
Restructuring charges	–	(4)	–	–	–	(4)
Asset impairment charges	(721)	(156)	(41)	(2)	–	(920)
Other items	(145)	(281)	(80)	(9)	(112)	(627)
TOTAL	(866)	(460)	356	(42)	(112)	(1,124)

Adjustments to net income, Group share

For the year ended December 31, 2019 (M\$)	Exploration & Production	Integrated Gas, Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate	Total
Inventory valuation effect	–	–	369	(23)	–	346
Effect of changes in fair value	–	(15)	–	–	–	(15)
Restructuring charges	(5)	(31)	(22)	–	–	(58)
Asset impairment charges	(530)	105	(39)	(1)	–	(465)
Gains (losses) on disposals of assets	–	–	–	–	–	–
Other items	(405)	422	(119)	(82)	(185)	(369)
TOTAL	(940)	481	189	(106)	(185)	(561)

Adjustments to operating income

For the year ended December 31, 2018 (M\$)	Exploration & Production	Integrated Gas, Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate	Total
Inventory valuation effect	–	–	(589)	(6)	–	(595)
Effect of changes in fair value	–	48	–	–	–	48
Restructuring charges	(67)	–	(3)	–	–	(70)
Asset impairment charges	(707)	(1,065)	(2)	–	–	(1,774)
Other items	(132)	(229)	(24)	(39)	(9)	(433)
TOTAL	(906)	(1,246)	(618)	(45)	(9)	(2,824)

Adjustments to net income, Group share

For the year ended December 31, 2018 (M\$)	Exploration & Production	Integrated Gas, Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate	Total
Inventory valuation effect	–	–	(414)	(6)	–	(420)
Effect of changes in fair value	–	38	–	–	–	38
Restructuring charges	(94)	(10)	(34)	–	–	(138)
Asset impairment charges	(651)	(896)	(48)	–	–	(1,595)
Gains (losses) on disposals of assets	(14)	(2)	–	–	–	(16)
Other items	252	(112)	(34)	(47)	(41)	18
TOTAL	(507)	(982)	(530)	(53)	(41)	(2,113)

Adjustments to operating income

For the year ended December 31, 2017 (M\$)	Exploration & Production	Integrated Gas, Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate	Total
Inventory valuation effect	–	–	344	13	–	357
Effect of changes in fair value	–	(20)	–	–	–	(20)
Restructuring charges	(42)	–	(4)	(3)	–	(49)
Asset impairment charges	(3,799)	(800)	(53)	(10)	–	(4,662)
Other items	(77)	(389)	(173)	(21)	(64)	(724)
TOTAL	(3,918)	(1,209)	114	(21)	(64)	(5,098)

Adjustments to net income, Group share

For the year ended December 31, 2017 (M\$)	Exploration & Production	Integrated Gas, Renewables & Power	Refining & Chemicals	Marketing & Services	Corporate	Total
Inventory valuation effect	–	–	295	(13)	–	282
Effect of changes in fair value	–	(16)	–	–	–	(16)
Restructuring charges	(11)	(11)	(42)	(2)	–	(66)
Asset impairment charges	(3,202)	(619)	(53)	(10)	–	(3,884)
Gains (losses) on disposals of assets	188	–	2,139	125	–	2,452
Other items	(218)	(362)	73	(30)	(178)	(715)
TOTAL	(3,243)	(1,008)	2,412	70	(178)	(1,947)

D) Asset impairment

ACCOUNTING PRINCIPLES

The recoverable amounts of intangible assets and property, plant and equipment are tested for impairment as soon as any indication of impairment exists. This test is performed at least annually for goodwill.

The recoverable amount is the higher of the fair value (less costs to sell) or the value in use.

Assets are grouped into cash-generating units (or CGUs) and tested. A CGU is a homogeneous set of assets that generates cash inflows that are largely independent of the cash inflows from other groups of assets.

The value in use of a CGU is determined by reference to the discounted expected future cash flows of these assets, based upon Management's expectation of future economic and operating conditions. When this value is less than the carrying amount of the CGU, an impairment loss is recorded. This loss is allocated first to goodwill with a corresponding amount in "Other expenses". Any further losses are then allocated to

property, plant and mineral interests with a corresponding amount in "Depreciation, depletion and impairment of tangible assets and mineral interests" and to other intangible assets with a corresponding amount in "Other expenses".

Impairment losses recognized in prior periods can be reversed up to the original carrying amount, had the impairment loss not been recognized. Impairment losses recognized on goodwill cannot be reversed.

Investments in associates or joint ventures are tested for impairment whenever indication of impairment exists. If any objective evidence of impairment exists, the carrying amount of the investment is compared with its recoverable amount, being the higher of its fair value less costs to sell and value in use. If the carrying amount exceeds the recoverable amount, an impairment loss is recorded in "Net income (loss) from equity affiliates".

For the financial year 2019, asset impairments were recorded for an amount of \$(920) million in operating income and \$(465) million in net income, Group share. These impairments were qualified as adjustment items of the operating income and net income, Group share.

Impairments relate to certain cash-generating units (CGUs) for which indicators of impairment have been identified, due to changes in operating conditions or the economic environment of the activities concerned.

The principles applied are as follows:

- the future cash flows were determined using the assumptions included in the 2020 budget and in the long-term plan of the Group approved by the Group Executive Committee and the Board of Directors. These assumptions, including in particular operational costs, estimation of oil and gas reserves, future volumes produced and marketed, represent the best estimate from the Group management of economic and technical conditions over the remaining life of the assets;
- the Group, notably relying on data on global energy demand from the "World Energy Outlook" issued by the IEA since 2016, and on its own supply assessments, determines the oil & gas prices scenarios based on assumptions about the evolution of core indicators of the Upstream activity (demand for oil & gas products in different markets, investment forecasts, decline in production fields, changes in oil & gas reserves and supply by area and by nature of oil & gas products), of the Downstream activity (changes in refining capacity and demand for petroleum products) and by integrating climate challenges.

These price scenarios, first prepared within the Strategy and Climate Division, are also reviewed by the Group segments which bring their own expertise. They also integrate studies issued by international agencies, banks and independent consultants. They are then approved by the Executive Committee and the Board of directors.

The IEA 2019 World Energy Outlook anticipates three scenarios (Stated Policies Scenario (SPS), Current Policies Scenario (CPS) and Sustainable Development Scenario (SDS)). Among these scenarios, the SPS (central scenario of the IEA) for the short/mid term and the SDS for the mid/long term are important references for the Group. The Group therefore establishes its long-term price trajectory in line with the IEA's SDS scenario, which is compatible with the Paris Agreement, and foresees oil prices converging towards 50\$₂₀₁₈ per barrel by 2050.

The SPS takes into account the measures already implemented by countries in the energy area as well as the effects of the policies announced by Governments (including the Nationally Determined Contributions – NDC – of the Paris Climate Agreement). The SDS takes into account necessary measures to achieve a temperature rise of less than 2°C compared to pre-industrial levels, and the energy-related goals set in the "2030 Agenda for Sustainable Development" adopted in 2015 by the UN members.

The oil and gas price trajectories adopted by the Group are based on the following assumptions:

Oil demand should continue to grow in the medium term, in a context of sustained growth in global energy demand and despite the gradual electrification of transport and efficiency gains in thermal engines. Crude oil prices would then follow a downward trajectory from 2030 onwards to converge towards 50\$₂₀₁₈/b in 2050, due to the impact on demand of policies compatible with the Paris agreement and the production potential of certain major producing countries (US, Saudi Arabia, Brazil, Russia, etc.).

Natural gas demand would also be driven by its substitution to coal in power generation and its role as an alternative source to mitigate the intermittent use of renewable energies. The abundant global supply and the growth of liquefied natural gas would, however, limit the potential for higher gas prices.

In this context, given the need for the industry to make very substantial investments to cope with the natural decline of the fields, and meet the oil demand predicted by these scenarios over the next 20 years and given the slowdown in investment observed since 2015 in the oil and gas industry:

- the crude oil price level considered to determine the recoverable value of CGUs increases from 64\$₂₀₁₈ per barrel of Brent in 2019 to 70\$₂₀₁₈ in 2025, and would remain stable for the following five years. Afterwards, the price decreases to reach 50\$₂₀₁₈ in 2050, in line with the IEA's SDS scenario,
- as for gas, the price level considered to determine the recoverable value of CGUs stabilizes in the long term at approximately 6\$₂₀₁₈/MBTU for the NBP price (Europe) and 2.6\$₂₀₁₈/MBTU for the Henry Hub price (United States).
- the future operational costs were determined by taking into account the existing technologies, the fluctuation of prices for petroleum services in line with market developments and the internal cost reduction programs effectively implemented ;

- the future cash flows are estimated over a period consistent with the life of the assets of the CGUs. They are prepared post-tax and take into account specific risks related to the CGUs' assets. They are discounted using a 7% post-tax discount rate, this rate being the weighted-average cost of capital estimated from historical market data. This rate was 7% in 2018 and 2017. The value in use calculated by discounting the above post-tax cash flows using a 7% post-tax discount rate is not materially different from the value in use calculated by discounting pre-tax cash flows using a pre-tax discount rate determined by an iterative computation from the post-tax value in use. These pre-tax discount rates generally ranged from 7% to 14% in 2019.

The CGUs of the Exploration & Production segment are defined as oil and gas fields or groups of oil and gas fields with industrial assets enabling the production, treatment and evacuation of the oil and gas. For the financial year 2019, impairments of assets were recognized over CGUs of the Exploration & Production segment for an impact of \$(721) million in operating income and \$(530) million in net income, Group share. Impairments recognized in 2019 relate to assets mainly located in the United States (Utica, Chinook).

As for sensitivities:

- a decrease by one point in the discount rate would have an impact close to zero in operating income and in net income, Group share;
- an increase by one point in the discount rate would have an additional negative impact of approximately \$0.9 billion in operating income and in net income, Group share;
- a variation of (10)% of the oil and gas prices over the duration of the plan would have an additional negative impact of approximately \$2 billion in operating income and \$1.6 billion in net income, Group share.

The most sensitive assets would be the assets already impaired in 2019 or before (impact of approximately \$1.4 billion in operating income and \$0.8 billion in net income, Group share), especially assets in Canada and in Congo.

The CGUs of the Integrated Gas, Renewables & Power segment are subsidiaries or groups of subsidiaries organized by activity or geographical area, and by fields or groups of fields for upstream LNG activities. In financial year 2019, the Group recorded impairments on CGUs in the Integrated Gas, Renewables & Power segment for \$(156) million in operating income and \$105 million in net income, Group share.

As for sensitivities of upstream LNG activities and CGUs including a material goodwill:

- a decrease by one point in the discount rate would have a positive impact of approximately \$0.1 billion in operating income and in net income, Group share;
- an increase by one point in the discount rate would have an additional negative impact of approximately \$0.9 billion in operating income and in net income, Group share;
- a variation of (10)% of the oil and gas prices over the duration of the plan would have an additional negative impact of approximately \$1.1 billion in operating income and \$1 billion in net income, Group share.

The most sensitive assets would be the assets already impaired in 2019 or before (impact of approximately \$1.1 billion in operating income and \$1 billion in net income, Group share), especially Ichthys in Australia.

The CGUs of the Refining & Chemicals segment are defined as legal entities with operational activities for refining and petrochemicals activities. Future cash flows are based on the gross contribution margin (calculated on the basis of net sales after purchases of crude oil and refined products, the effect of inventory valuation and variable costs). The other activities of the segment are global divisions, each division gathering a set of businesses or homogeneous products for strategic, commercial and industrial plans. Future cash flows are determined from the specific margins of these activities, unrelated to the price of oil. No significant impairment has been recorded for the CGUs of the Refining & Chemicals segment in financial year 2019.

The CGUs of the Marketing & Services segment are subsidiaries or groups of subsidiaries organized by geographical area. No significant impairment has been recorded for the CGUs of the Marketing & Services segment in financial year 2019.

For the financial year 2018, the Group recorded impairments in Exploration & Production, Integrated Gas, Renewables & Power and Refining & Chemicals segments for an amount of \$(1,774) million in operating income and \$(1,595) million in net income, Group share. These impairments were qualified as adjustment items of the operating income and net income, Group share.

For financial year 2017, the Group recorded impairments in Exploration & Production, Integrated Gas, Renewables & Power, Refining & Chemicals and Marketing & Services segments for an amount of \$(4,662) million in operating income and \$(3,884) million in net income, Group share. These impairments were qualified as adjustments items of the operating income and net income, Group share.

NOTE 4 Segment information by geographical area

(M\$)	France	Rest of Europe	North America	Africa	Rest of the world	Total
For the year ended December 31, 2019						
Non-Group sales	43,877	99,176	19,946	21,303	16,014	200,316
Property, plant and equipment, intangible assets, net	13,212	28,765	18,916	45,573	43,120	149,586
Capital expenditures	1,979	3,201	1,748	7,663	4,646	19,237
For the year ended December 31, 2018						
Non-Group sales	47,716	99,465	22,243	22,263	17,676	209,363
Property, plant and equipment, intangible assets, net	12,561	25,262	18,903	43,359	42,161	142,246
Capital expenditures	4,502	2,609	2,014	4,838	8,222	22,185
For the year ended December 31, 2017						
Non-Group sales	39,032	83,255	16,889	17,581	14,736	171,493
Property, plant and equipment, intangible assets, net	6,397	18,260	18,469	42,849	38,009	123,984
Capital expenditures	1,193	2,805	2,916	5,030	4,952	16,896

NOTE 5 Main items related to operating activities

Items related to the statement of income

5.1 Net sales

ACCOUNTING POLICIES

IFRS 15 requires identification of the performance obligations for the transfer of goods and services in each contract with customers. Revenue is recognized upon satisfaction of the performance obligations for the amounts that reflect the consideration to which the Group expects to be entitled in exchange for those goods and services.

Sales of goods

Revenues from sales are recognized when the control has been transferred to the buyer and the amount can be reasonably measured. Revenues from sales of crude oil and natural gas are recorded upon transfer of title, according to the terms of the sales contracts.

Revenues from the production of crude oil and natural gas properties, in which the Group has an interest with other producers, are recognized based on actual entitlement volumes sold over the period. Any difference between entitlement volumes and volumes sold, based on the Group net working interest, are recognized in the "Under-lifting" and "Over-lifting" accounts in the balance sheet and in operating expenses in the profit and loss.

Quantities delivered that represent production royalties and taxes, when paid in cash, are included in oil and gas revenues, except for the United States and Canada.

Certain transactions within the trading activities (contracts involving quantities that are purchased from third parties then resold to third parties) are shown at their net value in sales.

Exchanges of crude oil and petroleum products within normal trading activities do not generate any income and therefore these flows are shown at their net value in both the statement of income and the balance sheet.

Sales of services

Revenues from services are recognized when the services have been rendered.

Revenues from gas transport are recognized when services are rendered. These revenues are based on the quantities transported and measured according to procedures defined in each service contract.

Shipping revenues and expenses from time-charter activities are recognized on a *pro rata* basis over a period that commences upon the unloading of the previous voyage and terminates upon the unloading of the current voyage. Shipping revenue recognition starts only when a charter has been agreed to by both the Group and the customer.

Income related to the distribution of electricity and gas are not recognized in revenues because the Group acts as an agent in this transaction. The Group is not responsible for the delivery and does not set the price of the service, because it can only pass on to the customer the amounts invoiced to it by the distributors.

Excise taxes

Excise taxes are rights or taxes which amount is calculated based on the quantity of oil and gas products put on the market. Excise taxes are determined by the states. They are paid directly to the customs and tax authorities and then invoiced to final customers by being included in the sales price.

The analysis of the criteria set by IFRS 15 led the Group to determine that it was acting as principal in these transactions. Therefore sales include excise taxes collected by the Group within the course of its oil distribution operations. Excise taxes are deducted from sales in order to obtain the "Revenues from sales" indicator.

5.2 Operating expenses and research and development

ACCOUNTING POLICIES

The Group applies IFRS 6 “Exploration for and Evaluation of Mineral Resources”. Oil and gas exploration and production properties and assets are accounted for in accordance with the Successful Efforts method.

Geological and geophysical costs, including seismic surveys for exploration purposes are expensed as incurred in exploration costs.

Costs of dry wells and wells that have not found proved reserves are charged to expense in exploration costs.

5.2.1 Operating expenses

For the year ended December 31, (M\$)	2019	2018	2017
Purchases, net of inventory variation ^{(a)(b)}	(116,221)	(125,816)	(99,411)
Exploration costs	(785)	(797)	(864)
Other operating expenses ^(c)	(27,255)	(27,484)	(24,966)
<i>of which non-current operating liabilities (allowances) reversals</i>	1,152	1,068	280
<i>of which current operating liabilities (allowances) reversals</i>	(157)	(202)	66
OPERATING EXPENSES	(144,261)	(154,097)	(125,241)

(a) Includes taxes paid on oil and gas production in the Exploration & Production segment, amongst others royalties.

(b) The Group values under / over lifting at market value.

(c) Principally composed of production and administrative costs (see in particular the payroll costs as detailed in Note 10 to the Consolidated Financial Statements “Payroll, staff and employee benefits obligations”).

5.2.2 Research and development costs

ACCOUNTING POLICIES

Research costs are charged to expense as incurred.

Development expenses are capitalized when the criteria of IAS38 are met.

Research and development costs incurred by the Group in 2019 and booked in operating expenses amount to \$968 million (\$986 million in 2018 and \$912 million in 2017), corresponding to 0.48% of the sales.

The staff dedicated in 2019 to these research and development activities are estimated at 4,339 people (4,288 in 2018 and 4,132 in 2017).

5.3 Amortization, depreciation and impairment of tangible assets and mineral interests

The amortization, depreciation and impairment of tangible assets and mineral interests are detailed as follows:

For the year ended December 31, (M\$)	2019	2018	2017
Depreciation and impairment of tangible assets	(14,640)	(13,364)	(14,782)
Amortization and impairment of mineral assets	(1,091)	(628)	(1,321)
TOTAL	(15,731)	(13,992)	(16,103)

Items related to balance sheet

5.4 Working capital

5.4.1 Inventories

ACCOUNTING POLICIES

Inventories are measured in the Consolidated Financial Statements at the lower of historical cost or market value. Costs for petroleum and petrochemical products are determined according to the FIFO (First-In, First-Out) method or weighted-average cost method and other inventories are measured using the weighted-average cost method.

In addition stocks held for trading are measured at fair value less cost to sell.

Refining & Chemicals

Petroleum product inventories are mainly comprised of crude oil and refined products. Refined products principally consist of gasoline, distillate and fuel produced by the Group's refineries. The turnover of petroleum products does not exceed two months on average.

Crude oil costs include raw material and receiving costs. Refining costs principally include crude oil costs, production costs (energy, labor, depreciation of producing assets) and an allocation of production overheads (taxes, maintenance, insurance, etc.).

Costs of chemical product inventories consist of raw material costs, direct labor costs and an allocation of production overheads. Start-up costs, general administrative costs and financing costs are excluded from the costs of refined and chemicals products.

Marketing & Services

The costs of refined products include mainly raw materials costs, production costs (energy, labor, depreciation of producing assets) and an allocation of production overheads (taxes, maintenance, insurance, etc.).

General administrative costs and financing costs are excluded from the cost price of refined products.

Product inventories purchased from entities external to the Group are valued at their purchase cost plus primary costs of transport.

Carbon dioxide emission rights

In the absence of a current IFRS standard or interpretation on accounting for emission rights of carbon dioxide, the following principles are applied:

- emission rights are managed as a cost of production and as such are recognized in inventories:
 - emission rights allocated for free are booked in inventories with a nil carrying amount;
 - purchased emission rights are booked at acquisition cost;
 - sales or annual surrender of emission rights result in decreases in inventories valued at weighted average cost;
 - if the carrying amount of inventories at closing date is higher than the market value, an impairment loss is recorded.
- at each closing, a provision is recorded in order to materialize the obligation to surrender emission rights related to the emissions of the period. This provision is calculated based on estimated emissions of the period, valued at weighted average cost of the inventories at the end of the period. It is reversed when the emission rights are surrendered;
- if emission rights to be surrendered at the end of the compliance period are higher than emission rights recorded in inventories, the shortage is accounted for as a liability at market value;
- forward transactions are recognized at their fair market value in the balance sheet. Changes in the fair value of such forward transactions are recognized in the statement of income.

Energy savings certificates

In the absence of current IFRS standards or interpretations on accounting for energy savings certificates (ESC), the following principles are applied:

- if the obligations linked to the sales of energy are greater than the number of ESC's held then a liability is recorded. These liabilities are valued based on the price of the last transactions;
- in the event that the number of ESC's held exceeds the obligation at the balance sheet date this is accounted for as inventory. Otherwise a valuation allowance is recorded;
- ESC inventories are valued at weighted average cost (acquisition cost for those ESC's acquired or cost incurred for those ESC's generated internally).

If the carrying value of the inventory of certificates at the balance sheet date is higher than the market value, an impairment loss is recorded.

As of December 31, 2019 (M\$)	Gross value	Valuation allowance	Net value
Crude oil and natural gas	2,381	(14)	2,367
Refined products	5,326	(45)	5,281
Chemicals products	1,448	(91)	1,357
Trading inventories	5,500	–	5,500
Other inventories	3,651	(1,024)	2,627
TOTAL	18,306	(1,174)	17,132

As of December 31, 2018 (M\$)	Gross value	Valuation allowance	Net value
Crude oil and natural gas	2,382	(110)	2,272
Refined products	5,464	(242)	5,222
Chemicals products	1,087	(54)	1,033
Trading inventories	3,918	–	3,918
Other inventories	3,372	(937)	2,435
TOTAL	16,223	(1,343)	14,880

As of December 31, 2017 (M\$)	Gross value	Valuation allowance	Net value
Crude oil and natural gas	2,658	–	2,658
Refined products	5,828	(36)	5,792
Chemicals products	1,089	(58)	1,031
Trading inventories	4,320	–	4,320
Other inventories	3,632	(913)	2,719
TOTAL	17,527	(1,007)	16,520

Changes in the valuation allowance on inventories are as follows:

For the year ended December 31, (M\$)	Valuation allowance as of January 1,	Increase (net)	Currency translation adjustment and other variations	Valuation allowance as of December 31,
2019	(1,343)	205	(36)	(1,174)
2018	(1,007)	(359)	23	(1,343)
2017	(971)	9	(45)	(1,007)

5.4.2 Accounts receivable and other current assets

As of December 31, 2019 (M\$)	Gross value	Valuation allowance	Net value
Accounts receivable	19,162	(674)	18,488
Recoverable taxes	4,209	(95)	4,114
Other operating receivables	11,746	(240)	11,506
Prepaid expenses	1,336	–	1,336
Other current assets	57	–	57
Other current assets	17,348	(335)	17,013

As of December 31, 2018 (M\$)	Gross value	Valuation allowance	Net value
Accounts receivable	17,894	(624)	17,270
Recoverable taxes	4,090	–	4,090
Other operating receivables	10,306	(573)	9,733
Prepaid expenses	837	–	837
Other current assets	64	–	64
Other current assets	15,297	(573)	14,724

As of December 31, 2017 (M\$)	Gross value	Valuation allowance	Net value
Accounts receivable	15,469	(576)	14,893
Recoverable taxes	4,029	–	4,029
Other operating receivables	9,797	(461)	9,336
Prepaid expenses	786	–	786
Other current assets	59	–	59
Other current assets	14,671	(461)	14,210

Changes in the valuation allowance on “Accounts receivable” and “Other current assets” are as follows:

For the year ended December 31, (M\$)	Valuation allowance as of January 1,	Increase (net)	Currency translation adjustments and other variations	Valuation allowance as of December 31,
Accounts receivable				
2019	(624)	(89)	39	(674)
2018	(576)	(62)	14	(624)
2017	(596)	53	(33)	(576)
Other current assets				
2019	(573)	(46)	284	(335)
2018	(461)	(148)	36	(573)
2017	(400)	(58)	(3)	(461)

As of December 31, 2019, the net portion of the overdue receivables included in “Accounts receivable” and “Other current assets” was \$3,760 million, of which \$2,089 million was due in less than 90 days, \$357 million was due between 90 days and 6 months, \$402 million was due between 6 and 12 months and \$912 million was due after 12 months.

As of December 31, 2018, the net portion of the overdue receivables included in “Accounts receivable” and “Other current assets” was \$3,767 million, of which \$1,993 million was due in less than 90 days, \$273 million was due between 90 days and 6 months, \$450 million was due between 6 and 12 months and \$1,051 million was due after 12 months.

As of December 31, 2017, the net portion of the overdue receivables included in “Accounts receivable” and “Other current assets” was \$3,156 million, of which \$1,682 million was due in less than 90 days, \$235 million was due between 90 days and 6 months, \$350 million was due between 6 and 12 months and \$889 million was due after 12 months.

5.4.3 Other creditors and accrued liabilities

As of December 31, (M\$)	2019	2018	2017
Accruals and deferred income	522	546	419
Payable to States (including taxes and duties)	7,438	6,861	5,786
Payroll	1,527	1,553	1,439
Other operating liabilities	16,262	13,286	10,135
TOTAL	25,749	22,246	17,779

As of December 31, 2019, the heading “Other operating liabilities” includes mainly the second quarterly interim dividend for the fiscal year 2019 for \$1,918 million, which was paid in January 2020 and the third quarterly interim dividend for the fiscal year 2019 for \$2,038 million, which will be paid in April 2020.

As of December 31, 2018, the heading “Other operating liabilities” included mainly the second quarterly interim dividend for the fiscal year 2018 for \$1,911 million, which was paid in January 2019 and the third quarterly interim dividend for the fiscal year 2018 for \$1,912 million, which was paid in April 2019.

As of December 31, 2017, the heading “Other operating liabilities” included mainly the second quarterly interim dividend for the fiscal year 2017 for \$1,883 million, which was paid in January 2018 and the third quarterly interim dividend for the fiscal year 2017 for \$1,912 million, which was paid in April 2018.

Items related to the cash flow statement

5.5 Cash flow from operating activities

ACCOUNTING POLICIES

The Consolidated Statement of Cash Flows prepared in currencies other than dollar has been translated into dollars using the exchange rate on the transaction date or the average exchange rate for the period. Currency translation differences arising from the translation of monetary assets and liabilities denominated in foreign currency into

dollars using the closing exchange rates are shown in the Consolidated Statement of Cash Flows under "Effect of exchange rates". Therefore, the Consolidated Statement of Cash Flows will not agree with the figures derived from the consolidated balance sheet.

The following table gives additional information on cash paid or received in the cash flow from operating activities:

Detail of interest, taxes and dividends

For the year ended December 31, (M\$)	2019	2018	2017
Interests paid	(2,181)	(1,818)	(1,305)
Interests received	210	164	82
Income tax paid ^(a)	(5,293)	(5,024)	(4,013)
Dividends received	1,988	2,456	2,219

(a) These amounts include taxes paid in kind under production-sharing contracts in exploration and production activities.

Detail of changes in working capital

For the year ended December 31, (M\$)	2019	2018	2017
Inventories	(2,071)	1,430	(476)
Accounts receivable	(933)	(1,461)	(1,897)
Other current assets	(2,001)	(364)	1,274
Accounts payable	1,998	(822)	2,339
Other creditors and accrued liabilities	1,289	1,986	(413)
NET AMOUNT, DECREASE (INCREASE)	(1,718)	769	827

Detail of changes in provisions and deferred taxes

As of December 31, (M\$)	2019	2018	2017
Accruals	403	(432)	3
Deferred taxes	(461)	(455)	(387)
TOTAL	(58)	(887)	(384)

NOTE 6 Other items from operating activities

6.1 Other income and other expense

For the year ended December 31, (M\$)	2019	2018	2017
Gains on disposal of assets	670	1,041	2,784
Foreign exchange gains	238	252	785
Other	255	545	242
OTHER INCOME	1,163	1,838	3,811
Losses on disposal of assets	(56)	(111)	(186)
Foreign exchange losses	(463)	(444)	–
Amortization of other intangible assets (excl. mineral interests)	(266)	(225)	(192)
Other	(407)	(493)	(656)
OTHER EXPENSE	(1,192)	(1,273)	(1,034)

Other income

In 2019, gains on disposal of assets are mainly related to the sale of assets and interests in Norway in the Exploration & Production segment, to the sale of Hazira and SunPower assets in the Integrated Gas Renewables & Power segment and the sale of assets in China in the Refining & Chemicals segment.

In 2018, gains on disposal of assets are mainly related to the sale of assets and interests in Norway, Canada and Gabon in the Exploration & Production segment, to the sale of Dunkerque LNG SAS and SunPower assets in the Integrated Gas Renewables & Power segment and the sale of TotalErg and Total Haiti in the Marketing & Services segment.

In 2017, gains on disposal of assets mainly related to the sale of Atotech in the Refining & Chemicals segment and to the sale of assets in Gabon in the Exploration & Production segment.

Other expense

In 2019, the heading "Other" mainly consists of the restructuring charges in the Exploration & Production, Integrated Gas Renewables & Power and Refining & Chemicals segments for an amount of \$96 million, \$94 million of revaluation at fair value of non-consolidated shares.

In 2018, the heading "Other" mainly consists of the restructuring charges in the Exploration & Production, Integrated Gas Renewables & Power and Refining & Chemicals segments for an amount of \$179 million, \$77 million of the impairment of non-consolidated shares and loans granted to non-consolidated subsidiaries and equity affiliates.

In 2017, losses on disposal mainly related to the sale of 15% interests in the Gina Krog field in Norway. The heading "Other" mainly consisted of the impairment of non-consolidated shares and loans granted to non-consolidated subsidiaries and equity affiliates for an amount of \$172 million and \$64 million of restructuring charges in the Exploration & Production, Integrated Gas Renewables & Power and Refining & Chemicals segments.

6.2 Other financial income and expense

As of December 31, (M\$)	2019	2018	2017
Dividend income on non-consolidated subsidiaries	178	171	167
Capitalized financial expenses	227	519	460
Other	387	430	330
OTHER FINANCIAL INCOME	792	1,120	957
Accretion of asset retirement obligations	(639)	(530)	(544)
Other	(125)	(155)	(98)
OTHER FINANCIAL EXPENSE	(764)	(685)	(642)

6.3 Other non-current assets

As of December 31, 2019 (M\$)	Gross value	Valuation allowance	Net value
Loans and advances ^(a)	2,248	(266)	1,982
Other non-current financial assets related to operational activities	332	–	332
Other	101	–	101
TOTAL	2,681	(266)	2,415

As of December 31, 2018 (M\$)	Gross value	Valuation allowance	Net value
Loans and advances ^(a)	2,180	(303)	1,877
Other non-current financial assets related to operational activities	471	–	471
Other	161	–	161
TOTAL	2,812	(303)	2,509

As of December 31, 2017 (M\$)	Gross value	Valuation allowance	Net value
Loans and advances ^(a)	3,237	(359)	2,878
Other non-current financial assets related to operational activities	937	–	937
Other	169	–	169
TOTAL	4,343	(359)	3,984

(a) Excluding loans to equity affiliates.

Changes in the valuation allowance on loans and advances are detailed as follows:

For the year ended December 31, (M\$)	Valuation allowance as of January 1,	Increases	Decreases	Currency translation adjustment and zother variations	Valuation allowance as of December 31,
2019	(303)	(7)	43	1	(266)
2018	(359)	(5)	35	26	(303)
2017	(286)	(50)	11	(34)	(359)

NOTE 7 Intangible and tangible assets

7.1 Intangible assets

ACCOUNTING POLICIES

Goodwill

Guidance for measuring goodwill is presented in Note 1.1 paragraph B to the Consolidated Financial Statements. Goodwill is not amortized but is tested for impairment at least annually and as soon as there is any indication of impairment.

Mineral interests

Unproved mineral interests are tested for impairment based on the results of the exploratory activity or as part of the impairment tests of the cash-generating units to which they are allocated.

Unproved mineral interests are transferred to proved mineral interests at their net book value as soon as proved reserves are booked.

Proved mineral interests are depreciated using the unit-of-production method based on proved reserves.

The corresponding expense is recorded as depreciation of tangible assets and mineral interests.

Other intangible assets

Other intangible assets include patents, trademarks, and lease rights.

Intangible assets are carried at cost, after deducting any accumulated amortization and accumulated impairment losses.

Intangible assets (excluding mineral interests) that have a finite useful life are amortized on a straight-line basis over three to twenty years depending on the useful life of the assets. The corresponding expense is recorded under other expense.

As of December 31, 2019 (M\$)	Amortization and impairment		Net
	Cost		
Goodwill	9,357	(1,011)	8,346
Proved mineral interests	15,966	(8,741)	7,225
Unproved mineral interests	20,138	(4,558)	15,580
Other intangible assets	5,743	(3,716)	2,027
TOTAL INTANGIBLE ASSETS	51,204	(18,026)	33,178

As of December 31, 2018 (M\$)	Amortization and impairment		Net
	Cost		
Goodwill	9,188	(1,014)	8,174
Proved mineral interests	14,775	(7,947)	6,828
Unproved mineral interests	16,712	(4,491)	12,221
Other intangible assets	5,824	(4,125)	1,699
TOTAL INTANGIBLE ASSETS	46,499	(17,577)	28,922

As of December 31, 2017 (M\$)	Amortization and impairment		Net
	Cost		
Goodwill	2,442	(1,015)	1,427
Proved mineral interests	13,081	(7,674)	5,407
Unproved mineral interests	11,686	(5,324)	6,362
Other intangible assets	4,831	(3,440)	1,391
TOTAL INTANGIBLE ASSETS	32,040	(17,453)	14,587

Change in net intangible assets is analyzed in the following table:

(M\$)	Net amount as of January 1,	Expenditures	Disposals	Amortization and impairment	Currency translation adjustment	Other	Net amount as of December 31,
2019	28,922	1,087	(118)	(1,359)	(95)	4,741	33,178
2018	14,587	3,745	(28)	(852)	(351)	11,821	28,922
2017	15,362	404	(23)	(1,512)	234	122	14,587

In 2019, the heading "Amortization and impairment" includes the accounting impact of exceptional asset impairments for an amount of \$251 million (see note 3 paragraph D to the Consolidated Financial Statements).

In 2019, the heading "Other" principally corresponds to the effect of the entries in the consolidation scope (including the assets of Anadarko in Mozambique) for \$3,887 million.

In 2018, the heading "Amortization and impairment" includes the accounting impact of exceptional asset impairments for an amount of \$67 million (see note 3 paragraph D to the Consolidated Financial Statements).

In 2018, the heading "Other" principally corresponds to the effect of the entries in the consolidation scope (including Maersk Oil, Global LNG and Direct Energie) for \$12,044 million.

In 2017, the heading "Amortization and impairment" included the accounting impact of exceptional asset impairments for an amount of \$785 million (see note 3 paragraph D to the Consolidated Financial Statements).

A summary of changes in the carrying amount of goodwill by business segment for the year ended December 31, 2019 is as follows:

(M\$)	Net goodwill as of January 1, 2019				Net goodwill as of December 31, 2019
	Increases	Impairments	Other		
Exploration & Production	2,642	–	–	–	2,642
Integrated Gas, Renewables & Power	4,707	155	–	(88)	4,774
Refining & Chemicals	475	52	–	(4)	523
Marketing & Services	321	62	–	(4)	379
Corporate	29	–	–	(1)	28
TOTAL	8,174	269	–	(97)	8,346

The heading "Increases" corresponds to the effect of the acquisitions mainly Anadarko Mozambique for an amount of \$ 136 million (see Note 2 paragraph 2 to the Consolidated Financial Statements).

Goodwill related to acquisitions of Direct Energie and Global LNG in 2018 was allocated to CGUs of Integrated Gas, Renewables & Power segment.

7.2 Property, plant and equipment

ACCOUNTING POLICIES

Exploration costs

The Group applies IFRS 6 "Exploration for and Evaluation of Mineral Resources". Oil and gas exploration and production properties and assets are accounted for in accordance with the Successful Efforts method.

Exploratory wells are capitalized and tested for impairment on a well-by-well basis as follows:

- costs of exploratory wells which result in proved reserves are capitalized and then depreciated using the unit-of-production method based on proved developed reserves;
- costs of exploratory wells are temporarily capitalized until a determination is made as to whether the well has found proved reserves if both of the following conditions are met:
 - the well has found a sufficient quantity of reserves to justify, if appropriate, its completion as a producing well, assuming that the required capital expenditures are made;
 - the Group is making sufficient progress assessing the reserves and the economic and operating viability of the project. This progress is evaluated on the basis of indicators such as whether additional exploratory works are under way or firmly planned (wells, seismic or significant studies), whether costs are being incurred for development studies and whether the Group is waiting for governmental or other third-party authorization of a proposed project, or availability of capacity on an existing transport or processing facility.

Costs of exploratory wells not meeting these conditions are charged to exploration costs.

Oil and Gas producing assets of exploration and production activities

Development costs of oil and gas production facilities are capitalized. These costs include borrowing costs incurred during the period of construction and the present value of estimated future costs of asset retirement obligations.

The depletion rate of development wells and of producing assets is equal to the ratio of oil and gas production for the period to proved developed reserves (unit-of-production method).

With respect to phased development projects or projects subject to progressive well production start-up, the fixed assets' depreciable amount, excluding production or service wells, is adjusted to exclude the portion of development costs attributable to the undeveloped reserves of these projects.

With respect to production sharing contracts, the unit-of-production method is based on the portion of production and reserves assigned to the Group taking into account estimates based on the contractual clauses regarding the reimbursement of exploration, development and production costs (cost oil/gas) as well as the sharing of hydrocarbon rights (profit oil/gas).

Hydrocarbon transportation and processing assets are depreciated using the unit-of-production method based on throughput or by using the straight-line method whichever best reflects the duration of use of the economic life of the asset.

Other property, plant and equipment

Other property, plant and equipment are carried at cost, after deducting any accumulated depreciation and accumulated impairment losses. This cost includes borrowing costs directly attributable to the acquisition or production of a qualifying asset incurred until assets are placed in service. Borrowing costs are capitalized as follows:

- if the project benefits from a specific funding, the capitalization of borrowing costs is based on the borrowing rate;
- if the project is financed by all the Group's debt, the capitalization of borrowing costs is based on the weighted average borrowing cost for the period.

Routine maintenance and repairs are charged to expense as incurred. The costs of major turnarounds of refineries and large petrochemical units are capitalized as incurred and depreciated over the period of time between two consecutive major turnarounds.

Other property, plant and equipment are depreciated using the straight-line method over their useful lives, which are as follows:

Furniture, office equipment, machinery and tools	3-12 years
Transportation equipment	5-20 years
Storage tanks and related equipment	10-15 years
Specialized complex installations and pipelines	10-30 years
Buildings	10-50 years

As of December 31, 2019 (M\$)	Cost	Depreciation and impairment	Net
Property, plant and equipment of exploration and production activities			
Proved properties	210,071	(130,134)	79,937
Unproved properties	2,160	(288)	1,872
Work in progress	12,056	(569)	11,487
SUBTOTAL	224,287	(130,991)	93,296
Other property, plant and equipment			
Land	2,826	(792)	2,034
Machinery, plant and equipment (including transportation equipment)	36,747	(25,548)	11,199
Buildings	10,519	(6,032)	4,487
Work in progress	2,501	(2)	2,499
Other	10,137	(7,244)	2,893
SUBTOTAL	62,730	(39,618)	23,112
TOTAL PROPERTY, PLANT AND EQUIPMENT	287,017	(170,609)	116,408

As of December 31, 2018 (M\$)	Cost	Depreciation and impairment	Net
Property, plant and equipment of exploration and production activities			
Proved properties	192,272	(120,435)	71,837
Unproved properties	1,673	(152)	1,521
Work in progress	22,553	(1,128)	21,425
SUBTOTAL	216,498	(121,715)	94,783
Other property, plant and equipment			
Land	1,775	(648)	1,127
Machinery, plant and equipment (including transportation equipment)	34,564	(25,393)	9,171
Buildings	8,864	(5,640)	3,224
Work in progress	2,540	(2)	2,538
Other	9,171	(6,690)	2,481
SUBTOTAL	56,914	(38,373)	18,541
TOTAL PROPERTY, PLANT AND EQUIPMENT	273,412	(160,088)	113,324

As of December 31, 2017 (M\$)	Cost	Depreciation and impairment	Net
Property, plant and equipment of exploration and production activities			
Proved properties	174,336	(112,113)	62,223
Unproved properties	1,980	(152)	1,828
Work in progress	30,286	(2,537)	27,749
SUBTOTAL	206,602	(114,802)	91,800
Other property, plant and equipment			
Land	1,809	(652)	1,157
Machinery, plant and equipment (including transportation equipment)	33,554	(25,774)	7,780
Buildings	9,203	(5,859)	3,344
Work in progress	2,310	(1)	2,309
Other	9,463	(6,456)	3,007
SUBTOTAL	56,339	(38,742)	17,597
TOTAL PROPERTY, PLANT AND EQUIPMENT	262,941	(153,544)	109,397

Change in net property, plant and equipment is analyzed in the following table:

(M\$)	Net amount as of January 1,	Expenditures	Disposals	Depreciation and impairment	Currency translation adjustment	Other	Net amount as of December 31,
2019	113,324	11,426	(1,052)	(15,097)	(270)	8,077	116,408
2018	109,397	13,336	(2,494)	(13,732)	(1,454)	8,271	113,324
2017	111,971	13,363	(1,117)	(15,099)	2,302	(2,023)	109,397

In 2019, the heading "Disposals" mainly includes the impact of the 4% sale of Ichthys LNG in Australia.

In 2019, the heading "Depreciation and impairment" includes the impact of impairments of assets recognized for an amount of \$669 million (see Note 3 paragraph D to the Consolidated Financial Statements).

In 2019, the heading "Other" principally corresponds to the effect of the first application of IFRS 16 for an amount of \$5,698 million, the entries in the consolidation scope (including Anadarko assets for \$767 million) and the reversal of the reclassification under IFRS 5 as at December 31, 2018 for \$812 million corresponding to disposals.

In 2018, the heading "Disposals" mainly includes the impact of sales in the Exploration & Production segment (mainly Martin Linge in Norway and Fort Hills in Canada).

In 2018, the heading "Depreciation and impairment" includes the impact of impairments of assets recognized for an amount of \$1,707 million (see Note 3 paragraph D to the Consolidated Financial Statements).

In 2018, the heading "Other" principally corresponds to the effect of the entries in the consolidation scope (including Maersk, Lapa and Iara in

Brazil and Direct Energie) for \$6,987 million, to the reclassification of assets in accordance with IFRS 5 "Non-current assets held for sale and discontinued operations" (mainly related to the 4% sale of Ichthys for \$(812) million) and the reversal of the reclassification under IFRS 5 as at December 31, 2017 for \$2,604 million corresponding to disposals.

In 2017, the heading "Disposals" mainly included the impact of sales in the Exploration & Production segment (sale of interests in Gina Krog in Norway, and in Gabon).

In 2017, the heading "Depreciation and impairment" included the impact of impairments of assets recognized for an amount of \$3,901 million (see Note 3 paragraph D to the Consolidated Financial Statements).

In 2017, the heading "Other" principally corresponded to the impact of \$855 million of finance lease contracts, the decrease of the asset for site restitution for an amount of \$(773) million and the reclassification of assets classified in accordance with IFRS 5 "Non-current assets held for sale and discontinued operations" for \$(2,604) million, related to the Martin Linge field in Norway.

Following the application of IFRS 16 "Leases", property, plant and equipment as at December 31, 2019 presented above include the following amounts for rights of use of assets:

As of December 31, 2019 (M\$)	Cost	Depreciation and impairment	Net
Property, plant and equipment of exploration and production activities	2,482	(517)	1,965
Other property, plant and equipment			
Land	1,031	(104)	927
Machinery, plant and equipment (including transportation equipment)	3,527	(999)	2,528
Buildings	1,545	(201)	1,344
Other	483	(134)	349
SUBTOTAL	6,586	(1,438)	5,148
TOTAL PROPERTY, PLANT AND EQUIPMENT	9,068	(1,955)	7,113

Property, plant and equipment as at December 31, 2018 and as at December 31, 2017, presented above include the following amounts for facilities and equipment under finance leases:

As of December 31, 2018 (M\$)	Cost	Depreciation and impairment	Net
Machinery, plant and equipment	1,778	(605)	1,173
Buildings	121	(56)	65
Other	543	(83)	460
TOTAL	2,442	(744)	1,698

As of December 31, 2017 (M\$)	Depreciation and impairment		Net
	Cost		
Machinery, plant and equipment	1,140	(468)	672
Buildings	124	(57)	67
Other	378	(58)	320
Total	1,642	(583)	1,059

NOTE 8 Equity affiliates, other investments and related parties

8.1 Equity affiliates: investments and loans

ACCOUNTING PRINCIPLES

Under the equity method, the investment in the associate or joint venture is initially recognized at acquisition cost and subsequently adjusted to recognize the Group's share of the net income and other comprehensive income of the associate or joint venture.

Unrealized gains on transactions between the Group and its equity-accounted entities are eliminated to the extent of the Group's interest in the equity accounted entity.

In equity affiliates, goodwill is included in investment book value.

In cases where the group holds less than 20% of the voting rights in another entity, the determination of whether the Group exercises significant influence is also based on other facts and circumstances: representation on the Board of Directors or an equivalent governing body of the entity, participation in policy-making processes, including participation in decisions relating to dividends or other distributions, significant transactions between the investor and the entity, exchange of management personnel, or provision of essential technical information.

The contribution of equity affiliates in the consolidated balance sheet, consolidated statement of income and consolidated statement of comprehensive income is presented below:

Equity value	2019	2018	2017
As of December 31, (M\$)			
Total Associates	17,026	13,330	12,177
Total Joint ventures	6,097	5,359	4,791
Total	23,123	18,689	16,968
Loans	3,999	4,755	5,135
TOTAL	27,122	23,444	22,103
Profit/(loss)			
As of December 31, (M\$)	2019	2018	2017
Total Associates	2,534	2,329	1,694
Total Joint ventures	872	841	321
TOTAL	3,406	3,170	2,015
Other comprehensive income			
As of December 31, (M\$)	2019	2018	2017
Total Associates	592	(461)	(801)
Total Joint ventures	(184)	(79)	124
TOTAL	408	(540)	(677)

A) Information related to associates

Information (100% gross) related to significant associates is as follows:

Exploration and production activities (M\$)	Novatek ^(a)			Liquefaction entities			PetroCedeño		
	2019	2018	2017	2019	2018	2017	2019	2018	2017
Non current assets	24,081	14,639	14,232	30,578	28,664	29,656	3,994	4,324	5,551
Current assets	6,898	4,545	3,404	9,994	9,358	7,875	7,457	5,580	4,291
TOTAL ASSETS	30,979	19,184	17,636	40,572	38,022	37,531	11,451	9,904	9,842
Shareholder's equity	24,884	14,163	12,842	23,640	22,615	22,804	4,548	4,581	5,178
Non current liabilities	3,727	3,086	3,187	11,445	9,826	10,291	76	20	13
Current liabilities	2,368	1,935	1,607	5,487	5,581	4,436	6,827	5,303	4,651
TOTAL LIABILITIES	30,979	19,184	17,636	40,572	38,022	37,531	11,451	9,904	9,842
Revenue from sales	13,227	13,415	10,022	22,684	25,644	20,401	356	1,629	1,708
NET INCOME	8,260	4,636	1,950	5,692	7,408	5,781	(33)	122	204
OTHER COMPREHENSIVE INCOME	1,807	(2,545)	580	-	-	-	-	-	-
% owned	19.40%	19.40%	18.90%				30.32%	30.32%	30.32%
Revaluation identifiable assets on equity affiliates	1,641	1,556	1,804	1,714	44	6	-	-	-
Equity value	6,469	4,303	4,231	5,493	3,758	3,768	1,379	1,389	1,570
Profit/(loss)	1,508	794	263	637	874	735	(10)	37	62
Share of Other Comprehensive Income, net amount	634	(540)	(491)	23	49	(194)	-	-	-
Dividends paid to the Group	266	151	128	752	816	672	-	218	164

(a) Information includes the best Group's estimates of results at the date of TOTAL's financial statements.

Novatek, listed in Moscow and London, is the 2nd largest producer of natural gas in Russia. The Group share of Novatek's market value amounted to \$11,938 million as at December 31, 2019. Novatek is consolidated by the equity method. TOTAL, in fact, exercises significant influence particularly via its representation on the Board of Directors of Novatek and its interest in Yamal LNG and the project Arctic LNG 2.

The Group is not aware of significant restrictions limiting the ability of OAO Novatek to transfer funds to its shareholder, be it under the form of dividends, repayment of advances or loans made.

The Group's interests in associates operating liquefaction plants are combined. The amounts include investments in: Nigeria LNG (15.00%), Angola LNG (13.60%), Yemen LNG (39.62%), Qatar Liquefied Gas Company Limited (Qatargas) (10.00%), Qatar Liquefied Gas Company Limited II (16.70%), Oman LNG (5.54%), and Abu Dhabi Gas Liquefaction Company Limited (5.00%), Arctic LNG 2 (10.00%).

PetroCedeño produces and upgrades extra-heavy crude oil in Venezuela.

Refining & Chemicals (M\$)	Saudi Aramco Total Refining & Petrochemicals			Qatar		
	2019	2018	2017	2019	2018	2017
Non current assets	10,976	11,281	11,601	4,160	3,968	4,405
Current assets	1,793	2,069	2,021	1,571	1,741	1,696
TOTAL ASSETS	12,769	13,350	13,622	5,731	5,709	6,101
Shareholder's equity	2,113	2,412	2,424	2,676	2,748	3,200
Non current liabilities	8,098	8,398	9,029	2,150	1,914	1,895
Current liabilities	2,558	2,540	2,169	905	1,047	1,006
TOTAL LIABILITIES	12,769	13,350	13,622	5,731	5,709	6,101
Revenue from sales	10,522	11,886	9,049	8,225	9,929	7,388
NET INCOME	(171)	122	222	42	409	490
OTHER COMPREHENSIVE INCOME	(124)	16	20	111	(21)	80
% owned	37.50%	37.50%	37.50%			
Revaluation identifiable assets on equity affiliates	-	-	-	-	-	-
Equity value	792	905	909	706	740	814
Profit/(loss)	(64)	46	83	91	198	190
Share of Other Comprehensive Income, net amount	(33)	40	(82)	14	6	(12)
Dividends paid to the Group	-	56	45	159	271	201

Saudi Aramco Total Refining & Petrochemicals is an entity including a refinery in Jubail, Saudi Arabia, with a capacity of 440,000 barrels/day with integrated petrochemical units.

The Group's interests in associates of the Refining & Chemicals segment, operating steam crackers and polyethylene lines in Qatar have been combined: Qatar Petrochemical Company Ltd. (20.00%), Qatofin (49.09%), Laffan Refinery (10.00%) and Laffan Refinery II (10.00%).

B) Information related to joint ventures

The information (100% gross) related to significant joint ventures is as follows:

(M\$)	Liquefaction entities (Integrated Gas, Renewables & Power)			Hanwha Total Petrochemicals Refining & Chemicals		
	2019	2018	2017	2019	2018	2017
Non current assets	70,279	68,003	59,422	4,310	4,017	3,989
Current assets excluding cash and cash equivalents	1,866	1,928	966	1,842	2,180	2,258
Cash and cash equivalents	1,678	339	1,258	322	237	283
TOTAL ASSETS	73,823	70,270	61,646	6,474	6,434	6,530
Shareholder's equity	7,151	7,059	4,037	3,319	3,534	3,612
Other non current liabilities	6,864	3,472	504	150	157	148
Non current financial debts	56,379	56,841	55,566	1,761	1,418	1,078
Other current liabilities	3,429	2,898	1,539	756	725	1,144
Current financial debts	–	–	–	488	600	548
TOTAL LIABILITIES	73,823	70,270	61,646	6,474	6,434	6,530
Revenue from sales	9,240	2,908	37	8,437	10,191	8,565
Depreciation and depletion of tangible assets and mineral interests	(3,040)	(1,227)	(10)	(256)	(269)	(264)
Interest income	5	119	16	–	9	–
Interest expense	(2,993)	(670)	(15)	(14)	(5)	(3)
Income taxes	(270)	(386)	338	(124)	(310)	(369)
NET INCOME	383	2,029	(1,730)	302	754	973
OTHER COMPREHENSIVE INCOME	(429)	132	97	(116)	(169)	398
% owned				50.00%	50.00%	50.00%
Revaluation identifiable assets on equity affiliates	660	683	905	–	–	–
Equity value	2,318	2,404	2,049	1,660	1,767	1,806
Profit/(loss)	(19)	192	(348)	150	377	486
Share of Other Comprehensive Income, net amount	(112)	40	29	(68)	(67)	170
Dividends paid to the Group	–	–	–	200	332	353

The Group's interests in joint ventures operating liquefaction plants have been combined. The amounts include investments in Yamal LNG in Russia (20.02% direct holding) and Ichthys LNG in Australia (26.00%).

Hanwha Total Petrochemicals is a South Korean company that operates a petrochemical complex in Daesan (condensate separator, steam cracker, styrene, paraxylene, polyolefins).

Off balance sheet commitments relating to joint ventures are disclosed in Note 13 of the Consolidated Financial Statements.

C) Other equity consolidated affiliates

In Group share, the main aggregated financial items in equity consolidated affiliates including assets held for sale, which have not been presented individually are as follows:

As of December 31, (M\$)	2019		2018		2017	
	Associates	Joint ventures	Associates	Joint ventures	Associates	Joint ventures
Non Current assets	5,435	4,287	4,512	2,487	2,908	2,428
Current assets	1,357	1,276	1,263	752	1,156	1,150
TOTAL ASSETS	6,792	5,563	5,775	3,239	4,064	3,578
Shareholder's equity	1,405	1,437	1,438	1,108	885	1,102
Non current liabilities	4,412	3,091	3,254	1,585	2,171	1,281
Current liabilities	975	1,035	1,083	546	1,008	1,195
TOTAL LIABILITIES	6,792	5,563	5,775	3,239	4,064	3,578

For the year ended December 31, (M\$)	2019		2018		2017	
	Associates	Joint ventures	Associates	Joint ventures	Associates	Joint ventures
Revenues from sales	2,190	3,535	2,542	11,914	2,226	4,358
NET INCOME	383	288	380	281	361	183
Share of other comprehensive income items	(46)	(4)	(16)	(52)	(22)	(75)
Equity value	2,187	2,119	2,235	1,188	885	936
Profit/(Loss)	372	741	380	272	361	183
Dividends paid to the Group	362	50	416	49	328	147

8.2 Other investments**ACCOUNTING POLICIES**

Other investments are equity instruments and are measured according to IFRS 9 at fair value through profit and loss (default option). On initial recognition, the standard allows to make an election and record the changes of fair value in other comprehensive income. For these securities, only dividends can be recognized in profit or loss.

The Group recognizes changes in fair value in equity or in profit or loss according to the option chosen on an instrument by instrument basis.

For securities traded in active markets, this fair value is equal to the market price.

Securities whose fair value is not reliably determinable, are recorded at their acquisition value.

For years prior to the application of IFRS 9, equity instruments were classified as available for sale financial assets and measured at fair value.

For securities traded in active markets, this fair value was equal to the market price. Changes in fair value were recorded in other comprehensive income. If there was any evidence of a significant or long-lasting impairment loss, a loss was recorded in the statement of income. This impairment was irreversible.

For other securities, if the fair value was not reliably determinable, the securities were recorded at their historical value.

8 Consolidated Financial Statements

Notes to the Consolidated Financial Statements

Note 8

As of December 31, 2019 (M\$)	As of January 1, 2019	Increase – Decrease	Change in fair value	As of December 31, 2019
Enphase Energy Inc	36	(5)	142	173
Tellurian Investments Inc.	207	–	–	207
Other shares through fair value OCI (unit value < \$50M)	119	7	–	126
EQUITY INSTRUMENTS RECORDED THROUGH FAIR VALUE OCI	362	2	142	506
BBPP	62	–	–	62
BTC Limited	50	–	(22)	28
Tas Helat Marketing Company ^(a)	–	108	–	108
Total Lubrificantes do Brasil ^(b)	111	(111)	–	–
Other shares through fair value P&L (unit value < \$50M)	836	238	–	1,074
EQUITY INSTRUMENTS RECORDED THROUGH FAIR VALUE P&L	1,059	235	(22)	1,272
TOTAL EQUITY INSTRUMENTS	1,421	237	120	1,778

(a) Tas Helat Marketing Company is a joint venture with SAUDI ARAMCO to develop the retail business. It will be consolidated in 2020 (using the equity method).

(b) Total Lubrificantes do Brasil was consolidated in 2019.

As of December 31, 2018 (M\$)	As of January 1, 2018	Increase – Decrease	Change in fair value	As of December 31, 2018
Tellurian Investments Inc.	207	–	–	207
Other shares through fair value OCI (unit value < \$50M)	77	80	(2)	155
EQUITY INSTRUMENTS RECORDED THROUGH FAIR VALUE OCI	284	80	(2)	362
BBPP	62	–	–	62
BTC Limited	55	–	(5)	50
DUNKERQUE LNG SAS	144	(217)	73	–
Total Lubrificantes do Brasil ^(a)	–	111	–	111
Other shares through fair value P&L (unit value < \$50M)	1,182	(346)	–	836
EQUITY INSTRUMENTS RECORDED THROUGH FAIR VALUE P&L	1,443	(452)	68	1,059
TOTAL EQUITY INSTRUMENTS	1,727	(372)	66	1,421

(a) Total Lubrificantes do Brasil will be consolidated in 2019.

As of December 31, 2017 (M\$)	Historical value	Unrealized gain (loss)	Balance sheet value
Other equity securities publicly traded in active markets	8	42	50
TOTAL EQUITY SECURITIES PUBLICLY TRADED IN ACTIVE MARKETS^(a)	8	42	50
BBPP	62	–	62
BTC Limited	55	–	55
DUNKERQUE LNG SAS	144	–	144
Tellurian Investments Inc.	207	–	207
Total Eren Holding SA ^(b)	285	–	285
Greenflex ^(b)	76	–	76
Other equity securities (unit value < \$50 million)	848	–	848
TOTAL OTHER EQUITY SECURITIES^(a)	1,677	–	1,677
OTHER INVESTMENTS	1,685	42	1,727

(a) Including cumulative impairments of \$2,029 million in 2017.

(b) Acquisitions made in the fourth quarter 2017 and consolidated in 2018.

8.3 Related parties

The main transactions and receivable and payable balances with related parties (principally non-consolidated subsidiaries and equity consolidated affiliates) are detailed as follows:

As of December 31, (M\$)	2019	2018	2017
Balance sheet			
Receivables			
Debtors and other debtors	486	496	492
Loans (excl. loans to equity affiliates)	42	57	63
Payables			
Creditors and other creditors	968	888	1,161
Debts	2	2	2
For the year ended December 31, (M\$)	2019	2018	2017
Statement of income			
Sales	4,127	4,192	3,407
Purchases	(10,158)	(9,253)	(7,354)
Financial income	4	2	6
Financial expense	(4)	(5)	(9)

8.4 Compensation for the administration and management bodies

The aggregate amount of direct and indirect compensation accounted by the French and foreign affiliates of the Company, for all executive officers of TOTAL as of December 31, 2019 and for the members of the Board of Directors who are employees of the Group, is detailed below.

As of December 31, 2019, the main Group executive officers include the members of the Executive Committee and the four directors of the corporate functions members of the Group Performance Management Committee (Communication, Legal, Health, Safety and Environment, Investor relations), and the Group Treasurer.

For the year ended December 31, (M\$)	2019	2018	2017
Number of people	15	15	15
Direct or indirect compensation	15.0	17.7	15.6
Pension expenses ^(a)	(4.9)	2.5	10.8
Share-based payments expense (IFRS 2) ^(b)	8.7	12.6	6.5

(a) The benefits provided for executive officers of the Group and the members of the Board of Directors, who are employees of the Group, include severance to be paid upon retirement, supplementary pension schemes and insurance plans, which represent \$113.3 million provisioned as of December 31, 2019 (against \$117.0 million as of December 31, 2018 and \$119.7 million as of December 31, 2017).

The negative pension expense in 2019 is related to the application of the "ordonnance 2019-697" impacting the supplementary defined benefit pension plan which benefit the employees of TOTAL S.A. whose reference salary exceeded on 4 July 2019 an amount equal to 8 times the annual ceiling for calculating French Social Security contributions (PASS). This "ordonnance" involves a freeze of the years of service of beneficiaries as of 31/12/2019, which generates a reversal of provision established priorly.

(b) Share-based payments expense computed for the executive officers and the members of the Board of Directors who are employees of the Group and based on the principles of IFRS 2 "Share-based payments" described in Note 9. The grant rate of the 2016 plan has been revised downwards, the level of achievement of the performance conditions having been lower than the estimates used in the previous year.

The compensation allocated to members of the Board of Directors for directors' fees totaled €1.4 million (\$1.57 million) in 2019, €1.4 million (\$1.65 million) in 2018 and €1.28 million (\$1.44 million) in 2017.

NOTE 9 Shareholders' equity and share-based payments

9.1 Shareholders' equity

Number of TOTAL shares

As of December 31, 2019, there is only one category of shares of TOTAL S.A. The shares have a par value of €2.50 and may be held in either registered or bearer form.

Double voting rights are assigned to shares that are fully-paid and held in registered form in the name of the same shareholder for at least two years, with due consideration for the total portion of the share capital represented. Double voting rights are also assigned, in the event of an increase in share capital by incorporation of reserves, profits or premiums, to registered shares granted for free to a shareholder due to shares already held that are entitled to this rights.

Pursuant to the Company's bylaws (Statutes), no shareholder may cast a vote at a Shareholders' Meeting, either by himself or through an agent, representing more than 10% of the total voting rights for the Company's shares. This limit applies to the aggregated amount of voting rights held

directly, indirectly or through voting proxies. However, in the case of double voting rights, this limit may be extended to 20% of the total voting rights for the Company's shares.

These restrictions no longer apply if any individual or entity, acting alone or in concert, acquires at least two-thirds of the total share capital of the Company, directly or indirectly, following a public tender offer for all of the Company's shares.

The authorized share capital amounts to 3,593,399,547 shares as of December 31, 2019 compared to 3,669,077,772 shares as of December 31, 2018 and 3,434,245,369 shares as of December 31, 2017. As of December 31, 2019, the share capital of TOTAL S.A. amounted to €6,504,702,687.50, divided in 2,601,881,075 shares.

Share cancellation

The Board of Directors, pursuant to the authorization granted by the Extraordinary Shareholders' Meeting on May 26, 2017, in the thirteenth resolution to reduce, on one or more occasions, the Company's share capital by cancelling shares, in accordance with the provisions of Articles L. 225-209 and L. 225-213 of the French Commercial Code, proceeded with the following cancellation of TOTAL shares:

Fiscal year	Board of Directors' decision date	Number of shares bought back and cancelled	Buybacks carried out regarding the		Percentage of the share capital on cancelled ^(c)
			Cancellation of the dilution ^(a)	Shareholder return policy ^(b)	
2019	December 11, 2019	65,109,435 shares bought back between October 29, 2018 and September 9, 2019	34,860,133 shares issued as payment for the 1 st , 2 nd and 3 rd 2018 interim dividends	30,249,302 shares	2.44%
2018	December 12, 2018	44,590,699 shares bought back between February 9 and October 11, 2018	28,445,840 shares issued as payment for the 2 nd and 3 rd interim dividends as well as for the final 2017 dividends	16,144,859 shares	1.66%
2017			n/a ^(d)		

(a) Cancellation of the dilution for the shares issued, without discount, for the scrip dividend.

(b) Within the framework of the \$5 billion share buyback program over the 2018-2020 period.

(c) Percentage of the share capital that the cancelled shares represented on the operations' date.

(d) TOTAL S.A. did not cancel any shares in the fiscal year 2017.

Variation of the number of shares composing the share capital

AS OF DECEMBER 31, 2016^(a)		2,430,365,862
Shares issued in connection with:	Capital increase reserved for employees	9,532,190
	Capital increase as payment of the scrip dividend (second 2016 interim dividend, third 2016 interim dividend, 2016 final dividend and first 2017 interim dividend)	86,442,256
	Exercise of TOTAL share subscription options	2,649,308
AS OF DECEMBER 31, 2017^(b)		2,528,989,616
Shares issued in connection with:	Capital increase reserved for employees	9,354,889
	Capital increase as payment of the scrip dividend (second 2017 interim dividend, third 2017 interim dividend, 2017 final dividend and first 2018 interim dividend)	47,229,037
	Exercise of TOTAL share subscription options	2,096,571
	Issuance of shares in consideration for the acquisition of Maersk Olie og Gas A/S	97,522,593
	Cancellation of treasury shares	(44,590,699)
AS OF DECEMBER 31, 2018^(c)		2,640,602,007
Shares issued in connection with:	Capital increase reserved for employees	10,047,337
	Capital increase as payment of the scrip dividend (second 2018 interim dividend, third 2018 interim dividend)	16,076,936
	Exercise of TOTAL share subscription options	264,230
	Cancellation of treasury shares	(65,109,435)
AS OF DECEMBER 31, 2019^(d)		2,601,881,075

(a) Including 10,587,822 treasury shares deducted from consolidated shareholders' equity.

(b) Including 8,376,756 treasury shares deducted from consolidated shareholders' equity.

(c) Including 32,473,281 treasury shares deducted from consolidated shareholders' equity.

(d) Including 15,474,234 treasury shares deducted from consolidated shareholders' equity.

Capital increase reserved for Group employees

The Extraordinary General Meeting ("EGM") of June 1, 2018, in its eighteenth resolution, granted the authority to the Board of Directors to carry out, a capital increase, in one or more occasions within a maximum period of twenty-six months, reserved to members (employees and retirees) of a company or group savings plan of the Company ("ESOP").

In fiscal year 2019, the Board of Directors of September 18, 2019, by virtue of the eighteenth resolution above-mentioned, has decided to proceed with a capital increase reserved for Group employees

and retirees that included a classic offering and a leveraged offering depending on the employees' or retirees' choice, within the limit of 18 million shares with immediate dividend rights. The Board of Directors has granted all powers to the Chairman and Chief Executive Officer to determine the opening and closing dates of the subscription period and the subscription price. This capital increase is expected to be completed after the General Meeting of May 29, 2020.

During the fiscal years 2017, 2018 and 2019, the Company completed the following ESOP, which terms are set out below:

Fiscal year	2019	2018	2017
Date of the ESOP	June 6, 2019	May 3, 2018	April 26, 2017
By virtue of	18 th resolution of the EGM of June 1, 2018	23 rd resolution of the EGM of May 24, 2016	
<i>Subscriptions</i>			
Number of shares subscribed	9,845,111	9,174,817	9,350,220
Subscription price	40.10€	37.20€	38.10€
<i>Free shares</i>			
Number of shares granted	202,226	180,072	181,970
By virtue of	19 th resolution of the EGM of June 1, 2018	24 th resolution of the EGM of May 24, 2016	
<i>Deferred contribution</i>			
Number of shares granted	5,932	6,784	10,393
Number of beneficiaries	1,187	1,360	2,086
End of the acquisition period	June 6, 2024	May 3, 2023	April 26, 2022

Treasury shares

ACCOUNTING POLICIES

Treasury shares of the parent company held by its subsidiaries or itself are deducted from consolidated shareholders' equity. Gains or losses on sales of treasury shares are excluded from the determination of net income and are recognized in shareholders' equity.

TOTAL shares held by TOTAL S.A.

As of December 31,	2019	2018	2017
Number of treasury shares	15,474,234	32,473,281	8,376,756
Percentage of share capital	0.59%	1.23%	0.33%
<i>Of which shares acquired with the intention to cancel them</i>	11,051,144	27,360,278	–
<i>Of which shares allocated to TOTAL share performance plans for Group employees</i>	4,357,324	5,044,817	8,345,847
<i>Of which shares intended to be allocated to new TOTAL share purchase options plans or to new share performance plans</i>	65,766	68,186	30,909

Paid-in surplus

In accordance with French law, the paid-in surplus corresponds to premiums related to shares issuances, contributions or mergers of the parent company which can be capitalized or used to offset losses if the legal reserve has reached its minimum required level. The amount of the paid-in surplus may also be distributed subject to taxation except when it qualifies as a refund of shareholder contributions.

As of December 31, 2019, paid-in surplus relating to TOTAL S.A. amounted to €35,415 million (€37,276 million as of December 31, 2018 and €32,882 million as of December 31, 2017).

Earnings per share

ACCOUNTING POLICIES

Earnings per share is calculated by dividing net income (Group share) by the weighted-average number of common shares outstanding during the period, excluding TOTAL shares held by TOTAL S.A. (Treasury shares) which are deducted from consolidated shareholders' equity.

Diluted earnings per share is calculated by dividing net income (Group share) by the fully-diluted weighted-average number of common shares outstanding during the period. Treasury shares held by the parent company, TOTAL S.A. are deducted from consolidated shareholders' equity. These shares are not considered outstanding for purposes of this calculation which also takes into account the dilutive effect of share subscription or purchase options plans, share grants and capital increases with a subscription period closing after the end of the fiscal year.

Reserves

Under French law, 5% of net income must be transferred to the legal reserve until the legal reserve reaches 10% of the nominal value of the share capital. This reserve cannot be distributed to the shareholders other than upon liquidation but can be used to offset losses.

If wholly distributed, the unrestricted reserves of the parent company would be taxed for an approximate amount of \$575 million as of December 31, 2019 (\$607 million as of December 31, 2018 and \$750 million as of December 31, 2017) due to additional corporation tax applied on regulatory reserves so that they become distributable.

The weighted-average number of fully-diluted shares is calculated in accordance with the treasury stock method provided for by IAS 33. The proceeds, which would be recovered in the event of an exercise of rights related to dilutive instruments, are presumed to be a share buyback at the average market price over the period. The number of shares thereby obtained leads to a reduction in the total number of shares that would result from the exercise of rights.

In compliance with IAS 33, earnings per share and diluted earnings per share are based on the net income after deduction of the remuneration due to the holders of deeply subordinated notes.

The variation of both weighted-average number of shares and weighted-average number of diluted shares respectively, as of December 31, respectively used in the calculation of earnings per share and fully-diluted earnings per share is detailed as follows:

	2019	2018	2017
NUMBER OF SHARES AS OF JANUARY 1,	2,640,602,007	2,528,989,616	2,430,365,862
Number of shares issued during the year (pro rated)			
Exercise of TOTAL share subscription options	157,153	1,351,465	1,198,036
TOTAL performance shares	2,140,576	2,039,729	1,105,796
Capital increase reserved for employees	5,860,947	6,236,593	6,354,793
Issuance of shares in consideration for the acquisition of Maersk Olie og Gas A/S	–	81,268,828	–
Capital increase as payment of the scrip dividend	12,360,894	26,352,572	53,365,971
Buyback of treasury shares including:	(27,026,481)	(30,405,112)	–
<i>Shares repurchased in during the fiscal year to cancel the dilution caused by the scrip dividend payment and within the framework of the share buyback program</i>	(24,818,443)	(30,102,242)	–
<i>Shares repurchased in during the fiscal year to cover for the stock options plans</i>	(2,208,038)	(302,870)	–
TOTAL shares held by TOTAL S.A. or by its subsidiaries and deducted from shareholders' equity	(32,473,281)	(8,376,756)	(10,587,822)
WEIGHTED-AVERAGE NUMBER OF SHARES	2,601,621,815	2,607,456,934	2,481,802,636
<i>Dilutive effect</i>			
Grant of TOTAL share subscription or purchase options	33,636	296,830	727,864
Grant of TOTAL performance shares	14,593,030	13,794,896	10,238,411
Capital increase reserved for employees	1,759,407	2,167,784	1,987,502
WEIGHTED-AVERAGE NUMBER OF DILUTED SHARES AS OF DECEMBER 31,	2,618,007,888	2,623,716,444	2,494,756,413

Earnings per share in euros

The earnings per share in euros, obtained from the earnings per share in dollars, converted by using the average exchange rate euro/dollar, is €3.75 per share for 2019 closing (€3.62 for 2018 closing). The fully-diluted earnings per share calculated by using the same method is €3.72 per share for 2019 closing (€3.59 for 2018 closing).

Dividend

As a reminder, the Board of Directors decided not to propose to the Shareholders' Meeting, on May 29, 2019, the renewal of the scrip dividend option starting from the final dividend of the fiscal year 2018.

Therefore, TOTAL S.A. has paid the first and second, and will pay the third, interim dividends for the fiscal year 2019 in cash according to the below timetable.

Finally, on February 5, 2020, the Board of Directors, after approving the financial statements for the 2019 fiscal year, decided to propose to the Shareholders' Meeting on May 29, 2020 the payment of a €2.68 dividend per share for the fiscal year 2019. Subject to the Shareholders' decision, considering the first three interim dividends already decided by the Board of Directors, the final dividend for the fiscal year 2019 will be €0.68 per share, an increased amount of 3% to the first and second interim dividends and equal to the third interim dividend for the 2019 fiscal year.

2019 dividend	First interim	Second interim	Third interim	Final
Amount	€0.66	€0.66	€0.68	€0.68
Set date	April 25 th , 2019	July 24 th , 2019	October 29 th , 2019	May 29 th , 2020
Ex-dividend date	September 27 th , 2019	January 6 th , 2020	March 30 th , 2020	June 29 th , 2020
Payment date	October 1 st , 2019	January 8 th , 2020	April 1 st , 2020	July 1 st , 2020

Issuances of perpetual subordinated notes

In 2019, the Group issued perpetual subordinated notes in euro through TOTAL S.A.:

- deeply subordinated notes 1.750% perpetual maturity callable after 5 years (€1,500 million).

In parallel with this issuance, the Group tendered perpetual subordinated notes issued in 2015 (tranche of which the coupon is 2.250%) for an amount of €1,500 million. Following this transaction, the new nominal amount of the tranche tendered is €1,000 million and the Group's total outstanding amount of perpetual subordinated notes remains unchanged.

In 2018 nor in 2017, the Group did not issue any perpetual subordinated notes.

In 2016, the Group issued three tranches of perpetual subordinated notes in euro through TOTAL S.A.:

- deeply subordinated notes 3.875% perpetual maturity callable after 6 years (€1,750 million);
- deeply subordinated notes 2.708% perpetual maturity callable after 6.6 years (€1,000 million);
- deeply subordinated notes 3.369% perpetual maturity callable after 10 years (€1,500 million).

In 2015, the Group issued two tranches of perpetual subordinated notes in euro through TOTAL S.A.:

- deeply subordinated notes 2.250% perpetual maturity callable after 6 years (€2,500 million);
- deeply subordinated notes 2.625% perpetual maturity callable after 10 years (€2,500 million).

Based on their characteristics (mainly no mandatory repayment and no obligation to pay a coupon except under certain circumstances specified into the documentation of the notes) and in compliance with

IAS 32 standard – *Financial instruments – Presentation*, these notes were recorded in equity.

As of December 31, 2019, the amount of perpetual deeply subordinated notes booked in the Group shareholders' equity is \$10,333 million. The coupons attributable to the holders of these securities are recognized as a deduction from the Group shareholders' equity for an amount of \$353 million for fiscal year 2019 closing. The tax saving due to these coupons is booked in the statement of income.

Other comprehensive income

Detail of other comprehensive income showing both items potentially reclassifiable and those not potentially reclassifiable from equity to net income is presented in the table below:

For the year ended December 31, (M\$)	2019	2018	2017
Actuarial gains and losses	(192)	(12)	823
Change in fair value of investments in equity instruments	142	–	–
Tax effect	53	13	(390)
Currency translation adjustment generated by the parent company	(1,533)	(4,022)	9,316
SUB-TOTAL ITEMS NOT POTENTIALLY RECLASSIFIABLE TO PROFIT & LOSS	(1,530)	(4,021)	9,749
Currency translation adjustment	740	1,113	(2,578)
– Unrealized gain/(loss) of the period	800	1,238	(2,408)
– Less gain/(loss) included in net income	60	125	170
Available for sale financial assets	–	–	7
– Unrealized gain/(loss) of the period	–	–	7
– Less gain/(loss) included in net income	–	–	–
Cash flow hedge	(599)	25	324
– Unrealized gain/(loss) of the period	(552)	(94)	584
– Less gain/(loss) included in net income	47	(119)	260
Variation of foreign currency basis spread	1	(80)	–
– Unrealized gain/(loss) of the period	(57)	(80)	–
– Less gain/(loss) included in net income	(58)	–	–
Share of other comprehensive income of equity affiliates, net amount	408	(540)	(677)
– Unrealized gain/(loss) of the period	421	(495)	(655)
– Less gain/(loss) included in net income	13	45	22
Other	(3)	(5)	–
Tax effect	202	14	(100)
SUB-TOTAL ITEMS POTENTIALLY RECLASSIFIABLE TO PROFIT & LOSS	749	527	(3,024)
TOTAL OTHER COMPREHENSIVE INCOME, NET AMOUNT	(781)	(3,494)	6,725

The currency translation adjustment by currency is detailed in the following table:

As of December 31, 2019 (M\$)	Total	Euro	Pound sterling	Ruble	Other currencies
Currency translation adjustment generated by the parent company	(1,533)	(1,533)	–	–	–
Currency translation adjustment	740	636	138	7	(41)
Currency translation adjustment of equity affiliates	607	149	(7)	530	(65)
TOTAL CURRENCY TRANSLATION ADJUSTMENT RECOGNIZED IN COMPREHENSIVE INCOME	(186)	(748)	131	537	(106)

As of December 31, 2018 (M\$)	Total	Euro	Pound sterling	Ruble	Other currencies
Currency translation adjustment generated by the parent company	(4,022)	(4,022)	–	–	–
Currency translation adjustment	1,113	1,883	(431)	(10)	(329)
Currency translation adjustment of equity affiliates	(564)	343	14	(805)	(116)
TOTAL CURRENCY TRANSLATION ADJUSTMENT RECOGNIZED IN COMPREHENSIVE INCOME	(3,473)	(1,796)	(417)	(815)	(445)

As of December 31, 2017 (M\$)	Total	Euro	Pound sterling	Ruble	Other currencies
Currency translation adjustment generated by the parent company	9,316	9,316	–	–	–
Currency translation adjustment	(2,578)	(3,275)	462	3	232
Currency translation adjustment of equity affiliates	(730)	(1,099)	(25)	207	187
TOTAL CURRENCY TRANSLATION ADJUSTMENT RECOGNIZED IN COMPREHENSIVE INCOME	6,008	4,943	436	210	419

Tax effects relating to each component of other comprehensive income are as follows:

For the year ended December 31, (M\$)	2019			2018			2017		
	Pre-tax amount	Tax effect	Net amount	Pre-tax amount	Tax effect	Net amount	Pre-tax amount	Tax effect	Net amount
Actuarial gains and losses	(192)	55	(137)	(12)	13	1	823	(390)	433
Change in fair value of investments in equity instruments	142	(2)	140	–	–	–	–	–	–
Currency translation adjustment generated by the parent company	(1,533)	–	(1,533)	(4,022)	–	(4,022)	9,316	–	9,316
SUB-TOTAL ITEMS NOT POTENTIALLY RECLASSIFIABLE TO PROFIT & LOSS	(1,583)	53	(1,530)	(4,034)	13	(4,021)	10,139	(390)	9,749
Currency translation adjustment	740	–	740	1,113	–	1,113	(2,578)	–	(2,578)
Available for sale financial assets	–	–	–	–	–	–	7	(3)	4
Cash flow hedge	(599)	202	(397)	25	(6)	19	324	(97)	227
Variation of foreign currency basis spread	1	–	1	(80)	20	(60)	–	–	–
Share of other comprehensive income of equity affiliates, net amount	408	–	408	(540)	–	(540)	(677)	–	(677)
Other	(3)	–	(3)	(5)	–	(5)	–	–	–
SUB-TOTAL ITEMS POTENTIALLY RECLASSIFIABLE TO PROFIT & LOSS	547	202	749	513	14	527	(2,924)	(100)	(3,024)
TOTAL OTHER COMPREHENSIVE INCOME	(1,036)	255	(781)	(3,521)	27	(3,494)	7,215	(490)	6,725

Non-controlling interests

As of December 31, 2019, no subsidiary has non-controlling interests that would be material to the Group financial statements.

9.2 Share-based payments

ACCOUNTING POLICIES

The Group may grant employees share subscription or purchase options plans and offer its employees the opportunity to subscribe to reserved capital increases. These employee benefits are recognized as expenses with a corresponding credit to shareholders' equity.

The expense is equal to the fair value of the instruments granted. The expense is recognized on a straight-line basis over the period in which the advantages are acquired.

The fair value of the options is calculated using the Black-Scholes model at the grant date.

For restricted share plans, the fair value is calculated using the market price at the grant date after deducting the expected distribution rate during the vesting period. The global cost is reduced to take into account the non-transferability over a 2-year holding period of the shares that could be awarded.

The number of allocated equity instruments can be revised during the vesting period in cases of non-compliance with performance conditions, with the exception of those related to the market, or according to the rate of turnover of the beneficiaries.

The cost of employee-reserved capital increases is immediately expensed.

The cost of the capital increase reserved for employees consists of the cost related to the discount on all the shares subscribed using both the classic and the leveraged schemes, and the opportunity gain for the shares subscribed using the leveraged scheme. This opportunity gain corresponds to the benefit of subscribing to the leveraged offer, rather than reproducing the same economic profile through the purchase of options in the market for individual investors. The global cost is reduced to take into account the non-transferability of the shares that could be subscribed by the employees over a period of five years.

A) TOTAL share subscription or purchase option plans

	2009 Plan	2010 Plan	2011 Plan	Total	Weighted average exercise price
Date of the shareholders' meeting	5/11/2007	5/21/2010	5/21/2010		
Award date ^(a)	9/15/2009	9/14/2010	9/14/2011		
Strike price	39.90 €	38.20 €	33.00 €		
Expiry date	9/15/2017	9/14/2018	9/14/2019		
Number of options					
Existing options as of January 1, 2017	1,779,053	2,880,237	626,328	5,285,618	38.16 €
Granted	-	-	-	-	-
Cancelled ^(b)	(195,370)	-	-	(195,370)	39.90 €
Exercised	(1,583,683)	(929,865)	(135,760)	(2,649,308)	38.95 €
Existing options as of January 1, 2018	-	1,950,372	490,568	2,440,940	37.15 €
Granted	-	-	-	-	-
Cancelled ^(b)	-	(79,139)	-	(79,139)	38.20 €
Exercised	-	(1,871,233)	(225,338)	(2,096,571)	37.64 €
Existing options as of January 1, 2019	-	-	265,230	265,230	33.00 €
Granted	-	-	-	-	-
Cancelled ^(b)	-	-	(1,000)	(1,000)	33.00 €
Exercised	-	-	(264,230)	(264,230)	33.00 €
EXISTING OPTIONS AS OF DECEMBER 31, 2019	-	-	-	-	n/a

(a) The grant date is the date of the Board meeting awarding the share subscription or purchase options.

(b) Out of the options canceled in 2017-2018 and 2019, (i) 195,370 options were early canceled or expired on September 15, 2017 due to expiry of 2009 plan, (ii) 79,139 options that were not exercised expired on September 14, 2018 due to expiry of 2010 plan and (iii) 1,000 options that were not exercised expired on September 14, 2019 due to expiry of 2011 plan.

Options are exercisable, subject to a presence condition, after a 2-year period from the date of the Board meeting awarding the options and expire eight years after this date. The underlying shares cannot be transferred during four years from the date of grant. For the 2009 to 2011 Plans, the 4-year transfer restriction period does not apply to employees of non-French subsidiaries as of the date of the grant, who may transfer the underlying shares after a 2-year period from the date of the grant.

Since the 2011 Plan, the Board of Directors has not decided any new grant of TOTAL share subscription or purchase option plan and all the options issued prior to 2011 Plan have now expired.

In addition, the authorisation granted by the Combined General Meeting of May 24, 2016 to grant share subscription or purchase options for a period of thirty-eight months, has expired and has not been renewed.

B) TOTAL performance share plans

	2014 Plan	2015 Plan	2016 Plan	2017 Plan	2018 Plan	2019 Plan	Total
Date of the shareholders' meeting	5/16/2014	5/16/2014	5/24/2016	5/24/2016	5/24/2016	6/1/2018	
Award date	7/29/2014	7/28/2015	7/27/2016	7/26/2017	3/14/2018	3/13/2019	
Date of the final award (end of the vesting period)	7/30/2017	7/29/2018	7/28/2019	7/27/2020	3/15/2021	3/14/2022	
Transfer authorized as from	7/30/2019	7/29/2020	7/29/2021	7/28/2022	3/16/2023	3/15/2024	
Grant date IFRS 2 fair value	44.66 €	35.90 €	35.37 €	35.57 €	36.22 €	40.11 €	
Number of performance shares							
Outstanding as of January 1, 2017	4,364,500	4,730,735	5,637,560	-	-	-	14,732,795
Notified	-	-	-	5,679,949	-	-	5,679,949
Cancelled	(2,157,820)	(31,480)	(29,050)	(910)	-	-	(2,219,260)
Finally granted	(2,206,680)	(1,950)	(1,410)	-	-	-	(2,210,040)
Outstanding as of January 1, 2018	-	4,697,305	5,607,100	5,679,039	-	-	15,983,444
Notified	-	-	-	-	6,083,145	-	6,083,145
Cancelled	-	(621,568)	(61,840)	(26,640)	(12,350)	-	(722,398)
Finally granted	-	(4,075,737)	(2,040)	(1,480)	-	-	(4,079,257)
Outstanding as of January 1, 2019	-	-	5,543,220	5,650,919	6,070,795	-	17,264,934
Notified	-	-	-	-	-	6,447,069	6,447,069
Cancelled	-	-	(1,267,392)	(41,220)	(41,260)	(39,246)	(1,389,118)
Finally granted	-	-	(4,275,828)	(1,840)	(1,100)	(180)	(4,278,948)
OUTSTANDING AS OF DECEMBER 31, 2019	-	-	-	5,607,859	6,028,435	6,407,643	18,043,937

The performance shares, which are bought back by the TOTAL S.A. on the market, are finally granted to their beneficiaries after a 3-year vesting period, from the date of the grant. The final grant is subject to a continued employment condition as well as one performance condition for the 2014 plan, two performance conditions for the 2015, 2016, 2017 and 2018 plans and three performance conditions for the 2019 Plan. Moreover, the transfer of the performance shares finally granted will not be permitted until the end of a 2-year holding period from the date of the final grant.

2019 Plan

On March 13, 2019, the Board of Directors granted performance shares to certain employees and executive directors of the Company or Group companies, subject to the fulfilment of the continued employment condition and three performance conditions.

The presence condition applies to all shares.

The performance conditions apply for all shares granted to senior executives. The grant of the first 150 shares to non-senior executive are not subject to the performance condition abovementioned, but the performance conditions will apply to any shares granted above this threshold.

The definitive number of granted shares will be based on the TSR (Total Shareholder Return), the annual variation of the net cash flow by share in dollars, as well as the pre-dividend organic cash breakeven, for fiscal years 2019, 2020 and 2021, applied as follows:

- for 1/3 of the shares, the Company will be ranked against its peers (ExxonMobil, Royal Dutch Shell, BP and Chevron) each year during the three vesting years (2019, 2020 and 2021) based on the TSR criterion of the last quarter of the year in question, the dividend being considered reinvested based on the closing price on the ex-dividend date.

- for 1/3 of the shares, the Company will be ranked each year against its peers (ExxonMobil, Royal Dutch Shell, BP and Chevron) during the three vesting years (2019, 2020 and 2021) using the annual variation in net cash flow per share criterion expressed in dollar.

Based on the ranking, a grant rate will be determined for each year for these two first criteria:

Ranking	Grant rate
1 st place	180%
2 nd place	130%
3 rd place	80%
4 th and 5 th places	0%

- for 1/3 of the shares, the pre-dividend organic cash breakeven criterion will be assessed during the three vesting years (2019, 2020 and 2021) as follows. The pre-dividend organic cash breakeven is defined as the Brent price for which the operating cash flow before working capital changes⁽¹⁾ covers the organic investments⁽²⁾. The ability of the Group to resist to the variations of the Brent barrel price is measured by this parameter.
 - the maximum grant rate will be reached if the breakeven is less than or equal to \$30/b,
 - the grant rate will be zero if the breakeven is greater than or equal to \$40/b,
 - the interpolations will be linear between these two points of reference.

A grant rate will be determined for each year.

(1) The operating cash flow before working capital changes is defined as cash flow from operating activities before changes in capital at replacement cost.

(2) Organic investments: net investments excluding acquisitions, asset sales and other operations with non-controlling interests.

For each of the three criteria, the average of the three grant rates obtained (for each of the three fiscal years for which the performance conditions are assessed) will be rounded to the nearest 0.1 whole percent (0.05% being rounded to 0.1%) and capped at 100%.

Each criterion will have a weight of 1/3 in the definitive grant rate. The definitive grant rate will be rounded to the nearest 0.1 whole percent (0.05% being rounded to 0.1%). The number of shares definitively granted, after confirmation of the performance conditions, will be rounded up to the nearest whole number of shares in case of a fractional share.

C) SunPower plans

During fiscal 2019, SunPower had one stock incentive plan: the SunPower Corporation 2015 Omnibus Incentive Plan ("2015 Plan"). The 2015 Plan was adopted by the SunPower's Board of Directors in February 2015, and was approved by shareholders in June 2015. The 2015 Plan allows for the grant of options, as well as grant of stock appreciation rights, restricted stock grants, restricted stock units and other equity rights. The 2015 Plan also allows for tax withholding obligations related to stock option exercises or restricted stock awards to be satisfied through the retention of shares otherwise released upon vesting.

The 2015 Plan includes an automatic annual increase mechanism equal to the lower of three percent of the outstanding shares of all classes of the SunPower's common stock measured on the last day of the immediately preceding fiscal year, 6 million shares, or such other number of shares as determined by SunPower's Board of Directors. In fiscal 2015, the SunPower's Board of Directors voted to reduce the

stock incentive plan's automatic increase from 3% to 2% for 2016. As of December 31, 2019, approximately 12.1 million shares were available for grant under the 2015 Plan.

Incentive stock options, nonstatutory stock options, and stock appreciation rights may be granted at no less than the fair value of the common stock on the date of grant. The options and rights become exercisable when and as determined by SunPower's Board of Directors, although these terms generally do not exceed ten years for stock options. SunPower has not granted stock options since fiscal 2008. All previously granted stock options have been exercised or expired and accordingly no options remain outstanding. Under the 2015 Plan, the restricted stock grants and restricted stock units typically vest in equal installments annually over three or four years.

The majority of shares issued are net of the minimum statutory withholding requirements that SunPower pays on behalf of its employees. During fiscal 2019, 2018, and 2017, SunPower withheld 0.8 million, 0.7 million and 0.6 million shares, respectively, to satisfy the employees' tax obligations. SunPower pays such withholding requirements in cash to the appropriate taxing authorities. Shares withheld are treated as common stock repurchases for accounting and disclosure purposes and reduce the number of shares outstanding upon vesting.

There were no options outstanding and exercisable as of December 31, 2019. The intrinsic value of the options exercised in fiscal 2019, 2018, and 2017 were zero, zero, and \$1.7 respectively. There were no stock options granted in fiscal 2019, 2018, and 2017.

The following table summarizes SunPower's restricted stock activities:

	Restricted Stock Awards and Units	
	Shares	Weighted-Average Grant Date Fair Value Per Share
	(in thousands)	(in dollars)^(a)
OUTSTANDING AS OF JANUARY 1ST, 2017	6,147	21.85
Granted	4,863	6.76
Vested ^(b)	(1,738)	25.87
Forfeited	(1,979)	18.15
OUTSTANDING AS OF JANUARY 1ST, 2018	7,293	11.83
Granted	4,449	7.77
Vested ^(b)	(2,266)	14.45
Forfeited	(1,816)	10.10
OUTSTANDING AS OF JANUARY 1ST, 2019	7,660	9.11
Granted	5,430	6.82
Vested ^(b)	(2,460)	9.65
Forfeited	(1,304)	8.28
OUTSTANDING AS OF DECEMBER 31, 2019	9,326	7.75

(a) SunPower estimates the fair value of the restricted stock unit awards as the stock price on the grant date.

(b) Restricted stock awards and units vested include shares withheld on behalf of employees to satisfy the minimum statutory tax withholding requirements.

D) Share-based payment expense

Share-based payment expense before tax was broken down as follows:

As of December 31, (M\$)	2019	2018	2017
Total restricted shares plans	180	264	135
SunPower plans	26	21	31
Capital increase reserved for employees	27	30	16
TOTAL	233	315	182

During the year 2019, the main assumptions used for the valuation of the cost of the capital increase reserved for employees for both the classic and the leverage schemes were the following:

For the year ended December 31,	2019
Date of the Board of Directors meeting that decided the issue	September 19, 2018
Subscription price (€) ^(a)	40.10
Share price at the reference date (€) ^(b)	49.91
Number of shares (in millions)	10.05
Risk free interest rate (%) ^(c)	(0.419)
Employees loan financing rate (%) ^(d)	4.11
Non transferability cost (% of the reference's share price)	19.21
Expenses (\$ million)	27.00

(a) Average of the closing TOTAL share prices during the twenty trading days prior to the subscription period, after deduction of a 20% discount.

(b) Closing share price on April 25, 2019, date on which the Chief Executive Officer set the subscription period.

(c) Zero coupon Euro swap rate at 5 years.

(d) Average of 5 year consumer's credit rates.

NOTE 10 Payroll, staff and employee benefits obligations

10.1 Employee benefits obligations

ACCOUNTING POLICIES

In accordance with the laws and practices of each country, the Group participates in employee benefit plans offering retirement, death and disability, healthcare and special termination benefits. These plans provide benefits based on various factors such as length of service, salaries, and contributions made to the governmental bodies responsible for the payment of benefits.

These plans can be either defined contribution or defined benefit pension plans and may be entirely or partially funded with investments made in various non-Group instruments such as mutual funds, insurance contracts, and other instruments.

For defined contribution plans, expenses correspond to the contributions paid.

Defined benefit obligations are determined according to the Projected Unit Method. Actuarial gains and losses may arise from differences between actuarial valuation and projected commitments (depending on new calculations or assumptions) and between projected and actual return of plan assets. Such gains and losses are recognized in the statement of comprehensive income, with no possibility to subsequently recycle them to the income statement.

The past service cost is recorded immediately in the statement of income, whether vested or unvested.

The net periodic pension cost is recognized under "Other operating expenses".

Liabilities for employee benefits obligations consist of the following:

As of December 31, (M\$)	2019	2018	2017
Pension benefits liabilities	2,651	2,545	2,877
Other benefits liabilities	742	669	705
Restructuring reserves (early retirement plans)	108	149	153
TOTAL	3,501	3,363	3,735
Net liabilities relating to assets held for sale	-	-	-

Description of plans and risk management

The Group operates, for the benefit of its current and former employees, both defined benefit plans and defined contribution plans.

The Group recognized a charge of \$133 million for defined contribution plans in 2019 (\$130 million in 2018 and \$128 million in 2017).

The Group's main defined benefit pension plans are located in France, the United Kingdom, the United States, Belgium and Germany. Their main characteristics, depending on the country-specific regulatory environment, are the following:

- the benefits are usually based on the final salary and seniority;
- they are usually funded (pension fund or insurer);
- they are usually closed to new employees who benefit from defined contribution pension plans;
- they are paid in annuity or in lump sum.

The pension benefits include also termination indemnities and early retirement benefits. The other benefits are employer contributions to post-employment medical care.

In order to manage the inherent risks, the Group has implemented a dedicated governance framework to ensure the supervision of the different plans. These governance rules provide for:

- the Group's representation in key governance bodies or monitoring committees;
- the principles of the funding policy;
- the general investment policy, including for most plans the establishment of a monitoring committee to define and follow the investment strategy and performance and to ensure the principles in respect of investment allocation are respected;
- a procedure to approve the establishment of new plans or the amendment of existing plans;
- principles of administration, communication and reporting.

Change in benefit obligations and plan assets

The fair value of the defined benefit obligation and plan assets in the Consolidated Financial Statements is detailed as follows:

As of December 31, (M\$)	Pension benefits			Other benefits		
	2019	2018	2017	2019	2018	2017
Change in benefit obligation						
Benefit obligation at beginning of year	11,501	12,872	12,164	669	705	648
Current service cost	214	236	263	13	14	16
Interest cost	295	296	320	17	17	17
Past service cost	4	(1)	239	–	(2)	12
Settlements	(20)	(141)	(1)	(9)	–	–
Plan participants' contributions	7	8	7	–	–	–
Benefits paid	(667)	(902)	(717)	(26)	(28)	(27)
Actuarial losses / (gains)	847	(372)	(450)	87	(29)	(36)
Foreign currency translation and other	104	(495)	1,047	(9)	(8)	75
Benefit obligation at year-end	12,285	11,501	12,872	742	669	705
<i>Of which plans entirely or partially funded</i>	11,584	10,864	12,140	–	–	–
<i>Of which plans not funded</i>	701	637	732	742	669	705
Change in fair value of plan assets						
Fair value of plan assets at beginning of year	(9,145)	(10,205)	(9,123)	–	–	–
Interest income	(255)	(261)	(256)	–	–	–
Actuarial losses / (gains)	(745)	424	(344)	–	–	–
Settlements	11	129	–	–	–	–
Plan participants' contributions	(7)	(8)	(7)	–	–	–
Employer contributions	(172)	(417)	(171)	–	–	–
Benefits paid	573	778	591	–	–	–
Foreign currency translation and other	(29)	415	(895)	–	–	–
Fair value of plan assets at year-end	(9,769)	(9,145)	(10,205)	–	–	–
Unfunded status	2,516	2,356	2,667	742	669	705
Asset ceiling	34	28	40	–	–	–
NET RECOGNIZED AMOUNT	2,550	2,384	2,707	742	669	705
Pension benefits and other benefits liabilities	2,651	2,545	2,877	742	669	705
Other non-current assets	(101)	(161)	(170)	–	–	–
Net benefit liabilities relating to assets held for sale	–	–	–	–	–	–

As of December 31, 2019, the contribution from the main geographical areas for the net pension liability in the balance sheet is: 70% for the Euro area, 11% for the United Kingdom and 16% for the United States.

The amounts recognized in the consolidated income statement and the consolidated statement of comprehensive income for defined benefit plans are detailed as follows:

For the year ended December 31, (M\$)	Pension benefits			Other benefits		
	2019	2018	2017	2019	2018	2017
Current service cost	214	236	263	13	14	16
Past service cost	4	(1)	239	–	(2)	12
Settlements	(10)	(12)	(1)	(9)	–	–
Net interest cost	39	35	64	17	17	17
BENEFIT AMOUNTS RECOGNIZED ON PROFIT & LOSS	247	258	565	21	29	45
Actuarial (Gains) / Losses						
– Effect of changes in demographic assumptions	(166)	(1)	(16)	(2)	(21)	3
– Effect of changes in financial assumptions	1,071	(354)	(241)	89	(3)	(5)
– Effect of experience adjustments	(59)	(17)	(193)	–	(5)	(34)
– Actual return on plan assets	(745)	424	(344)	–	–	–
Effect of asset ceiling	3	(11)	7	–	–	–
BENEFIT AMOUNTS RECOGNIZED ON EQUITY	104	41	(787)	87	(29)	(36)
TOTAL BENEFIT AMOUNTS RECOGNIZED ON COMPREHENSIVE INCOME	351	299	(222)	108	–	9

Expected future cash outflows

The average duration of accrued benefits is approximately 13 years for defined pension benefits and 18 years for other benefits. The Group expects to pay contributions of \$239 million in respect of funded pension plans in 2020.

Estimated future benefits either financed from plan assets or directly paid by the employer are detailed as follows:

Estimated future payments (M\$)	Pension benefits	Other benefits
2020	741	27
2021	497	27
2022	467	27
2023	414	26
2024	399	26
2025-2029	2,142	120

Type of assets

Asset allocation as of December 31,	Pension benefits		
	2019	2018	2017
Equity securities	25%	24%	26%
Debt securities	46%	47%	43%
Monetary	1%	1%	3%
Annuity contracts	20%	20%	20%
Real estate	8%	8%	8%

Investments on equity and debt markets are quoted on active markets.

Main actuarial assumptions and sensitivity analysis

Assumptions used to determine benefits obligations

As of December 31,	Pension benefits			Other benefits		
	2019	2018	2017	2019	2018	2017
Discount rate (weighted average for all regions)	1.84%	2.68%	2.48%	1.71%	2.56%	2.52%
Of which Euro zone	0.73%	1.72%	1.71%	0.94%	1.87%	1.93%
Of which United States	3.25%	4.00%	3.75%	3.25%	4.00%	3.75%
Of which United Kingdom	2.25%	3.00%	2.50%	–	–	–
Inflation rate (weighted average for all regions)	2.20%	2.44%	2.40%	–	–	–
Of which Euro zone	1.21%	1.50%	1.50%	–	–	–
Of which United States	2.50%	2.50%	2.50%	–	–	–
Of which United Kingdom	3.25%	3.50%	3.50%	–	–	–

The discount rate retained is determined by reference to the high quality rates for AA-rated corporate bonds for a duration equivalent to that of the obligations. It derives from a benchmark per monetary area of different market data at the closing date.

Sensitivity to inflation in respect of defined benefit pension plans is not material in the United States.

A 0.5% increase or decrease in discount rates – all other things being equal – would have the following approximate impact on the benefit obligation:

(M\$)	0.5% Increase	0.5% Decrease
Benefit obligation as of December 31, 2019	(821)	915

A 0.5% increase or decrease in inflation rates – all other things being equal – would have the following approximate impact on the benefit obligation:

(M\$)	0.5% Increase	0.5% Decrease
Benefit obligation as of December 31, 2019	576	(516)

10.2 Payroll and staff

For the year ended December 31,	2019	2018	2017
Personnel expenses (M\$)			
Wages and salaries (including social charges)	8,922	9,099	7,985
Group employees at December 31, France			
– Management	13,745	13,377	11,880
– Other	22,531	22,629	19,372
International			
– Management	16,924	16,963	16,489
– Other	54,576	51,491	50,536
TOTAL	107,776	104,460	98,277

The number of employees includes only employees of fully consolidated subsidiaries.

NOTE 11 Income taxes

ACCOUNTING POLICIES

Income taxes disclosed in the statement of income include the current tax expenses (or income) and the deferred tax expenses (or income).

The expense (or income) of current tax is the estimated amount of the tax due for the taxable income of the period.

The Group uses the method whereby deferred income taxes are recorded based on the temporary differences between the carrying amounts of assets and liabilities recorded in the balance sheet and their tax bases, and on carry-forwards of unused tax losses and tax credits.

Deferred tax assets and liabilities are measured using the tax rates that have been enacted or substantially enacted at the balance sheet date. The tax rates used depend on the timing of reversals of temporary differences, tax losses and other tax credits. The effect of a change in tax rate is recognized either in the Consolidated Statement of Income or in shareholders' equity depending on the item it relates to.

Deferred tax resulting from temporary differences between the carrying amounts of equity-method investments and their tax bases are recognized. The deferred tax calculation is based on the expected future tax effect (dividend distribution rate or tax rate on capital gains).

Income taxes are detailed as follows:

For the year ended December 31, (M\$)	2019	2018	2017
Current income taxes	(5,469)	(6,971)	(3,416)
Deferred income taxes	(403)	455	387
TOTAL INCOME TAXES	(5,872)	(6,516)	(3,029)

Before netting deferred tax assets and liabilities by fiscal entity, the components of deferred tax balances are as follows:

As of December 31, (M\$)	2019	2018	2017
Net operating losses and tax carry forwards	3,752	3,779	3,014
Employee benefits	970	995	1,153
Other temporary non-deductible provisions	8,660	8,409	6,344
Differences in depreciations	(16,029)	(15,469)	(13,387)
Other temporary tax deductions	(2,995)	(2,541)	(2,746)
NET DEFERRED TAX LIABILITY	(5,642)	(4,827)	(5,622)

The reserves of TOTAL subsidiaries that would be taxable if distributed but for which no distribution is planned, and for which no deferred tax liability has therefore been recognized, totaled \$11,197 million as of December 31, 2019.

Deferred tax assets not recognized as of December 31, 2019 amount to \$3,479 million as their future recovery was not regarded as probable given the expected results of the entities. Particularly in the Exploration & Production segment, when the affiliate or the field concerned is in its

exploration phase, the net operating losses created during this phase will be useable only if a final investment and development decision is made. Accordingly, the time limit for the utilization of those net operating losses is not known.

Deferred tax assets not recognized relate notably to France for an amount of \$1,145 million, to United States for an amount of \$319 million, to Nigeria for an amount of \$303 million and to Canada for an amount of \$206 million.

After netting deferred tax assets and liabilities by fiscal entity, deferred taxes are presented on the balance sheet as follows:

As of December 31, (M\$)	2019	2018	2017
Deferred tax assets	6,216	6,663	5,206
Deferred tax liabilities	(11,858)	(11,490)	(10,828)
NET AMOUNT	(5,642)	(4,827)	(5,622)

The net deferred tax variation in the balance sheet is analyzed as follows:

As of December 31, (M\$)	2019	2018	2017
OPENING BALANCE	(4,827)	(5,622)	(6,692)
Deferred tax on income	(403)	455	387
Deferred tax on shareholders' equity ^(a)	255	27	(490)
Changes in scope of consolidation and others	(695)	151	1,154
Currency translation adjustment	28	162	19
CLOSING BALANCE	(5,642)	(4,827)	(5,622)

(a) This amount includes mainly deferred taxes on actuarial gains and losses, current income taxes and deferred taxes for changes in fair value of listed securities classified as financial assets available for sale, as well as deferred taxes related to the cash flow hedge (see Note 9 to the Consolidated Financial Statements).

Reconciliation between provision for income taxes and pre-tax income:

For the year ended December 31, (M\$)	2019	2018	2017
Consolidated net income	11,438	11,550	8,299
Provision for income taxes	5,872	6,516	3,029
PRE-TAX INCOME	17,310	18,066	11,328
French statutory tax rate	34.43%	34.43%	44.43%
THEORETICAL TAX CHARGE	(5,960)	(6,220)	(5,033)
Difference between French and foreign income tax rates	(2,007)	(3,058)	(633)
Tax effect of equity in income (loss) of affiliates	1,173	1,080	888
Permanent differences	1,422	1,740	1,491
Adjustments on prior years income taxes	12	(40)	(91)
Adjustments on deferred tax related to changes in tax rates	(270)	2	(309)
Changes in valuation allowance of deferred tax assets	(242)	(20)	658
NET PROVISION FOR INCOME TAXES	(5,872)	(6,516)	(3,029)

The French statutory tax rate includes the standard corporate tax rate (33.33%), additional and exceptional applicable taxes that bring the overall tax rate to 34.43% in 2019 (versus 34.43% in 2018 and 44.43% in 2017).

Permanent differences are mainly due to impairment of goodwill and to dividends from non-consolidated companies as well as the specific taxation rules applicable to certain activities.

Net operating losses and carried forward tax credits

Deferred tax assets related to carried forward tax credits on net operating losses expire in the following years:

As of December 31, (M\$)	2019	2018	2017
2018			75
2019		90	64
2020	71	70	60
2021	48	38	24
2022 ^(a)	27	32	1,330
2023 ^(b)	19	1,423	
2024 and after	1,310		
Unlimited	2,277	2,126	1,461
TOTAL	3,752	3,779	3,014

(a) 2022 and after for 2017.

(b) 2023 and after for 2018.

As of December 31, 2019 the schedule of deferred tax assets related to carried forward tax credits on net operating losses for the main countries is as follows:

As of December 31, 2019 (M\$)	Tax				
	Australia	United States	Canada	France	United Kingdom
2020					
2021					
2022					
2023					
2024 and after		595	675		
Unlimited	1,057	120		520	313
TOTAL	1,057	715	675	520	313

NOTE 12 Provisions and other non-current liabilities

12.1 Provisions and other non-current liabilities

ACCOUNTING POLICIES

A provision is recognized when the Group has a present obligation (legal or constructive) as a result of a past event for which it is probable that an outflow of resources will be required and when a reliable estimate can be made regarding the amount of the obligation. The amount of the liability corresponds to the best possible estimate.

Provisions and non-current liabilities are comprised of liabilities for which the amount and the timing are uncertain. They arise from environmental risks, legal and tax risks, litigation and other risks.

As of December 31, (M\$)	2019	2018	2017
Litigations and accrued penalty claims	386	736	706
Provisions for environmental contingencies	742	862	964
Asset retirement obligations	14,492	14,286	12,240
Other non-current provisions	2,927	3,144	1,370
<i>of which restructuring activities</i>	135	134	160
<i>of which financial risks related to non-consolidated and equity consolidated affiliates</i>	130	100	59
<i>of which contingency reserve on solar panels warranties (SunPower)</i>	140	173	177
Other non-current liabilities	2,066	2,404	706
TOTAL	20,613	21,432	15,986

In 2019, litigation reserves amount to \$386 million of which \$286 million in the Exploration & Production.

In 2018, litigation reserves amounted to \$736 million of which \$510 million in the Exploration & Production, notably in Angola, Nigeria and Brazil.

In 2017, litigation reserves amounted to \$706 million of which \$458 million was in the Exploration & Production, notably in Angola and Nigeria.

Other non-current liabilities mainly include debts whose maturity is more than one year related to fixed assets acquisitions.

Changes in provisions and other non-current liabilities

Changes in provisions and other non-current liabilities are as follows:

(M\$)	As of January 1	Allowances	Reversals	Currency translation adjustment	Other	As of December 31
2019	21,432	1,248	(2,414)	(33)	380	20,613
<i>of which asset retirement obligations</i>		639	(460)			
<i>of which provisions for environmental contingencies</i>		30	(92)			
<i>of which provisions for restructuring of activities</i>		60	(122)			
2018	15,986	2,416	(1,378)	(519)	4,927	21,432
<i>of which asset retirement obligations</i>		530	(320)			
<i>of which provisions for environmental contingencies</i>		33	(111)			
<i>of which provisions for restructuring of activities</i>		149	(106)			
2017	16,846	1,172	(1,612)	681	(1,101)	15,986
<i>of which asset retirement obligations</i>		544	(330)			
<i>of which provisions for environmental contingencies</i>		37	(120)			
<i>of which provisions for restructuring of activities</i>		48	(84)			

Changes in the asset retirement obligation

ACCOUNTING POLICIES

Asset retirement obligations, which result from a legal or constructive obligation, are recognized based on a reasonable estimate in the period in which the obligation arises.

The associated asset retirement costs are capitalized as part of the carrying amount of the underlying asset and depreciated over the useful life of this asset.

An entity is required to measure changes in the liability for an asset retirement obligation due to the passage of time (accretion) by applying a risk-free discount rate to the amount of the liability. Given the long term nature of expenditures related to our asset retirement obligations, the rate is determined on the USD area for a long-term horizon. The increase of the provision due to the passage of time is recognized as "Other financial expense".

The discount rate used in 2019 for the valuation of asset retirement obligation is 4.5% as in 2018 and 2017 (the expenses are estimated at current currency values with an inflation rate of 2%). A decrease of 0.5% of this rate would increase the asset retirement obligation by \$1,250 million,

with a corresponding impact in tangible assets, and with a negative impact of approximately \$74 million on the following years net income. Conversely, an increase of 0.5% would have a nearly symmetrical impact compared to the effect of the decrease of 0.5%.

Changes in the asset retirement obligation are as follows:

(M\$)	As of January 1	Accretion	Revision in estimates	New obligations	Spending on existing obligations	Currency translation adjustment	Other	As of December 31
2019	14,286	639	(601)	567	(460)	47	14	14,492
2018	12,240	530	(458)	811	(320)	(364)	1,847	14,286
2017	12,665	544	(1,107)	334	(330)	448	(314)	12,240

12.2 Other risks and contingent liabilities

TOTAL is not currently aware of any exceptional event, dispute, risks or contingent liabilities that could have a material impact on the assets and liabilities, results, financial position or operations of the Group.

NOTE 13 Off balance sheet commitments and lease contracts

13.1 Off balance sheet commitments and contingencies

As of December 31, 2019 (M\$)	Maturity and installments			
	Total	Less than 1 year	Between 1 and 5 years	More than 5 years
Non-current debt obligations net of hedging instruments (Note 15)	40,931	–	19,888	21,043
Current portion of non-current debt obligations net of hedging instruments (Note 15)	5,331	5,331	–	–
Lease obligations (Note 13.2)	7,465	1,202	2,883	3,380
Asset retirement obligations (Note 12)	14,492	617	3,153	10,722
CONTRACTUAL OBLIGATIONS RECORDED IN THE BALANCE SHEET	68,219	7,150	25,924	35,145
Lease obligations for low value assets, short term contracts or not yet commenced (Note 13.2)	2,077	536	879	662
Purchase obligations	147,516	10,763	38,189	98,564
Contractual obligations not recorded in the balance sheet	149,593	11,299	39,068	99,226
TOTAL OF CONTRACTUAL OBLIGATIONS	217,812	18,449	64,992	134,371
Guarantees given for excise taxes	2,012	1,876	17	119
Guarantees given against borrowings	14,510	306	7,372	6,832
Indemnities related to sales of businesses	331	163	16	152
Guarantees of current liabilities	172	79	60	33
Guarantees to customers / suppliers	12,318	1,435	2,169	8,714
Letters of credit	2,786	2,768	18	–
Other operating commitments	22,055	3,240	1,202	17,613
TOTAL OF OTHER COMMITMENTS GIVEN	54,184	9,867	10,854	33,463
Mortgages and liens received	85	23	37	25
Sales obligations	93,441	7,135	31,330	54,976
Other commitments received	22,358	16,845	1,705	3,808
TOTAL OF COMMITMENTS RECEIVED	115,884	24,003	33,072	58,809
<i>Of which commitments given relating to joint ventures</i>	39,055	461	11,822	26,772
<i>Of which commitments given relating to associates</i>	31,465	913	8,381	22,171

As of December 31, 2018 (M\$)	Maturity and installments			
	Total	Less than 1 year	Between 1 and 5 years	More than 5 years
Non-current debt obligations net of hedging instruments (Note 15)	37,784	–	19,072	18,712
Current portion of non-current debt obligations net of hedging instruments (Note 15)	5,027	5,027	–	–
Finance lease obligations (Note 13.2)	1,878	213	468	1,197
Asset retirement obligations (Note 12)	14,286	844	3,388	10,054
CONTRACTUAL OBLIGATIONS RECORDED IN THE BALANCE SHEET	58,975	6,084	22,928	29,963
Operating lease obligations (Note 13.2)	9,130	1,644	3,691	3,795
Purchase obligations	121,119	9,708	30,652	80,759
CONTRACTUAL OBLIGATIONS NOT RECORDED IN THE BALANCE SHEET	130,249	11,352	34,343	84,554
TOTAL OF CONTRACTUAL OBLIGATIONS	189,224	17,436	57,271	114,517
Guarantees given for excise taxes	2,043	1,904	12	127
Guarantees given against borrowings	18,680	169	68	18,443
Indemnities related to sales of businesses	334	165	10	159
Guarantees of current liabilities	222	83	74	65
Guarantees to customers / suppliers	8,463	1,222	847	6,394
Letters of credit	3,515	3,164	160	191
Other operating commitments	29,416	2,085	1,046	26,285
TOTAL OF OTHER COMMITMENTS GIVEN	62,673	8,792	2,217	51,664
Mortgages and liens received	84	23	33	28
Sales obligations	91,695	7,989	27,709	55,997
Other commitments received	21,565	15,527	1,328	4,710
TOTAL OF COMMITMENTS RECEIVED	113,344	23,539	29,070	60,735
<i>Of which commitments given relating to joint ventures</i>	<i>42,768</i>	<i>162</i>	<i>4,425</i>	<i>38,181</i>
<i>Of which commitments given relating to associates</i>	<i>39,437</i>	<i>773</i>	<i>8,378</i>	<i>30,286</i>

As of December 31, 2017 (M\$)	Maturity and installments			
	Total	Less than 1 year	Between 1 and 5 years	More than 5 years
Non-current debt obligations net of hedging instruments (Note 15)	39,544	–	19,540	20,004
Current portion of non-current debt obligations net of hedging instruments (Note 15)	4,646	4,646	–	–
Finance lease obligations (Note 13.2)	1,156	39	261	856
Asset retirement obligations (Note 12)	12,240	485	2,165	9,590
CONTRACTUAL OBLIGATIONS RECORDED IN THE BALANCE SHEET	57,586	5,170	21,966	30,450
Operating lease obligations (Note 13.2)	6,441	1,401	2,886	2,154
Purchase obligations	86,366	8,605	23,917	53,844
CONTRACTUAL OBLIGATIONS NOT RECORDED IN THE BALANCE SHEET	92,807	10,006	26,803	55,998
TOTAL OF CONTRACTUAL OBLIGATIONS	150,393	15,176	48,769	86,448
Guarantees given for excise taxes	2,073	1,938	29	106
Guarantees given against borrowings	16,080	411	10,607	5,062
Indemnities related to sales of businesses	341	120	61	160
Guarantees of current liabilities	321	91	109	121
Guarantees to customers / suppliers	4,180	1,100	268	2,812
Letters of credit	2,965	2,680	102	183
Other operating commitments	17,431	1,165	637	15,629
TOTAL OF OTHER COMMITMENTS GIVEN	43,391	7,505	11,813	24,073
Mortgages and liens received	89	23	26	40
Sales obligations	67,014	6,263	21,513	39,238
Other commitments received	7,398	3,549	1,111	2,738
TOTAL OF COMMITMENTS RECEIVED	74,501	9,835	22,650	42,016
<i>Of which commitments given relating to joint ventures</i>	<i>36,847</i>	<i>160</i>	<i>12,225</i>	<i>24,462</i>
<i>Of which commitments given relating to associates</i>	<i>20,629</i>	<i>580</i>	<i>5,991</i>	<i>14,058</i>

A) Contractual obligations

Debt obligations

“Non-current debt obligations” are included in the items “Non-current financial debt” and “Non-current financial assets” of the consolidated balance sheet. It includes the non-current portion of swaps hedging bonds, and excludes non-current lease obligations of \$6,263 million.

The current portion of non-current debt is included in the items “Current borrowings”, “Current financial assets” and “Other current financial liabilities” of the consolidated balance sheet. It includes the current portion of swaps hedging bonds, and excludes the current portion of lease obligations of \$1,202 million.

The information regarding contractual obligations linked to indebtedness is presented in Note 15 to the Consolidated Financial Statements.

Lease contracts

The information regarding leases is presented in Note 13.2 to the Consolidated Financial Statements.

Asset retirement obligations

This item represents the discounted present value of Exploration & Production and Integrated Gas, Renewables & Power asset retirement obligations, primarily asset removal costs at the completion date. The information regarding contractual obligations linked to asset retirement obligations is presented in Note 12 to the Consolidated Financial Statements.

Purchase obligations

Purchase obligations are obligations under contractual agreements to purchase goods or services, including capital projects. These obligations are enforceable and legally binding on the Company and specify all significant terms, including the amount and the timing of the payments.

These obligations mainly include: unconditional hydrocarbon purchase contracts (except where an active, highly-liquid market exists and when the hydrocarbons are expected to be re-sold shortly after purchase) in the Integrated Gas, Renewables & Power segment, reservation of transport capacities in pipelines, unconditional exploration works and development works in the Exploration & Production segment, and contracts for capital investment projects in the Refining & Chemicals segment.

B) Other commitments given

Guarantees given for excise taxes

These consist of guarantees given by the Group to customs authorities in order to guarantee the payments of taxes and excise duties on the importation of oil and gas products, mostly in France.

Guarantees given against borrowings

The Group guarantees bank debt and lease obligations of certain non-consolidated subsidiaries and equity affiliates. Maturity dates vary, and guarantees will terminate on payment and/or cancellation of the obligation. A payment would be triggered by failure of the guaranteed party to fulfill its obligation covered by the guarantee, and no assets are held as collateral for these guarantees. As of December 31, 2019, the maturities of these guarantees are up to 2043.

As of December 31, 2019, the guarantees provided by TOTAL S.A. in connection with the financing of the Ichthys LNG project amount to \$4,937 million. As of December 31, 2018, the guarantees amounted to \$9,425 million.

As of December 31, 2019, the guarantees provided by TOTAL S.A. in connection with the financing of the Yamal LNG project for an amount of \$3,688 million by TOTAL S.A.. As of December 31, 2018, the guarantees amounted to \$3,875 million.

As of December 31, 2019, TOTAL S.A. has confirmed guarantees for TOTAL Refining SAUDI ARABIA SAS shareholders' advances for an amount of \$1,184 million. As of December 31, 2018, the guarantees amounted to \$1,462 million.

As of December 31, 2019, the guarantee given in 2008 by TOTAL S.A. in connection with the financing of the Yemen LNG project amounts to \$509 million. As of December 31, 2018, the guarantee amounted to \$551 million.

As of December 31, 2019, guarantees provided by TOTAL S.A. in connection with the financing of the Bayport Polymers LLC project, amount to \$1,820 million as in 2018.

Indemnities related to sales of businesses

In the ordinary course of business, the Group executes contracts involving standard indemnities for the oil industry and indemnities specific to transactions such as sales of businesses. These indemnities might include claims against any of the following: environmental,

tax and shareholder matters, intellectual property rights, governmental regulations and employment-related matters, dealer, supplier, and other commercial contractual relationships. Performance under these indemnities would generally be triggered by a breach of terms of the contract or by a third party claim. The Group regularly evaluates the probability of having to incur costs associated with these indemnities.

Other guarantees given

Non-consolidated subsidiaries

The Group also guarantees the current liabilities of certain non-consolidated subsidiaries. Performance under these guarantees would be triggered by a financial default of the entity.

Operating agreements

As part of normal ongoing business operations and consistent with generally accepted and recognized industry practices, the Group enters into numerous agreements with other parties. These commitments are often entered into for commercial purposes, for regulatory purposes or for other operating agreements.

C) Commitments received

Sales obligations

These amounts represent binding obligations under contractual agreements to sell goods, including in particular unconditional hydrocarbon sales contracts (except where an active, highly-liquid market exists and when the volumes are expected to be re-sold shortly after purchase).

13.2 Lease contracts

ACCOUNTING PRINCIPLES

A lease contract is a contract that grants lessee the right to use an identified asset for a specified period of time. At lease inception, an asset corresponding to right of use and a debt are recognized in the lessee's balance sheet. Carrying value of right of use corresponds to present value of future lease payments plus any direct costs incurred for concluding the contract. Lease debt is recorded as a liability in the

balance sheet under financial debts. Rights of use are depreciated over the useful lives applied by the Group.

Leases that are of short duration or that relate to low value assets are not recorded in the balance sheet, in accordance with the exemptions in the standard. They are presented as off-balance sheet commitments.

The Group mainly leases real estate, retail stations, ships, and other equipment (see Note 7 to the Consolidated Financial Statements).

Note 1 explains the impacts of the first-time application of IFRS 16 as at 1 January 2019.

Reconciliation between the operating lease commitments disclosed under IAS 17 at December 31, 2018 and the additional lease liabilities recognized on the balance sheet at January 1, 2019

The reconciliation is as follows:

M\$	January 1, 2019
OPERATING LEASE COMMITMENTS AT DECEMBER 31, 2018	9,130
Commitments relating to IFRS 16 exemptions:	(417)
– <i>Low value assets</i>	(90)
– <i>Short-term leases</i>	(327)
Leases not yet commenced at January 1, 2019	(608)
Commitments relating to service component of lease contracts	(760)
Commitments relating to leases of non identified assets	(628)
Variable lease payments	(6)
Other impacts	204
Impact of discounting	(1,360)
ADDITIONAL LEASE LIABILITY	5,555
Finance lease liability at December 31, 2018	1,878
TOTAL LEASE LIABILITY AT JANUARY 1, 2019	7,433

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Note 13

Other information required on lease debts, notably their maturity, is presented in Note 15 to the consolidated financial statements.

The future minimum lease payments on leases to which the Group is committed are as follows:

	Leases not recorded in balance sheet	Leases recorded in balance sheet
For the year ended December 31, 2019 (M\$)		
2020	536	1,586
2021	360	1,228
2022	212	1,019
2023	162	835
2024	145	766
2025 and beyond	662	4,757
TOTAL MINIMUM PAYMENTS	2,077	10,191
Less financial expenses		(2,726)
NOMINAL VALUE OF CONTRACTS		7,465
Less current portion of lease contracts		(1,202)
NON-CURRENT LEASE LIABILITIES		6,263

	Operating leases	Finance leases
For the year ended December 31, 2018 (M\$)		
2019	1,644	263
2020	1,282	183
2021	967	182
2022	772	179
2023	669	179
2024 and beyond	3,796	1,826
TOTAL MINIMUM PAYMENTS	9,130	2,812
Less financial expenses		(934)
NOMINAL VALUE OF CONTRACTS		1,878
Less current portion of finance lease contracts		(213)
NON-CURRENT FINANCE LEASE LIABILITIES		1,665

	Operating leases	Finance leases
For the year ended December 31, 2017 (M\$)		
2018	1,401	76
2019	988	67
2020	814	67
2021	623	65
2022	462	65
2023 and beyond	2,153	864
TOTAL MINIMUM PAYMENTS	6,441	1,204
Less financial expenses		(48)
NOMINAL VALUE OF CONTRACTS		1,156
Less current portion of finance lease contracts		(39)
NON-CURRENT FINANCE LEASE LIABILITIES		1,117

For the year ended December 31, 2019, net rental expense recorded in the income statement and incurred under short term leases or low value assets leases and under variable lease payments is \$366 million and \$132 million, respectively.

Net rental expense recorded in the income statement and incurred under operating leases for the year ended December 31, 2018 is \$1,304 million (against \$1,467 million in 2017).

NOTE 14 Financial assets and liabilities analysis per instrument class and strategy

The financial assets and liabilities disclosed in the balance sheet are detailed as follows:

As of December 31, 2019 (M\$)	Amortized cost	Fair value through P&L	Other Comprehensive Income	Fair value of hedging instruments	Total	Fair value
ASSETS / (LIABILITIES)						
Equity affiliates: loans	3,999	–	–	–	3,999	3,999
Other investments	–	1,272	506	–	1,778	1,778
Non-current financial assets	164	236	–	512	912	912
Other non-current assets	2,314	–	–	–	2,314	2,314
Accounts receivable, net ^(b)	18,488	–	–	–	18,488	18,488
Other operating receivables	6,713	4,791	–	2	11,506	11,506
Current financial assets	3,870	122	–	–	3,992	3,992
Cash and cash equivalents	27,352	–	–	–	27,352	27,352
TOTAL FINANCIAL ASSETS	62,900	6,421	506	514	70,341	70,341
TOTAL NON-FINANCIAL ASSETS					202,953	
TOTAL ASSETS					273,294	
Non-current financial debt ^(a)	(46,035)	(44)	–	(1,694)	(47,773)	(50,921)
Accounts payable ^(b)	(28,394)	–	–	–	(28,394)	(28,394)
Other operating liabilities	(10,927)	(5,333)	–	(2)	(16,262)	(16,262)
Current borrowings ^(a)	(14,819)	–	–	–	(14,819)	(14,819)
Other current financial liabilities	–	(63)	–	(424)	(487)	(487)
TOTAL FINANCIAL LIABILITIES	(100,175)	(5,440)	–	(2,120)	(107,735)	(110,883)
TOTAL NON-FINANCIAL LIABILITIES					(165,559)	
TOTAL LIABILITIES					(273,294)	

(a) The financial debt is adjusted to the hedged risks value (currency and interest rate) as part of hedge accounting (see Note 15 to the Consolidated Financial Statements).

(b) The impact of offsetting on accounts receivable, net is \$(2,073) million and \$2,073 million on accounts payable.

As of December 31, 2018 (M\$)			Fair value through OCI - equity instruments	Fair value of instruments hedge	Total	Fair value
ASSETS / (LIABILITIES)	Amortized cost	Fair value through P&L				
Equity affiliates: loans	4,755	–	–	–	4,755	4,755
Other investments	–	1,059	362	–	1,421	1,421
Non-current financial assets	–	67	–	613	680	680
Other non-current assets	2,348	–	–	–	2,348	2,348
Accounts receivable, net ^(b)	17,270	–	–	–	17,270	17,270
Other operating receivables	6,994	2,731	–	8	9,733	9,733
Current financial assets	3,536	73	–	45	3,654	3,654
Cash and cash equivalents	27,907	–	–	–	27,907	27,907
TOTAL FINANCIAL ASSETS	62,810	3,930	362	666	67,768	67,768
TOTAL NON-FINANCIAL ASSETS					188,994	
TOTAL ASSETS					256,762	
Non-current financial debt ^(a)	(38,220)	(29)	–	(1,880)	(40,129)	(41,281)
Accounts payable ^(b)	(26,134)	–	–	–	(26,134)	(26,134)
Other operating liabilities	(9,854)	(3,429)	–	(3)	(13,286)	(13,286)
Current borrowings ^(a)	(13,306)	–	–	–	(13,306)	(13,306)
Other current financial liabilities	–	(183)	–	(295)	(478)	(478)
TOTAL FINANCIAL LIABILITIES	(87,514)	(3,641)	–	(2,178)	(93,333)	(94,485)
TOTAL NON-FINANCIAL LIABILITIES					(163,429)	
TOTAL LIABILITIES					(256,762)	

(a) The financial debt is adjusted to the hedged risks value (currency and interest rate) as part of hedge accounting (see Note 15 to the Consolidated Financial Statements).

(b) The impact of offsetting on accounts receivable, net is \$(2,903) million and \$2,903 million on accounts payable.

As of December 31, 2017 (M\$)	Financial instruments related to financing and operational activities							Other financial instruments	Total	Fair value
	Amortized cost	Fair value						Amortized cost		
		Available for sale ^(a)	Held for trading	Financial debt ^(b)	Hedging of Financial Debt	Cash flow hedge	Net investment hedge and other			
ASSETS/(LIABILITIES)										
Equity affiliates: loans	5,135	–	–	–	–	–	–	–	5,135	5,135
Other investments	–	1,727	–	–	–	–	–	–	1,727	1,727
Non-current financial assets	–	–	73	–	337	269	–	–	679	679
Other non-current assets	3,765	50	–	–	–	–	–	–	3,815	3,815
Accounts receivable, net ^(c)	–	–	–	–	–	–	–	14,893	14,893	14,893
Other operating receivables	–	–	1,977	–	–	12	–	7,347	9,336	9,336
Current financial assets	2,970	–	251	–	172	–	–	–	3,393	3,393
Cash and cash equivalents	–	–	–	–	–	–	–	33,185	33,185	33,185
TOTAL FINANCIAL ASSETS	11,870	1,777	2,301	–	509	281	–	55,425	72,163	72,163
TOTAL NON- FINANCIAL ASSETS									170,468	
TOTAL ASSETS									242,631	
Non-current financial debt	(18,470)	–	(20)	(21,768)	(951)	(131)	–	–	(41,340)	(42,886)
Accounts payable ^(c)	–	–	–	–	–	–	–	(26,479)	(26,479)	(26,479)
Other operating liabilities	–	–	(1,794)	–	–	–	–	(8,341)	(10,135)	(10,135)
Current borrowings	(6,925)	–	–	(4,171)	–	–	–	–	(11,096)	(11,095)
Other current financial liabilities	–	–	(88)	–	(157)	–	–	–	(245)	(245)
TOTAL FINANCIAL LIABILITIES	(25,395)	–	(1,902)	(25,939)	(1,108)	(131)	–	(34,820)	(89,295)	(90,840)
TOTAL NON- FINANCIAL LIABILITIES									(153,336)	
TOTAL LIABILITIES									(242,631)	

(a) Financial assets available for sale are measured at their fair value except for unlisted securities and listed securities on non active markets (see Note 8 to the Consolidated Financial Statements).

(b) The financial debt is adjusted to the hedged risks value (currency and interest rate) as part of hedge accounting (see Note 15 to the Consolidated Financial Statements).

(c) The impact of offsetting on accounts receivable, net is \$(3,471) million and \$3,471 million on accounts payable.

NOTE 15 Financial structure and financial costs

15.1 Financial debt and derivative financial instruments

A) Non-current financial debt and derivative financial instruments

As of December 31, 2019 (M\$)

(ASSETS)/LIABILITIES	Secured	Unsecured	Total
Non-current financial debt	6,438	41,335	47,773
<i>of which hedging instruments of non-current financial debt (liabilities)</i>	–	1,694	1,694
Non-current financial assets	(164)	(748)	(912)
<i>of which hedging instruments of non-current financial debt (assets)</i>	–	(512)	(512)
NON-CURRENT NET FINANCIAL DEBT AND RELATED FINANCIAL INSTRUMENTS	6,274	40,587	46,861
Variable rate bonds after fair value hedge	–	19,340	19,340
Fixed rate bonds after cash flow hedge	–	20,499	20,499
Other floating rate debt	72	618	690
Other fixed rate debt	103	322	425
Lease obligations	6,263	–	6,263
Non-current financial assets	(164)	(169)	(333)
Non-current instruments held for trading	–	(23)	(23)
NON-CURRENT NET FINANCIAL DEBT AND RELATED FINANCIAL INSTRUMENTS	6,274	40,587	46,861

As of December 31, 2018 (M\$)

(ASSETS)/LIABILITIES	Secured	Unsecured	Total
Non-current financial debt	1,870	38,259	40,129
<i>of which hedging instruments of non-current financial debt (liabilities)</i>	–	1,880	1,880
Non-current financial assets	–	(680)	(680)
<i>of which hedging instruments of non-current financial debt (assets)</i>	–	(613)	(613)
NON-CURRENT FINANCIAL DEBT AND RELATED FINANCIAL INSTRUMENTS	1,870	37,579	39,449
Variable rates bonds after fair value hedge	–	20,570	20,570
Fixed rate bonds after cash flow hedge	–	15,672	15,672
Other floating rate debt	111	621	732
Other fixed rate debt	94	754	848
Financial lease obligations	1,665	–	1,665
Non-current instruments held for trading	–	(38)	(38)
NON-CURRENT FINANCIAL DEBT AND RELATED FINANCIAL INSTRUMENTS	1,870	37,579	39,449

As of December 31, 2017 (M\$)

(ASSETS)/LIABILITIES	Secured	Unsecured	Total
Non-current financial debt	1,310	40,030	41,340
<i>of which hedging instruments of non-current financial debt (liabilities)</i>	–	1,082	1,082
Non-current financial assets	–	(679)	(679)
<i>of which hedging instruments of non-current financial debt (assets)</i>	–	(606)	(606)
NON-CURRENT FINANCIAL DEBT AND RELATED FINANCIAL INSTRUMENTS	1,310	39,351	40,661
Variable rates bonds after fair value hedge	–	20,620	20,620
Fixed rate bonds after cash flow hedge	–	16,469	16,469
Other floating rate debt	70	1,692	1,762
Other fixed rate debt	123	623	746
Financial lease obligations	1,117	–	1,117
Non-current instruments held for trading	–	(53)	(53)
NON-CURRENT FINANCIAL DEBT AND RELATED FINANCIAL INSTRUMENTS	1,310	39,351	40,661

The bonds, as of December 31, 2019, after taking into account currency and interest rates swaps fair value, is detailed as follows:

Bonds after fair value hedge and variable rate bonds (M\$)	Currency of issuance	Amount after hedging as of December 31, 2019	Amount after hedging as of December 31, 2018	Amount after hedging as of December 31, 2017	Range of current maturities	Range of initial current rate before hedging instruments
Bond	USD	6,276	6,276	7,266	2021 – 2028	2.218% – 3.883%
Bond	USD	300	750	1,385	2020	USLIBOR 3 mois + 0.75%
Bond	CHF	410	204	391	2026 – 2029	0.176% – 0.298%
Bond	NZD	164	252	252	2020	4.750% – 5.000%
Bond	AUD	378	699	850	2021 – 2025	4.000% – 4.250%
Bond	EUR	9,675	10,212	8,266	2020 – 2044	0.250% – 3.125%
Bond	EUR	1,641	1,644	1,639	2020	EURIBOR 3 mois + 0.30% – EURIBOR 3 mois + 0.31%
Bond	CAD	92	93	188	2020	2.130%
Bond	GBP	2,035	1,536	1,855	2020 – 2031	1.405% – 2.250%
Bond	GBP	–	472	470		
Bond	NOK	–	–	103		
Bond	HKD	128	207	212	2025	2.920%
Current portion (less than one year)		(3,661)	(3,679)	(4,156)		
Total principal financing entities^(a)		17,438	18,666	18,721		
TOTAL S.A. ^(b)		1,203	1,203	1,201	2022	0.500%
Other consolidated subsidiaries		699	701	698		
TOTAL BONDS AFTER FAIR VALUE HEDGE		19,340	20,570	20,620		

Bonds after cash flow hedge and fixed rate bonds (M\$)	Currency of issuance	Amount after hedging as of December 31, 2019	Amount after hedging as of December 31, 2018	Amount after hedging as of December 31, 2017	Range of current maturities	Range of initial current rate before hedging instruments
Bond	EUR	10,246	9,268	9,337	2024 – 2029	0.696% – 5.125 %
Bond	USD	8,565	5,040	5,000	2020 – 2049	2.041% – 4.450%
Bond	CNY	–	–	164		
Bond	HKD	202	187	188	2026	3.088%
Bond	CHF	1,079	1,035	1,037	2024 – 2027	0.510% – 1.010%
Bond	GBP	982	326	324	2024 – 2026	1.250% – 1.660%
Bond	AUD	5	–	–	2025	4.000%
Current portion (less than one year)		(1,250)	(946)	(164)		
Total principal financing entities^(a)		19,829	14,910	15,886		
Other consolidated subsidiaries		670	762	583		
TOTAL BONDS AFTER CASH FLOW HEDGE AND FIXED RATE BONDS		20,499	15,672	16,469		

(a) All debt securities issued through the following subsidiaries are fully and unconditionally guaranteed by TOTAL S.A. as to payment of principal, premium, if any, interest and any other amounts due:

- TOTAL CAPITAL is a wholly and directly owned subsidiary of TOTAL S.A. (except for one share held by each director). It acts as a financing vehicle for the Group. The repayment of its financial debt (capital, premium and interest) is fully and unconditionally guaranteed by TOTAL S.A.
- TOTAL CAPITAL CANADA Ltd. is a wholly and directly owned subsidiary of TOTAL S.A.. It acts as a financing vehicle for the activities of the Group in Canada. The repayment of its financial debt (capital, premium and interest) is fully and unconditionally guaranteed by TOTAL S.A.
- TOTAL CAPITAL INTERNATIONAL is a wholly and directly owned subsidiary of TOTAL S.A. (except for one share held by each director). It acts as a financing vehicle for the Group. The repayment of its financial debt (capital, premium and interest) is fully and unconditionally guaranteed by TOTAL S.A.

(b) Debt financing of \$1.2 billion through a structure combining the issue of cash-settled convertible bonds with the purchase of cash-settled call options to hedge TOTAL's exposure to the exercise of the conversion rights under the bonds.

Loan repayment schedule (excluding current portion)

As of December 31, 2019 (M\$)	Non-current financial debt	of which hedging instruments of non-current financial debt (liabilities)	Non-current financial assets	of which hedging instruments of non-current financial debt (assets)	Non-current financial debt and related financial instruments	%
2021	5,716	204	(101)	(9)	5,615	12%
2022	6,226	433	(148)	(121)	6,078	13%
2023	5,230	106	(67)	(18)	5,163	11%
2024	5,885	139	(87)	(83)	5,798	12%
2025 and beyond	24,716	812	(509)	(281)	24,207	52%
TOTAL	47,773	1,694	(912)	(512)	46,861	100%

As of December 31, 2018 (M\$)	Non-current financial debt	of which hedging instruments of non-current financial debt (liabilities)	Non-current financial assets	of which hedging instruments of non-current financial debt (assets)	Non-current financial debt and related financial instruments	%
2020	5,442	386	(10)	–	5,432	14%
2021	4,042	251	(76)	(57)	3,966	10%
2022	5,262	448	(104)	(104)	5,158	13%
2023	5,020	93	(37)	–	4,983	13%
2024 and beyond	20,363	702	(453)	(452)	19,910	50%
TOTAL	40,129	1,880	(680)	(613)	39,449	100%

As of December 31, 2017 (M\$)	Non-current financial debt	of which hedging instruments of non-current financial debt (liabilities)	Non-current financial assets	of which hedging instruments of non-current financial debt (assets)	Non-current financial debt and related financial instruments	%
2019	6,005	164	(75)	(68)	5,930	15%
2020	5,119	222	(2)	–	5,117	13%
2021	3,810	96	(15)	–	3,795	9%
2022	5,026	165	(67)	(67)	4,959	12%
2023 and beyond	21,380	435	(520)	(471)	20,860	51%
TOTAL	41,340	1,082	(679)	(606)	40,661	100%

Analysis by currency and interest rate

These analyses take into account interest rate and foreign currency swaps to hedge non-current financial debt.

As of December 31, (M\$)	2019	%	2018	%	2017	%
U.S. Dollar	43,276	92%	38,120	97%	38,703	95%
Euro	2,639	6%	1,103	3%	724	2%
Norwegian krone	81	0%	27	0%	975	2%
Other currencies	865	2%	199	0%	259	1%
TOTAL	46,861	100%	39,449	100%	40,661	100%

As of December 31, (M\$)	2019	%	2018	%	2017	%
Fixed rate	26,985	58%	18,139	46%	18,332	45%
Floating rate	19,876	42%	21,310	54%	22,329	55%
TOTAL	46,861	100%	39,449	100%	40,661	100%

B) Current financial assets and liabilities

Current borrowings consist mainly of drawings on commercial papers or treasury bills and of bank loans. These instruments bear interest at rates that are close to market rates.

As of December 31, (M\$)	2019	2018	2017
(ASSETS)/LIABILITIES			
Current financial debt ^(a)	8,710	8,316	6,396
Current lease obligations	1,202	–	–
Current portion of non-current financial debt	4,907	4,990	4,700
CURRENT BORROWINGS (note 14)	14,819	13,306	11,096
Current portion of hedging instruments of debt (liabilities)	424	295	157
Other current financial instruments (liabilities)	63	183	88
OTHER CURRENT FINANCIAL LIABILITIES (note 14)	487	478	245
Current deposits beyond three months	(3,611)	(3,536)	(2,970)
Non-traded marketable securities	(114)	–	–
Financial receivables on sub-lease, current	(145)	–	–
Current portion of hedging instruments of debt (assets)	–	(45)	(172)
Other current financial instruments (assets)	(122)	(73)	(251)
CURRENT FINANCIAL ASSETS (note 14)	(3,992)	(3,654)	(3,393)
CURRENT BORROWINGS AND RELATED FINANCIAL ASSETS AND LIABILITIES, NET	11,314	10,130	7,948

(a) As of December 31, 2019, December 31, 2018 and December 31, 2017, the current financial debt includes a commercial paper program in Total Capital Canada Ltd.. Total Capital Canada Ltd. is a wholly-owned subsidiary of TOTAL S.A.. It acts as a financing vehicle for the activities of the Group in Canada. Its debt securities are fully and unconditionally guaranteed by TOTAL S.A. as to payment of principal, premium, if any, interest and any other amounts due.

C) Cash flow from (used in) financing activities

The variations of financial debt are detailed as follows:

(M\$)	As of January 1, 2019	Cash changes	Non-cash changes						As of December 31, 2019
			Change in scope, including IFRS 5 reclassification	First application IFRS 16	Foreign currency	Changes in fair value	Reclassification Non-current/ Current	Other	
Non-current financial instruments – assets ^(a) and non-current financial assets	(680)	21	12	(50)	4	(71)	144	(292)	(912)
Non-current financial debt	40,129	8,110	(731)	4,805	(48)	484	(6,661)	1,685	47,773
NON-CURRENT NET FINANCIAL DEBT AND RELATED FINANCIAL INSTRUMENTS	39,449	8,131	(719)	4,755	(44)	413	(6,517)	1,393	46,861
Current financial instruments – assets ^(a)	(118)	125	–	–	2	(32)	(144)	(101)	(268)
Current borrowings	13,306	(5,954)	(35)	750	184	(26)	6,661	(67)	14,819
Current financial instruments – liabilities ^(a)	478	–	–	–	(6)	15	–	–	487
CURRENT NET FINANCIAL DEBT AND RELATED FINANCIAL INSTRUMENTS	13,666	(5,829)	(35)	750	180	(43)	6,517	(168)	15,038
Financial debt classified as held for sale	–	–	301	–	–	–	–	–	301
FINANCIAL DEBT	53,115	2,302	(453)	5,505	136	370	–	1,225	62,200

(M\$)	As of January 1, 2018	Cash changes	Non-cash changes						As of December 31, 2018
			Change in scope, including IFRS 5 reclassification	Foreign currency	Changes in fair value	Reclassification Non-current/ Current	Other		
Non-current financial instruments - assets ^(a)	(679)	–	(72)	12	59	–	–	–	(680)
Non-current financial debt	41,340	649	4,708	(59)	62	(6,260)	(311)	–	40,129
NON-CURRENT NET FINANCIAL DEBT AND RELATED FINANCIAL INSTRUMENTS	40,661	649	4,636	(47)	121	(6,260)	(311)	–	39,449
Current financial instruments - assets ^(a)	(423)	–	–	10	295	–	–	–	(118)
Current borrowings	11,096	(3,990)	230	270	(514)	6,260	(46)	–	13,306
Current financial instruments - liabilities ^(a)	245	–	67	(11)	177	–	–	–	478
CURRENT NET FINANCIAL DEBT AND RELATED FINANCIAL INSTRUMENTS	10,918	(3,990)	297	269	(42)	6,260	(46)	–	13,666
Financial debt classified as held for sale	–	–	–	–	–	–	–	–	–
FINANCIAL DEBT	51,579	(3,341)	4,933	222	79	–	(357)	–	53,115

(a) Fair value or cash flow hedge instruments and other non-hedge debt-related derivative instruments.

Monetary changes in non-current financial debt are detailed as follows:

For the year ended December 31, (M\$)	2019	2018	2017
Issuance of non-current debt	8,668	3,938	2,959
Repayment of non-current debt	(538)	(3,289)	(682)
NET AMOUNT	8,131	649	2,277

D) Cash and cash equivalents

ACCOUNTING POLICIES

Cash and cash equivalents are comprised of cash on hand and highly liquid short-term investments that are easily convertible into known amounts of cash and are subject to insignificant risks of changes in value.

Investments with maturity greater than three months and less than twelve months are shown under "Current financial assets".

Changes in current financial assets and liabilities are included in the financing activities section of the Consolidated Statement of Cash Flows.

Cash and cash equivalents are detailed as follows:

For the year ended December 31, (M\$)	2019	2018	2017
Cash	16,456	15,186	13,427
Cash equivalents	10,896	12,721	19,758
TOTAL	27,352	27,907	33,185

Cash equivalents are mainly composed of deposits less than three months deposited in government institutions or deposit banks selected in accordance with strict criteria.

As of December 31, 2019, the cash and cash equivalents include \$1,776 millions subject to restrictions, notably due to regulatory framework or to the fact they are owned by affiliates located in countries with exchange controls.

E) Net-debt-to-capital ratio

For its internal and external communication needs, the Group calculates a debt ratio by dividing its net financial debt by its capital.

The ratio is calculated as follows: Net debt/(Equity + Net debt)

As of December 31, (M\$) (ASSETS)/LIABILITIES	2019	2018	2017
Current borrowings	14,819	13,306	11,096
Other current financial liabilities	487	478	245
Current financial assets	(3,992)	(3,654)	(3,393)
Net financial assets and liabilities held for sale or exchange	301	(15)	–
Non-current financial debt	47,773	40,129	41,340
Non-current financial assets	(912)	(680)	(679)
Cash and cash equivalents	(27,352)	(27,907)	(33,185)
NET FINANCIAL DEBT	31,124	21,657	15,424
Shareholders' equity – Group share	116,778	115,640	111,556
Non-controlling interests	2,527	2,474	2,481
SHAREHOLDERS' EQUITY	119,305	118,114	114,037
NET-DEBT-TO-CAPITAL RATIO	20.7%	15.5%	11.9%

15.2 Fair value of financial instruments (excluding commodity contracts)

ACCOUNTING POLICIES

The Group uses derivative instruments to manage its exposure to risks of changes in interest rates, foreign exchange rates and commodity prices. These financial instruments are accounted for in accordance with IFRS 9. Changes in fair value of derivative instruments are recognized in the statement of income or in other comprehensive income and are recognized in the balance sheet in the accounts corresponding to their nature, according to the risk management strategy. The derivative instruments used by the Group are the following:

Cash management

Financial instruments used for cash management purposes are part of a hedging strategy of currency and interest rate risks within global limits set by the Group and are considered to be held for trading. Changes in fair value are systematically recorded in the statement of income. The balance sheet value of those instruments is included in "Current financial assets" or "Other current financial liabilities".

Long-term financing

When an external long-term financing is set up, specifically to finance subsidiaries, and when this financing involves currency and interest rate derivatives, these instruments are qualified as:

- 1) Fair value hedge of the interest rate and currency risks on the external debt financing the loans to subsidiaries. Changes in fair value of derivatives are recognized in the statement of income, as are changes in fair value of underlying financial debts and loans to subsidiaries.

The fair value of those hedging instruments of long-term financing is included in assets under "Non-current financial assets" or in liabilities under "Non-current financial debt" for the non-current portion. The current portion (less than one year) is accounted for in "Current financial assets" or "Other current financial liabilities".

In case of the anticipated termination of derivative instruments accounted for as fair value hedges, the amount paid or received is recognized in the statement of income and:

- if this termination is due to an early cancellation of the hedged items, the adjustment previously recorded as revaluation of those hedged items is also recognized in the statement of income;
- if the hedged items remain in the balance sheet, the adjustment previously recorded as a revaluation of those hedged items is spread over the remaining life of those items.

In case of a change in the strategy of the hedge (fair value hedge to cash flow hedge), if the components of the initial aggregated exposure had already been designated in a hedging relationship (FVH), the Group designates the new instrument as a hedging instrument of an aggregated position (CFH) without having to end the initial hedging relationship.

- 2) Cash flow hedge when the Group implements a strategy of fixing interest rate and/or currency rate on the external debt. Changes in fair value are recorded in Other comprehensive Income for the effective portion of the hedging and in the statement of income for the ineffective portion of the hedging. When the hedged transaction affects profit or loss, the fair value variations of the hedging instrument recorded in equity are also symmetrically recycled to the income statement.

The fair value of those hedging instruments of long-term financing is included in assets under "Non-current financial assets" or in liabilities under "Non-current financial debt" for the non-current portion. The current portion (less than one year) is accounted for in "Current financial assets" or "Other current financial liabilities".

If the hedging instrument expires, is sold or terminated by anticipation, gains or losses previously recognized in equity remain in equity. Amounts are recycled to the income statement only when the hedged transaction affects profit or loss.

- 3) In compliance with IFRS9, the Group has decided to recognize in a separate component of the comprehensive income the variation of foreign currency basis spread (Cross Currency Swaps) identified in the hedging relationships qualified as fair value hedges and cash flow hedges.

Foreign subsidiaries' equity hedge

Certain financial instruments hedge against risks related to the equity of foreign subsidiaries whose functional currency is not the euro (mainly the dollar). These instruments qualify as "net investment hedges" and changes in fair value are recorded in other comprehensive income under "Currency translation" for the effective portion of the hedging and in the statement of income for the ineffective portion of the hedging. Gains or losses on hedging instruments previously recorded in equity, are reclassified to the statement of income in the same period as the total or partial disposal of the foreign activity.

The fair value of these instruments is recorded under "Current financial assets" or "Other current financial liabilities".

Commitments to purchase shares held by non-controlling interests (put options written on minority interests)

Put options granted to non-controlling-interest shareholders are initially recognized as financial liabilities at the present value of the exercise price of the options with a corresponding reduction in shareholders' equity. The financial liability is subsequently measured at fair value at each balance sheet date in accordance with contractual clauses and any variation is recorded in the statement of income (cost of debt).

A) Impact on the statement of income per nature of financial instruments**Assets and liabilities from financing activities**

The impact on the statement of income of financing assets and liabilities mainly includes:

- financial income on cash, cash equivalents, and current financial assets (notably current deposits beyond three months) classified as “Loans and receivables”;
- financial expense of long-term subsidiaries financing, associated hedging instruments (excluding ineffective portion of the hedge detailed below) and financial expense of short-term financing classified as “Financing liabilities and associated hedging instruments”;
- ineffective portion of bond hedging;

- financial income and financial expense on lease contracts for 2019 (IFRS 16 first application) and,
- financial income, financial expense and fair value of derivative instruments used for cash management purposes classified as “Assets and liabilities held for trading”.

Financial derivative instruments used for cash management purposes (interest rate and foreign exchange) are considered to be held for trading. Based on practical documentation issues, the Group did not elect to set up hedge accounting for such instruments. The impact on income of the derivatives is offset by the impact of loans and current liabilities they are related to. Therefore these transactions taken as a whole do not have a significant impact on the Consolidated Financial Statements.

For the year ended December 31, (M\$)	2019	2018	2017
Loans and receivables	200	161	53
Financing liabilities and associated hedging instruments	(1,897)	(1,927)	(1,395)
Fair value hedge (ineffective portion)	(1)	(6)	(1)
Lease assets and obligations	(417)	–	–
Assets and liabilities held for trading	(237)	(349)	(191)
IMPACT ON THE COST OF NET DEBT	(2,352)	(2,121)	(1,534)

B) Impact of the hedging strategies**Fair value hedge instruments**

The impact on the statement of income of the bond hedging instruments which is recorded in the item “Financial interest on debt” in the Consolidated Statement of Income is detailed as follows:

For the year ended December 31, (M\$)	2019	2018	2017
Revaluation impact at market value of bonds	(762)	1,332	(2,519)
Swap hedging of bonds	761	(1,338)	2,518
INEFFECTIVE PORTION OF THE FAIR VALUE HEDGE	(1)	(6)	(1)

The ineffective portion is not representative of the Group's performance considering the Group's objective to hold swaps to maturity. The current portion of the swaps valuation is not subject to active management.

Net investment hedge

The variations of the period are detailed in the table below:

For the year ended December 31, (M\$)	As of January 1,	Variations	Disposals	As of December 31
2019	(724)	7	–	(717)
2018	(762)	38	–	(724)
2017	(658)	(104)	–	(762)

As of December 31, 2019, 2018 and 2017 the Group had no open forward contracts under these hedging instruments.

Cash flow hedge

The impact on the statement of income and other comprehensive income of the hedging instruments qualified as cash flow hedges is detailed as follows :

For the year ended December 31, (M\$)	2019	2018	2017
Profit (Loss) recorded in equity during the period	(585)	24	253
Recycled amount from equity to the income statement during the period	47	(116)	266

As of December 31, 2019, 2018 and 2017, the ineffective portion of these financial instruments is nil.

Hedging instruments and hedged items by strategy**Fair Value Hedge**

The following charts regarding Fair Value Hedge, disclose by nature of hedging instruments (Interest Rate Swaps and Cross Currency Swaps):

- the nominal amounts and carrying amounts of hedging instruments;
- the carrying amounts of hedged items and cumulative FVH adjustments included in the carrying amounts of the hedged items;
- the hedged items that have ceased to be adjusted for hedging gains and losses.

FAIR VALUE HEDGES (FVH)

For the year ended December 31 2019 (M\$)	Nature of hedging instruments	Nominal amount of hedging instruments	Carrying amount of hedging instruments		Line item in the statement of financial position
			Assets	Liabilities	
Bonds	Interest Rate Swaps	8,012	270	(75)	Financial debt/ Financial assets
Bonds	Cross Currency Swaps	14,357	124	(1,011)	Financial debt/ Financial assets

FAIR VALUE HEDGES (FVH)

For the year ended December 31 2019 (M\$)	Nature of hedging instruments	Carrying amount of hedged items		Cumulative FVH adjustments included in the carrying amount of the hedged items		Line item in the statement of financial position
		Assets	Liabilities	Assets	Liabilities	
Bonds	Interest Rate Swaps	–	(7,450)	–	(795)	Financial debt
Bonds	Cross Currency Swaps	–	(14,357)	–	1,290	Financial debt
End of hedging (before 2018)		–	–	–	(71)	

CASH FLOW HEDGE

The following chart regarding Cash Flow Hedge discloses the nominal amounts and carrying amounts by nature of hedging instruments (Interest Rate Swaps and Cross Currency Swaps).

According to IFRS 9, there are no accounting entries related to Cash Flow Hedge on hedged items.

CASH FLOW HEDGES (CFH)

For the year ended December 31 2019 (M\$)	Nature of hedging instruments	Nominal amount of hedging instruments	Carrying amount of hedging instruments		Line item in the statement of financial position
			Assets	Liabilities	
Bonds	Interest Rate Swaps	12,782	25	(527)	Financial debt/ Financial assets
Bonds	Cross Currency Swaps	12,604	19	(431)	Financial debt/ Financial assets

C) Maturity of derivative instruments

The maturity of the notional amounts of derivative instruments, excluding the commodity contracts, is detailed in the following table:

For the year ended December 31, 2019 (M\$)	Fair value	Notional value 2020	Fair value	2021 and after	Notional value schedule				
					2021	2022	2023	2024	2025 and after
ASSETS/(LIABILITIES)									
Fair value hedge									
Swaps hedging bonds (assets)	–	–	469	10,896					
Swaps hedging bonds (liabilities)	(423)	3,346	(736)	8,127					
TOTAL SWAPS HEDGING BONDS	(423)	3,346	(267)	19,023	2,695	4,298	3,858	2,337	5,835
Cash flow hedge									
Swaps hedging bonds (assets)	–	–	43	4,062					
Swaps hedging bonds (liabilities)	–	–	(958)	21,324					
TOTAL SWAPS HEDGINGS BONDS	–	–	(915)	25,386	–	–	1,000	3,659	20,727
Forward exchange contracts related to operational activities (assets)	1	29	–	–					
Forward exchange contracts related to operational activities (liabilities)	–	–	–	–					
TOTAL FORWARD EXCHANGE CONTRACTS RELATED TO OPERATING ACTIVITIES	1	29	–	–	–	–	–	–	–
Held for trading									
Other interest rate swaps (assets)	11	23,522	50	2,225					
Other interest rate swaps (liabilities)	(24)	16,007	(44)	3,475					
TOTAL OTHER INTEREST RATE SWAPS	(13)	39,529	6	5,700	2,217	1,463	18	1,820	182
Currency swaps and forward exchange contracts (assets)	111	6,446	17	431					
Currency swaps and forward exchange contracts (liabilities)	(39)	4,455	–	131					
TOTAL CURRENCY SWAPS AND FORWARD EXCHANGE CONTRACTS	72	10,901	17	562	529	33	–	–	–

Notional amounts set the levels of commitment and are indicative nor of a contingent gain or loss neither of a related debt.

For the year ended December 31, 2018 (M\$)	Fair value	Notional value 2019	Fair value	2020 and after	Notional value schedule				2024 and after
					2020	2021	2022	2023	
ASSETS/(LIABILITIES)									
Fair value hedge									
Swaps hedging bonds (assets)	45	1,345	235	3,712					
Swaps hedging bonds (liabilities)	(208)	1,874	(1,281)	16,225					
TOTAL SWAPS HEDGING FIXED-RATES BONDS	(163)	3,219	(1,046)	19,937	3,346	1,945	4,309	3,858	6,479
Cash flow hedge									
Swaps hedging bonds (assets)	–	–	378	10,043					
Swaps hedging bonds (liabilities)	(87)	969	(599)	11,265					
TOTAL SWAPS HEDGING BONDS	(87)	969	(221)	21,308	–	–	–	–	21,308
Forward exchange contracts related to operational activities (assets)	2	39	–	4					
Forward exchange contracts related to operational activities (liabilities)	–	–	–	–					
TOTAL FORWARD EXCHANGE CONTRACTS RELATED TO OPERATIONAL ACTIVITIES	2	39	–	4	4	–	–	–	–
Held for trading									
Other interest rate swaps (assets)	7	17,001	57	2,515					
Other interest rate swaps (liabilities)	(79)	20,816	(22)	2,686					
TOTAL OTHER INTEREST RATE SWAPS	(72)	37,817	35	5,201	2,186	1,004	56	1	1,954
Currency swaps and forward exchange contracts (assets)	66	10,500	11	44					
Currency swaps and forward exchange contracts (liabilities)	(104)	9,107	(7)	34					
TOTAL CURRENCY SWAPS AND FORWARD EXCHANGE CONTRACTS	(38)	19,607	4	78	65	12	1	–	–

Notional amounts set the levels of commitment and are indicative nor of a contingent gain or loss neither of a related debt.

For the year ended December 31, 2017 (M\$)	Fair value	Notional value 2018	Fair value	2019 and after	Notional value schedule				2023 and after
					2019	2020	2021	2022	
ASSETS/(LIABILITIES)									
Fair value hedge									
Swaps hedging bonds (assets)	172	2,391	337	5,075					
Swaps hedging bonds (liabilities)	(157)	1,840	(951)	14,669					
TOTAL SWAPS HEDGING BONDS	15	4,231	(614)	19,744	3,247	3,346	1,945	4,336	6,870
Cash flow hedge									
Swaps hedging bonds (assets)	–	–	269	9,466					
Swaps hedging bonds (liabilities)	–	–	(131)	11,288					
TOTAL SWAPS HEDGING BONDS	–	–	138	20,754	969	–	–	–	19,785
Forward exchange contracts related to operational activities (assets)	2	55	–	28					
Forward exchange contracts related to operational activities (liabilities)	–	–	–	–					
TOTAL FORWARD EXCHANGE CONTRACTS RELATED TO OPERATIONAL ACTIVITIES	2	55	–	28	24	4	–	–	–
Held for trading									
Other interest rate swaps (assets)	32	36,775	64	2,300					
Other interest rate swaps (liabilities)	(17)	13,905	(3)	370					
TOTAL OTHER INTEREST RATE SWAPS	15	50,680	61	2,670	41	50	1,000	–	1,579
Currency swaps and forward exchange contracts (assets)	219	15,132	9	175					
Currency swaps and forward exchange contracts (liabilities)	(71)	6,048	(17)	229					
TOTAL CURRENCY SWAPS AND FORWARD EXCHANGE CONTRACTS	148	21,180	(8)	404	222	128	46	7	1

Notional amounts set the levels of commitment and are indicative nor of a contingent gain or loss neither of a related debt.

D) Fair value hierarchy

ACCOUNTING POLICIES

Fair values are estimated for the majority of the Group's financial instruments, with the exception of publicly traded equity securities and marketable securities for which the market price is used.

Estimations of fair value, which are based on principles such as discounting future cash flows to present value, must be weighted by the fact that the value of a financial instrument at a given time may be influenced by the market environment (liquidity especially), and also the fact that subsequent changes in interest rates and exchange rates are not taken into account.

As a consequence, the use of different estimates, methodologies and assumptions could have a material effect on the estimated fair value amounts.

The methods used are as follows:

Financial debts, swaps

The market value of swaps and of bonds that are hedged by those swaps has been determined on an individual basis by discounting future cash flows with the market curves existing at year-end.

Other financial instruments

The fair value of the interest rate swaps and of FRA's (Forward Rate Agreements) are calculated by discounting future cash flows on the basis of market curves existing at year-end after adjustment for interest accrued but unpaid. Forward exchange contracts and currency swaps are valued on the basis of a comparison of the negotiated forward rates with the rates in effect on the financial markets at year-end for similar maturities.

Exchange options are valued based on models commonly used by the market.

The fair value hierarchy for financial instruments, excluding commodity contracts, is as follows:

As of December 31, 2019 (M\$)	Quoted prices in active markets for identical assets (level 1)	Prices based on observable data (level 2)	Prices based on non observable data (level 3)	Total
Fair value hedge instruments	–	(690)	–	(690)
Cash flow hedge instruments	–	(915)	–	(915)
Assets and liabilities held for trading	–	82	–	82
Equity instruments	240	–	–	240
TOTAL	240	(1,523)	–	(1,283)

As of December 31, 2018 (M\$)	Quoted prices in active markets for identical assets (level 1)	Prices based on observable data (level 2)	Prices based on non observable data (level 3)	Total
Fair value hedge instruments	–	(1,209)	–	(1,209)
Cash flow hedge instruments	–	(306)	–	(306)
Assets and liabilities held for trading	–	(71)	–	(71)
Equity instruments	94	–	–	94
TOTAL	94	(1,586)	–	(1,492)

As of December 31, 2017 (M\$)	Quoted prices in active markets for identical assets (level 1)	Prices based on observable data (level 2)	Prices based on non observable data (level 3)	Total
Fair value hedge instruments	–	(599)	–	(599)
Cash flow hedge instruments	–	140	–	140
Assets and liabilities held for trading	–	216	–	216
Assets available for sale	100	–	–	100
TOTAL	100	(243)	–	(143)

15.3 Financial risks management

Financial markets related risks

As part of its financing and cash management activities, the Group uses derivative instruments to manage its exposure to changes in interest rates and foreign exchange rates. These instruments are mainly interest rate and currency swaps. The Group may also occasionally use futures contracts and options. These operations and their accounting treatment are detailed in Notes 14, 15.1 and 15.2 to the Consolidated Financial Statements.

Risks relative to cash management operations and to interest rate and foreign exchange financial instruments are managed according to rules set by the Group's senior management, which provide for regular pooling of available cash balances, open positions and management of the financial instruments by the Treasury Department. Excess cash of the Group is deposited mainly in government institutions, deposit banks, or major companies through deposits, reverse repurchase agreements and purchase of commercial paper. Liquidity positions and the management of financial instruments are centralized by the Treasury Department, where they are managed by a team specialized in foreign exchange and interest rate market transactions.

The Cash Monitoring-Management Unit within the Treasury Department monitors limits and positions per bank on a daily basis and results of the Front Office. This unit also prepares marked-to-market valuations of used financial instruments and, when necessary, performs sensitivity analysis.

Counterparty risk

The Group has established standards for market transactions under which any banking counterparty must be approved in advance, based on an assessment of the counterparty's financial solidity (multi-criteria analysis including notably a review of its Credit Default Swap (CDS) level, credit ratings from Standard & Poor's and Moody's, which must be of high standing, and general financial situation).

An overall credit limit is set for each authorised financial counterparty and is allocated amongst the affiliates and the Group's central treasury entities, according to the Group's financial needs.

To reduce the market valuation risk on its commitments, in particular relating to derivative instruments, the Treasury Department has entered into margin call agreements with its counterparties, in compliance with applicable regulations. Moreover, since December 21, 2018 and pursuant to Regulation (EU) No. 648/2012 on OTC derivatives, central counterparties and trade repositories (EMIR), any new interest rate hedging swap (excluding cross currency swaps) entered into by a Group's entity is now subject to central clearing.

Short-term interest rate exposure and cash

Cash balances, which are primarily composed of euros and dollars, are managed according to the guidelines established by the Group's senior management (to maintain an adequate level of liquidity, optimize revenue from investments considering existing interest rate yield curves, and minimize the cost of borrowing) over a less than twelve-month horizon and on the basis of a daily interest rate benchmark, primarily through short-term interest rate swaps and short-term currency swaps, without modifying currency exposure.

Interest rate risk on non-current debt

The Group's policy consists in incurring long-term debt at a floating or fixed rate, depending on the Group's general corporate needs and the interest rate environment at the time of issue, mainly in dollars or euros. Long-term interest rate and currency swaps may be entered into for the purpose of hedging bonds at the time of issuance, synthetically resuting in the incurrence of variable or fixed rate debt. In order to partially alter the interest rate exposure of its long-term indebtedness, TOTAL may also enter into long-term interest rate swaps on an ad-hoc basis.

Currency exposure

The Group generally seeks to minimize the currency exposure of each entity to its functional currency (primarily the dollar, the euro, the pound sterling and the Norwegian krone).

For currency exposure generated by commercial activity, the hedging of revenues and costs in foreign currencies is typically performed using currency operations on the spot market and, in some cases, on the forward market. The Group rarely hedges future cash flows, although it may use options to do so.

With respect to currency exposure linked to non-current assets, the Group has a hedging policy of financing these assets in their functional currency.

Net short-term currency exposure is periodically monitored against limits set by the Group's senior management.

The non-current debt described in Note 15.1 to the Consolidated Financial Statements is generally raised by the corporate treasury entities either directly in dollars or in euros, or in other currencies which are then exchanged for dollars or euros through swap issues to appropriately match general corporate needs. The proceeds from these debt issuances are loaned to affiliates whose accounts are kept in dollars or in euros. Thus, the net sensitivity of these positions to currency exposure is not significant.

The Group's short-term currency swaps, the notional value of which appears in Note 15.2 to the Consolidated Financial Statements, are used to attempt to optimize the centralized cash management of the Group. Thus, the sensitivity to currency fluctuations which may be induced is likewise considered negligible.

Sensitivity analysis on interest rate and foreign exchange risk

The tables below present the potential impact of an increase or decrease of 10 basis points on the interest rate yield curves for each of the currencies on the fair value of the current financial instruments as of December 31, 2019, 2018 and 2017.

ASSETS/(LIABILITIES) (M\$)	Carrying amount	Estimated fair value	Change in fair value due to a change in interest rate by	
			+ 10 basis points	- 10 basis points
AS OF DECEMBER 31, 2019				
Bonds (non-current portion, before swaps)	(38,657)	(41,805)	247	(247)
<i>Swaps hedging fixed-rates bonds (liabilities)</i>	(1,694)	(1,694)	-	-
<i>Swaps hedging fixed-rates bonds (assets)</i>	512	512	-	-
Total swaps hedging fixed-rates bonds (assets and liabilities)	(1,182)	(1,182)	(44)	44
Current portion of non-current debt after swap (excluding lease obligations)	(5,331)	(5,332)	1	(1)
Other interest rates swaps	(7)	(7)	18	(18)
Currency swaps and forward exchange contracts	89	89	-	-
AS OF DECEMBER 31, 2018				
Bonds (non-current portion, before swaps)	(34,975)	(36,127)	185	(185)
<i>Swaps hedging fixed-rates bonds (liabilities)</i>	(1,880)	(1,880)	-	-
<i>Swaps hedging fixed-rates bonds (assets)</i>	613	613	-	-
Total swaps hedging fixed-rates bonds (assets and liabilities)	(1,267)	(1,267)	(59)	59
Current portion of non-current debt after swap (excluding capital lease obligations)	(5,027)	(5,027)	-	-
Other interest rates swaps	(37)	(37)	12	(12)
Currency swaps and forward exchange contracts	(34)	(34)	-	-
AS OF DECEMBER 31, 2017				
Bonds (non-current portion, before swaps)	(36,613)	(38,159)	191	(191)
<i>Swaps hedging fixed-rates bonds (liabilities)</i>	(1,082)	(1,082)	-	-
<i>Swaps hedging fixed-rates bonds (assets)</i>	606	606	-	-
Total swaps hedging fixed-rates bonds (assets and liabilities)	(476)	(476)	(83)	83
Current portion of non-current debt after swap (excluding capital lease obligations)	(4,646)	(4,645)	1	(1)
Other interest rates swaps	76	76	12	(12)
Currency swaps and forward exchange contracts	142	142	-	-

The impact of changes in interest rates on the cost of debt before tax is as follows:

For the year ended December 31, (M\$)	2019	2018	2017
Cost of net debt	(2,352)	(2,121)	(1,534)
Interest rate translation of :			
+ 10 basis points	27	29	29
- 10 basis points	(27)	(29)	(29)

As a result of the policy for the management of currency exposure previously described, the Group's sensitivity to currency exposure is primarily influenced by the net equity of the subsidiaries whose functional currency is the euro and the ruble, and to a lesser extent, the pound sterling and the Norwegian krone.

This sensitivity is reflected in the historical evolution of the currency translation adjustment recorded in the statement of changes in consolidated shareholders' equity which, over the course of the last three years, is essentially related to the fluctuation of the euro, the ruble and the pound sterling and is set forth in the table below:

	Dollar/Euro exchange rates	Dollar/Pound sterling exchange rates	Dollar/Ruble exchange rates
DECEMBER 31, 2019	0.89	0.76	62.27
December 31, 2018	0.87	0.78	69.62
December 31, 2017	0.83	0.74	57.86

As of December 31, 2019 (M\$)	Total	Euro	Dollar	Pound sterling	Ruble	Other currencies
Shareholders' equity at historical exchange rate	128,281	37,687	66,005	5,635	9,900	9,054
Currency translation adjustment before net investment hedge	(11,501)	(4,443)	–	(1,830)	(3,355)	(1,873)
Net investment hedge – open instruments	(2)	(2)	–	–	–	–
Shareholders' equity at exchange rate as of December 31, 2019	116,778	33,241	66,005	3,805	6,545	7,182

As of December 31, 2018 (M\$)	Total	Euro	Dollar	Pound sterling	Ruble	Other currencies
Shareholders' equity at historical exchange rate	126,953	41,518	59,125	9,077	8,248	8,985
Currency translation adjustment before net investment hedge	(11,321)	(3,706)	–	(1,960)	(3,892)	(1,763)
Net investment hedge – open instruments	8	8	–	–	–	–
Shareholders' equity at exchange rate as of December 31, 2018	115,640	37,820	59,125	7,117	4,356	7,222

As of December 31, 2017 (M\$)	Total	Euro	Dollar	Pound sterling	Ruble	Other currencies
Shareholders' equity at historical exchange rate	119,450	44,930	51,674	6,467	7,366	9,013
Currency translation adjustment before net investment hedge	(7,908)	(1,903)	–	(1,543)	(3,076)	(1,386)
Net investment hedge – open instruments	14	14	–	–	–	–
Shareholders' equity at exchange rate as of December 31, 2017	111,556	43,041	51,674	4,924	4,290	7,627

Based on the 2019 financial statements, a conversion using rates different from + or – 10% for each of the currencies below would have the following impact on shareholders equity and net income (Group share):

As of December 31, 2019 (M\$)	Euro	Pound sterling	Ruble
Impact of an increase of 10% of exchange rates on :			
– shareholders equity	3,324	381	654
– net income (Group share)	110	95	153
Impact of a decrease of 10% of exchange rates on :			
– shareholders equity	(3,324)	(381)	(654)
– net income (Group share)	(110)	(95)	(153)

Stock market risk

The Group holds interests in a number of publicly-traded companies (see Note 8 to the Consolidated Financial Statements). The market value of these holdings fluctuates due to various factors, including stock market trends, valuations of the sectors in which the companies operate, and the economic and financial condition of each individual company.

Liquidity risk

TOTAL S.A. has committed credit facilities granted by international banks allowing it to benefit from significant liquidity reserves.

As of December 31, 2019, these credit facilities amounted to \$11,585 million, of which \$11,585 million was unutilized. The agreements

underpinning credit facilities granted to TOTAL S.A. do not contain conditions related to the Company's financial ratios, to its credit ratings from specialized agencies, or to the occurrence of events that could have a material adverse effect on its financial position. As of December 31, 2019, the aggregated amount of the main committed credit facilities granted by international banks to the Group's companies, including TOTAL S.A., was \$12,961 million, of which \$12,406 million was unutilized. Credit facilities granted to the Group's companies other than TOTAL S.A. are not intended to fund the Group's general corporate purposes; they are intended to fund either general corporate purposes of the borrowing affiliate, or a specific project.

The following tables show the maturity of the financial assets and liabilities of the Group as of December 31, 2019, 2018 and 2017 (see Note 15.1 to the Consolidated Financial Statements).

As of December 31, 2019

ASSETS/(LIABILITIES) (M\$)	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years	Total
Non-current financial debt (notional value excluding interests)	–	(5,683)	(6,102)	(5,172)	(5,802)	(24,435)	(47,194)
Non-current financial assets	–	68	24	9	4	228	333
Current borrowings	(14,819)	–	–	–	–	–	(14,819)
Other current financial liabilities	(487)	–	–	–	–	–	(487)
Current financial assets	3,992	–	–	–	–	–	3,992
Assets and liabilities available for sale or exchange	(301)	–	–	–	–	–	(301)
Cash and cash equivalents	27,352	–	–	–	–	–	27,352
NET AMOUNT BEFORE FINANCIAL EXPENSE	15,737	(5,615)	(6,078)	(5,163)	(5,798)	(24,207)	(31,124)
Financial expense on non-current bond debt	(807)	(724)	(650)	(594)	(482)	(2,215)	(5,472)
Interest differential on swaps	(350)	(325)	(297)	(255)	(224)	(1,046)	(2,497)
NET AMOUNT	14,580	(6,664)	(7,025)	(6,012)	(6,504)	(27,468)	(39,093)

As of December 31, 2018

ASSETS/(LIABILITIES) (M\$)	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years	Total
Non-current financial debt (notional value excluding interests)	–	(5,432)	(3,966)	(5,158)	(4,983)	(19,910)	(39,449)
Current borrowings	(13,306)	–	–	–	–	–	(13,306)
Other current financial liabilities	(478)	–	–	–	–	–	(478)
Current financial assets	3,654	–	–	–	–	–	3,654
Assets and liabilities available for sale or exchange	15	–	–	–	–	–	15
Cash and cash equivalents	27,907	–	–	–	–	–	27,907
NET AMOUNT BEFORE FINANCIAL EXPENSE	17,792	(5,432)	(3,966)	(5,158)	(4,983)	(19,910)	(21,657)
Financial expense on non-current financial debt	(718)	(682)	(598)	(506)	(427)	(1,037)	(3,968)
Interest differential on swaps	(484)	(412)	(369)	(309)	(234)	(869)	(2,677)
NET AMOUNT	16,590	(6,526)	(4,933)	(5,973)	(5,644)	(21,816)	(28,302)

As of December 31, 2017

ASSETS/(LIABILITIES) (M\$)	Less than 1 year	1-2 years	2-3 years	3-4 years	4-5 years	More than 5 years	Total
Non-current financial debt (notional value excluding interests)	–	(5,930)	(5,117)	(3,795)	(4,959)	(20,860)	(40,661)
Current borrowings	(11,096)	–	–	–	–	–	(11,096)
Other current financial liabilities	(245)	–	–	–	–	–	(245)
Current financial assets	3,393	–	–	–	–	–	3,393
Assets and liabilities available for sale or exchange	–	–	–	–	–	–	–
Cash and cash equivalents	33,185	–	–	–	–	–	33,185
NET AMOUNT BEFORE FINANCIAL EXPENSE	25,237	(5,930)	(5,117)	(3,795)	(4,959)	(20,860)	(15,424)
Financial expense on non-current financial debt	(805)	(779)	(636)	(545)	(454)	(1,093)	(4,312)
Interest differential on swaps	(193)	(223)	(257)	(245)	(198)	(681)	(1,797)
NET AMOUNT	24,239	(6,932)	(6,010)	(4,585)	(5,611)	(22,634)	(21,533)

The following table sets forth financial assets and liabilities related to operating activities as of December 31, 2019, 2018 and 2017 (see Note 14 of the Notes to the Consolidated Financial Statements).

As of December 31, ASSETS/(LIABILITIES) (M\$)	2019	2018	2017
Accounts payable	(28,394)	(26,134)	(26,479)
Other operating liabilities	(16,262)	(13,286)	(10,135)
<i>Including financial instruments related to commodity contracts</i>	(5,333)	(3,429)	(1,794)
Accounts receivable, net	18,488	17,270	14,893
Other operating receivables	11,506	9,733	9,336
<i>Including financial instruments related to commodity contracts</i>	4,791	2,731	1,987
TOTAL	(14,662)	(12,417)	(12,385)

These financial assets and liabilities mainly have a maturity date below one year.

Credit risk

Credit risk is defined as the risk of the counterparty to a contract failing to perform or pay the amounts due.

The Group is exposed to credit risks in its operating and financing

The following table presents the Group's maximum credit risk exposure:

As of December 31, ASSETS/(LIABILITIES) (M\$)	2019	2018	2017
Loans to equity affiliates (note 8)	3,999	4,755	5,135
Loans and advances (note 6)	1,982	1,877	2,878
Other non-current financial assets related to operational activities (note 6)	332	471	937
Non-current financial assets (note 15.1)	912	680	679
Accounts receivable (note 5)	18,488	17,270	14,893
Other operating receivables (note 5)	11,506	9,733	9,336
Current financial assets (note 15.1)	3,992	3,654	3,393
Cash and cash equivalents (note 15.1)	27,352	27,907	33,185
TOTAL	68,563	66,347	70,436

The valuation allowance on accounts receivable, other operating receivables and on loans and advances is detailed in Notes 5 and 6 of the Consolidated Financial Statements.

As part of its credit risk management related to operating and financing activities, the Group has developed margining agreements with certain counterparties. As of December 31, 2019, the net margin call paid amounted to \$2,486 million (against \$2,581 million paid as of December 31, 2018 and \$870 million paid as of December 31, 2017).

The Group has established a number of programs for the sale of receivables, without recourse, with various banks, primarily to reduce its exposure to such receivables. As a result of these programs the Group retains no risk of payment default after the sale, but may continue to service the customer accounts as part of a service arrangement on behalf of the buyer and is required to pay to the buyer payments it receives from the customers relating to the receivables sold. As of December 31, 2019, the net value of receivables sold amounted to \$8,129 million. The Group has substantially transferred all the risks and rewards related to receivables. No financial asset or liability remains recognized in the consolidated balance sheet after the date of sale.

Furthermore, in 2019 the Group conducted several operations of reverse factoring for a value of \$177 million.

activities. The Group's maximum exposure to credit risk is partially related to financial assets recorded on its balance sheet, including energy derivative instruments that have a positive market value.

Credit risk is managed by the Group's business segments as follows:

– Exploration & Production segment

Risks arising under contracts with government authorities or other oil companies or under long-term supply contracts necessary for the development of projects are evaluated during the project approval process. The long-term aspect of these contracts and the high-quality of the other parties lead to a low level of credit risk.

Risks related to commercial operations, other than those described above (which are, in practice, directly monitored by subsidiaries), are subject to procedures for establishing credit limits and reviewing outstanding balances.

– Integrated Gas, Renewables & Power segment

– Gas & Power activities

Trading Gas & Power activities deal with counterparties in the energy, industrial and financial sectors throughout the world. Financial institutions providing credit risk coverage are highly rated international banks and insurance groups.

Potential counterparties are subject to credit assessment and approval before concluding transactions and are thereafter subject to regular review, including re-appraisal and approval of the limits previously granted.

The creditworthiness of counterparties is assessed based on an analysis of quantitative and qualitative data regarding financial standing and business risks, together with the review of any relevant third party and market information, such as data published by rating agencies. On this basis, credit limits are defined for each potential counterparty and, where appropriate, transactions are subject to specific authorizations.

Credit exposure, which is essentially an economic exposure or an expected future physical exposure, is permanently monitored and subject to sensitivity measures.

Credit risk is mitigated by the systematic use of industry standard contractual frameworks that permit netting, enable requiring added security in case of adverse change in the counterparty risk, and allow for termination of the contract upon occurrence of certain events of default.

About the Professionals and Retail Gas and Power Sales activities, credit risk management policy is adapted to the type of customer either through the use of procedures of prepayments and appropriate collection, especially for mass customers or through credit insurances and sureties/guarantees obtaining. For the Professionals segment, the segregation of duties between the commercial and financial teams allows an "a priori" control of risks.

– **Renewables and Carbon Neutrality Business (CNB)**

Internal procedures for the Renewables division and the Carbon Neutrality Business division include rules on credit risk management. Procedures to monitor customer risk are defined at the local level, especially for SunPower, Saft and Greenflex (rules for the approval of credit limits, use of guarantees, monitoring and assessment of the receivables portfolio,...).

– **Refining & Chemicals segment**

– Refining & Chemicals

Credit risk is primarily related to commercial receivables. Internal procedures of Refining & Chemicals include rules for the management of credit describing the fundamentals of internal control in this domain. Each Business Unit implements the procedures of the activity for managing and provisioning credit risk according to the size of the subsidiary and the market in which it operates. The principal elements of these procedures are:

- implementation of credit limits with different authorization schemes;
- use of insurance policies or specific guarantees (letters of credit);
- regular monitoring and assessment of overdue accounts (aging balance), including dunning procedures.

Counterparties are subject to credit assessment and approval prior to any transaction being concluded. Regular reviews are made for all active counterparties including a re-appraisal and renewing of the granted credit limits. The limits of the counterparties are assessed based on quantitative and qualitative data regarding financial standing, together

with the review of any relevant third party and market information, such as that provided by rating agencies and insurance companies.

– **Trading & Shipping**

Trading & Shipping deals with commercial counterparties and financial institutions located throughout the world. Counterparties to physical and derivative transactions are primarily entities involved in the oil and gas industry or in the trading of energy commodities, or financial institutions. Credit risk coverage is arranged with financial institutions, international banks and insurance groups selected in accordance with strict criteria.

The Trading & Shipping division applies a strict policy of internal delegation of authority in order to set up credit limits by country and counterparty and approval processes for specific transactions. Credit exposures contracted under these limits and approvals are monitored on a daily basis.

Potential counterparties are subject to credit assessment and approval prior to any transaction being concluded and all active counterparties are subject to regular reviews, including re-appraisal and approval of granted limits. The creditworthiness of counterparties is assessed based on an analysis of quantitative and qualitative data regarding financial standing and business risks, together with the review of any relevant third party and market information, such as ratings published by Standard & Poor's, Moody's Investors Service and other agencies.

Contractual arrangements are structured so as to maximize the risk mitigation benefits of netting between transactions wherever possible and additional protective terms providing for the provision of security in the event of financial deterioration and the termination of transactions on the occurrence of defined default events are used to the greatest permitted extent.

Credit risks in excess of approved levels are secured by means of letters of credit and other guarantees, cash deposits and insurance arrangements. In respect of derivative transactions, risks are secured by margin call contracts wherever possible.

– **Marketing & Services segment**

Internal procedures for the Marketing & Services division include rules on credit risk that describe the basis of internal control in this domain, including the separation of authority between commercial and financial operations.

Credit policies are defined at the local level and procedures to monitor customer risk are implemented (credit committees at the subsidiary level, the creation of credit limits for corporate customers, etc.). Each entity also implements monitoring of its outstanding receivables. Risks related to credit may be mitigated or limited by subscription of credit insurance and/or requiring security or guarantees.

NOTE 16 Financial instruments related to commodity contracts

16.1 Financial instruments related to commodity contracts

ACCOUNTING POLICIES

Financial instruments related to commodity contracts, including crude oil, petroleum products, gas, and power purchase/sales contracts within the trading activities, together with the commodity contract derivative instruments such as energy contracts and forward freight agreements, are used to adjust the Group's exposure to price fluctuations within global trading limits. According to the industry practice, these instruments are considered as held for trading. Changes in fair value are recorded in the statement of income. The fair value of these instruments is recorded in "Other current assets" or "Other creditors and accrued liabilities" depending on whether they are assets or liabilities.

The valuation methodology is to mark-to-market all open positions for both physical and paper transactions. The valuations are determined on a daily basis using observable market data based on organized and over the counter (OTC) markets. In particular cases when market data is not directly available, the valuations are derived from observable data such as arbitrages, freight or spreads and market corroboration. For valuation of risks which are the result of a calculation, such as options for example, commonly known models are used to compute the fair value.

As of December 31, 2019 (M\$)	Gross value before offsetting – assets	Gross value before offsetting – liabilities	Amounts offset – assets ^(c)	Amounts offset – liabilities ^(c)	Net balance sheet value presented – assets	Net balance sheet value presented – liabilities	Other amounts not offset	Net carrying amount	Fair value ^(b)
ASSETS/(LIABILITIES)									
Crude oil, petroleum products and freight rates activities									
Petroleum products, crude oil and freight rate swaps	152	(244)	(73)	73	79	(171)	–	(92)	(92)
Forwards ^(a)	300	(297)	(3)	3	297	(294)	–	3	3
Options	73	(106)	–	–	73	(106)	–	(33)	(33)
Futures	–	–	–	–	–	–	–	–	–
Options on futures	–	(160)	–	–	–	(160)	–	(160)	(160)
Other/Collateral	–	–	–	–	–	–	147	147	147
TOTAL CRUDE OIL, PETROLEUM PRODUCTS AND FREIGHT RATES	525	(807)	(76)	76	449	(731)	147	(135)	(135)
Integrated Gas, Renewables & Power activities									
Swaps	469	9	39	(39)	508	(30)	–	478	478
Forwards ^(a)	4,080	(4,831)	(296)	296	3,784	(4,535)	–	(751)	(751)
Options	76	(37)	(28)	28	48	(9)	–	39	39
Futures	17	(43)	(15)	15	2	(28)	–	(26)	(26)
Other/Collateral	–	–	–	–	–	–	(772)	(772)	(772)
TOTAL INTEGRATED GAS, RENEWABLES & POWER	4,642	(4,902)	(300)	300	4,342	(4,602)	(772)	(1,032)	(1,032)
TOTAL	5,167	(5,709)	(376)	376	4,791	(5,333)	(625)	(1,167)	(1,167)

Total of fair value non recognized in the balance sheet

(a) Forwards: contracts resulting in physical delivery are accounted for as derivative commodity contracts and included in the amounts shown.

(b) When the fair value of derivatives listed on an organized exchange market (futures, options on futures and swaps) is offset with the margin call received or paid in the balance sheet, this fair value is set to zero.

(c) Amounts offset in accordance with IAS 32.

As of December 31, 2018 (M\$)	Gross value before offsetting – assets	Gross value before offsetting – liabilities	Amounts offset – assets ^(c)	Amounts offset – liabilities ^(c)	Net balance sheet value presented – assets	Net balance sheet value presented – liabilities	Other amounts not offset	Net carrying amount	Fair value ^(b)
ASSETS/(LIABILITIES)									
Crude oil, petroleum products and freight rates activities									
Petroleum products, crude oil and freight rate swaps	389	(272)	(140)	140	249	(132)	–	117	117
Forwards ^(a)	243	(373)	(59)	59	184	(314)	–	(130)	(130)
Options	243	(363)	(156)	156	87	(207)	–	(120)	(120)
Futures	10	–	–	–	10	–	–	10	10
Options on futures	529	(689)	(529)	529	–	(160)	–	(160)	(160)
Other/Collateral	–	–	–	–	–	–	(118)	(118)	(118)
TOTAL CRUDE OIL, PETROLEUM PRODUCTS AND FREIGHT RATES	1,414	(1,697)	(884)	884	530	(813)	(118)	(401)	(401)
Integrated Gas, Renewables & Power activities									
Swaps	18	(624)	(6)	6	12	(618)	–	(606)	(606)
Forwards ^(a)	2,492	(2,285)	(316)	316	2,176	(1,969)	–	207	207
Options	3	(20)	(18)	18	(15)	(2)	–	(17)	(17)
Futures	126	(125)	(98)	98	28	(27)	–	1	1
Other/Collateral	–	–	–	–	–	–	445	445	445
Total Integrated Gas, Renewables & Power	2,639	(3,054)	(438)	438	2,201	(2,616)	445	30	30
TOTAL	4,053	(4,751)	(1,322)	1,322	2,731	(3,429)	327	(371)	(371)

Total of fair value non recognized in the balance sheet

(a) Forwards: contracts resulting in physical delivery are accounted for as derivative commodity contracts and included in the amounts shown.

(b) When the fair value of derivatives listed on an organized exchange market (futures, options on futures and swaps) is offset with the margin call received or paid in the balance sheet, this fair value is set to zero.

(c) Amounts offset in accordance with IAS 32.

As of December 31, 2017 (M\$)	Gross value before offsetting – assets	Gross value before offsetting – liabilities	Amounts offset – assets ^(c)	Amounts offset – liabilities ^(c)	Net balance sheet value presented – assets	Net balance sheet value presented – liabilities	Other amounts not offset	Net carrying amount	Fair value ^(b)
Crude oil, petroleum products and freight rates activities									
Petroleum products, crude oil and freight rate swaps	244	(333)	(102)	102	142	(231)	–	(89)	(89)
Forwards ^(a)	109	(113)	(12)	12	97	(101)	–	(4)	(4)
Options	82	(163)	(52)	52	30	(111)	–	(81)	(81)
Futures	–	–	–	–	–	–	–	–	–
Options on futures	202	(251)	(155)	155	47	(96)	–	(49)	(49)
Other/Collateral	–	–	–	–	–	–	63	63	63
TOTAL CRUDE OIL, PETROLEUM PRODUCTS AND FREIGHT RATES	637	(860)	(321)	321	316	(539)	63	(160)	(160)
Integrated Gas, Renewables & Power activities									
Swaps	76	(7)	(3)	3	73	(4)	–	69	69
Forwards ^(a)	1,717	(1,345)	(92)	92	1,625	(1,253)	–	372	372
Options	6	(30)	(33)	33	(27)	3	–	(24)	(24)
Futures	–	(1)	–	–	–	(1)	–	(1)	(1)
Other/Collateral	–	–	–	–	–	–	(86)	(86)	(86)
TOTAL INTEGRATED GAS, RENEWABLES & POWER	1,799	(1,383)	(128)	128	1,671	(1,255)	(86)	330	330
TOTAL	2,436	(2,243)	(449)	449	1,987	(1,794)	(23)	170	170

Total of fair value non recognized in the balance sheet

(a) Forwards: contracts resulting in physical delivery are accounted for as derivative commodity contracts and included in the amounts shown.

(b) When the fair value of derivatives listed on an organized exchange market (futures, options on futures and swaps) is offset with the margin call received or paid in the balance sheet, this fair value is set to zero.

(c) Amounts offset in accordance with IAS 32.

Commitments on crude oil and refined products have, for the most part, a short-term maturity (less than one year).

The changes in fair value of financial instruments related to commodity contracts are detailed as follows:

For the year ended December 31 (M\$)	Fair value as of January 1	Impact on income	Settled contracts	Other	Fair value as of December 31
Crude oil, petroleum products and freight rates activities					
2019	(283)	4,189	(4,188)	–	(282)
2018	(223)	2,689	(2,749)	–	(283)
2017	130	2,693	(3,047)	–	(223)
Integrated Gas, Renewables & Power activities					
2019	(415)	1,588	(686)	(747)	(260)
2018	416	1,220	(2,057)	6	(415)
2017	218	717	(554)	35	416

In 2019, the Other column mainly includes the acquisition of Toshiba's LNG portfolio, for which financial instruments related to commodity contracts have been recognized for the amount of treasury received.

The fair value hierarchy for financial instruments related to commodity contracts is as follows:

As of December 31, 2019 (M\$)	Quoted prices in active markets for identical assets (level 1)	Prices based on observable data (level 2)	Prices based on non observable data (level 3)	Total
Crude oil, petroleum products and freight rates activities	(182)	(172)	72	(282)
Integrated Gas, Renewables & Power activities	392	2,054	(2,706)	(260)
TOTAL	210	1,882	(2,634)	(542)

As of December 31, 2018 (M\$)	Quoted prices in active markets for identical assets (level 1)	Prices based on observable data (level 2)	Prices based on non observable data (level 3)	Total
Crude oil, petroleum products and freight rates activities	(303)	20	–	(283)
Integrated Gas, Renewables & Power activities	424	(638)	(201)	(415)
TOTAL	121	(618)	(201)	(698)

As of December 31, 2017 (M\$)	Quoted prices in active markets for identical assets (level 1)	Prices based on observable data (level 2)	Prices based on non observable data (level 3)	Total
Crude oil, petroleum products and freight rates activities	(49)	(173)	–	(223)
Integrated Gas, Renewables & Power activities	288	128	–	416
TOTAL	239	(45)	–	193

Financial instruments classified as level 3 are mainly composed of long-term liquefied natural gas purchase and sale contracts which relate to the trading activity.

For the purpose of valuation and accounting of LNG contracts, the Group refers to the active management horizon for trading positions which corresponds to 12 months in 2019 compared to 2 years in 2018, considering the observed changes of the market. Indeed, the growing and increasingly liquid LNG market is moving towards a commodities market with a shorter management horizon. The management of positions being carried out on a net value of LNG purchase and sale commitments, the applied valuation method is the contract's portfolio method based mostly on observable market data such as the prices of energy raw materials forward contracts.

Concerning the period beyond the management horizon, a sensitivity analysis is carried out to verify that no liability should be recognized. The assumptions used are based on internal assumptions such as the prices in the Group's strategic plan, price renegotiation clauses included in long-term contracts, uncertainties related to contracts execution and flexibilities included in LNG contracts.

The valuation method of the portfolio of LNG contracts is sensitive to market risks, and more specifically to price risk resulting from the volatility of oil and natural gas prices on the North American, Asian, and European markets, and to the valuation of flexibilities.

The description of each fair value level is presented in Note 15 to the Consolidated Financial Statements.

Cash Flow hedge

The impact on the statement of income and other comprehensive income of the hedging instruments related to commodity contracts and qualified as cash flow hedges is detailed as follows:

As of December 31 (M\$)	2019	2018	2017
Profit (Loss) recorded in equity during the period	(14)	3	71
Recycled amount from equity to the income statement during the period	–	(3)	(6)

These financial instruments are mainly one year term Henry Hub derivatives.

As of December 31, 2019, the ineffective portion of these financial instruments is nil, (in 2018 and in 2017 the ineffective portion of these financial instruments was nil).

16.2 Oil, Gas and Power market related risks management

Due to the nature of its business, the Group has significant oil and gas trading activities as part of its day-to-day operations in order to optimize revenues from its oil and gas production and to obtain favorable pricing to supply its refineries.

In its international oil trading business, the Group follows a policy of not selling its future production. However, in connection with this trading business, the Group, like most other oil companies, uses energy derivative instruments to adjust its exposure to price fluctuations of crude oil, refined products, natural gas, and power. The Group also uses freight rate derivative contracts in its shipping business to adjust its exposure to freight-rate fluctuations. To hedge against this risk, the Group uses various instruments such as futures, forwards, swaps and options on organized markets or over-the-counter markets. The list of the different derivatives held by the Group in these markets is detailed in Note 16.1 to the Consolidated Financial Statements.

The Trading & Shipping division measures its market risk exposure, i.e. potential loss in fair values, on its crude oil, refined products and freight rates trading activities using a value-at-risk technique. This technique is based on an historical model and makes an assessment of the market risk arising from possible future changes in market values over a 24-hour period. The calculation of the range of potential changes in fair values is based on the end-of-day exposures and historical price movements of the last 400 business days for all traded instruments and maturities. Options are systematically re-evaluated using appropriate models.

The “value-at-risk” represents the most unfavorable movement in fair value obtained with a 97.5% confidence level. This means that the Group’s portfolio result is likely to exceed the value-at-risk loss measure once over 40 business days if the portfolio exposures were left unchanged.

Trading & Shipping : value-at-risk with a 97.5% probability

As of December 31,

(M\$)

	High	Low	Average	Year end
2019	28	9	17	21
2018	21	5	12	7
2017	28	4	16	7

As part of its gas and power trading activity, the Group also uses derivative instruments such as futures, forwards, swaps and options in both organized and over-the-counter markets. In general, the transactions are settled at maturity date through physical delivery. The Gas division measures its market risk exposure, i.e. potential loss in fair values, on its trading business using a value-at-risk technique. This technique is based on an historical model and makes an assessment

of the market risk arising from possible future changes in market values over a one-day period. The calculation of the range of potential changes in fair values takes into account a snapshot of the end-of-day exposures and the set of historical price movements for the past two years for all instruments and maturities in the global trading business.

Integrated Gas, Renewables & Power division trading : value-at-risk with a 97.5% probability

As of December 31,

(M\$)

	High	Low	Average	Year end
2019	83	10	20	64
2018	20	3	10	10
2017	13	3	6	4

The Group has implemented strict policies and procedures to manage and monitor these market risks. These are based on the separation of control and front-office functions and on an integrated information system that enables real-time monitoring of trading activities.

Limits on trading positions are approved by the Group’s Executive Committee and are monitored daily. To increase flexibility and encourage liquidity, hedging operations are performed with numerous independent operators, including other oil companies, major energy producers or consumers and financial institutions. The Group has established counterparty limits and monitors outstanding amounts with each counterparty on an ongoing basis.

NOTE 17 Post closing events

There was no post closing event.

NOTE 18 Consolidation scope

As of December 31, 2019, 1,134 entities are consolidated of which 140 are accounted for under the equity method (E).

The table below sets forth the main Group consolidated entities:

Exploration & Production					
Abu Dhabi Gas Industries Limited	15.00%	E	United Arab Emirates	United Arab Emirates	
Abu Dhabi Marine Areas Limited	33.33%	E	United Kingdom	United Arab Emirates	
Angola Block 14 B.V.	50.01%		Netherlands	Angola	
Angola LNG Supply Services, LLC	13.60%	E	United States	United States	
Bonny Gas Transport Limited	15.00%	E	Bermuda	Nigeria	
Brass Holdings S.A.R.L.	100.00%		Luxembourg	Nigeria	
Brass LNG Limited	20.48%	E	Nigeria	Nigeria	
Deer Creek Pipelines Limited	75.00%		Canada	Canada	
Dolphin Energy Limited	24.50%	E	United Arab Emirates	United Arab Emirates	
E.F. Oil And Gas Limited	100.00%		United Kingdom	United Kingdom	
Elf E&P	100.00%		France	France	
Elf Exploration UK Limited	100.00%		United Kingdom	United Kingdom	
Elf Petroleum Iran	100.00%		France	Iran	
Elf Petroleum UK Limited	100.00%		United Kingdom	United Kingdom	
Gas Investment and Services Company Limited	10.00%	E	Bermuda	Oman	
Mabruk Oil Operations	49.02%		France	Libya	
Marathon Oil Libya Limited	100.00%		Cayman Islands	Libya	
Moattama Gas Transportation Company Limited	31.24%	E	Bermuda	Myanmar	
Norpipe Oil A/S	34.93%	E	Norway	Norway	
Norpipe Petroleum UK Limited	45.22%	E	United Kingdom	Norway	
Norpipe Terminal Holdco Limited	45.22%	E	United Kingdom	Norway	
Norsea Pipeline Limited	45.22%	E	United Kingdom	Norway	
North Oil Company	30.00%	E	Qatar	Qatar	
Novatek	19.40%	E	Russia	Russia	
Pars LNG Limited	40.00%	E	Bermuda	Iran	
Petrocedeno	30.32%	E	Venezuela	Venezuela	
Private Oil Holdings Oman Limited	10.00%	E	United Kingdom	Oman	
Stogg Eagle Funding B.V.	100.00%		Netherlands	Nigeria	
Tepkri Sarsang A/S	100.00%		Denmark	Iraq	
Termokarstovoye S.A.S.	100.00%		France	Russia	
Terneftegaz JSC ^(a)	58.89%	E	Russia	Russia	
Total (BTC) B.V.	100.00%		Netherlands	Azerbaijan	
Total Abu Al Bu Khoosh	100.00%		France	United Arab Emirates	
Total Austral	100.00%		France	Argentina	
Total Brazil Services B.V.	100.00%		Netherlands	Netherlands	
Total Danmark Pipelines A/S	100.00%		Denmark	Denmark	
Total Denmark ASW Pipeline ApS	100.00%		Denmark	Denmark	
Total Denmark ASW, Inc.	100.00%		United States	Denmark	

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Exploration & Production (Continued)					
	Total Dolphin Midstream	100.00%		France	United Arab Emirates
	Total E&P Chissonga Limited	100.00%		Angola	Angola
	Total E&P Absheron B.V.	100.00%		Netherlands	Azerbaijan
	Total E&P Al Shaheen A/S	100.00%		Denmark	Qatar
	Total E&P Algerie	100.00%		France	Algeria
	Total E&P Algerie Berkine A/S	100.00%		Algeria	Algeria
	Total E&P Americas, LLC	100.00%		United States	United States
	Total E&P Anchor, LLC	100.00%		United States	United States
	Total E&P Angola	100.00%		France	Angola
	Total E&P Angola Block 15/06 Limited	100.00%		France	Angola
	Total E&P Angola Block 16 A/S	100.00%		Denmark	Angola
	Total E&P Angola Block 16 Holding A/S	100.00%		Angola	Angola
	Total E&P Angola Block 17.06	100.00%		France	Angola
	Total E&P Angola Block 25	100.00%		France	Angola
	Total E&P Angola Block 32	100.00%		France	Angola
	Total E&P Angola Block 33	100.00%		France	Angola
	Total E&P Angola Block 39	100.00%		France	Angola
	Total E&P Angola Block 40	100.00%		France	Angola
	Total E&P Angola Block 48 B.V.	100.00%		Netherlands	Angola
	Total E&P Angola Chissonga Holdings Limited	100.00%		Angola	Angola
	Total E&P Aruba B.V.	100.00%		Netherlands	Aruba
	Total E&P Asia Pacific Pte. Limited	100.00%		Singapore	Singapore
	Total E&P Azerbaijan B.V.	100.00%		Netherlands	Azerbaijan
	Total E&P Bolivie	100.00%		France	Bolivia
	Total E&P Borneo B.V.	100.00%		Netherlands	Brunei
	Total E&P Bulgaria B.V.	100.00%		Netherlands	Bulgaria
	Total E&P Cambodge	100.00%		France	Cambodia
	Total E&P Canada Limited	100.00%		Canada	Canada
	Total E&P Chine	100.00%		France	China
	Total E&P Colombie	100.00%		France	Colombia
	Total E&P Congo	85.00%		Congo	Congo
	Total E&P Cote d'Ivoire	100.00%		France	Côte d'Ivoire
	Total E&P Cote d'Ivoire CI - 514	100.00%		France	Côte d'Ivoire
	Total E&P Cote d'Ivoire CI - 515	100.00%		France	Côte d'Ivoire
	Total E&P Cote d'Ivoire CI - 516	100.00%		France	Côte d'Ivoire
	Total E&P Cote d'Ivoire CI-605 B.V.	100.00%		Netherlands	Côte d'Ivoire
	Total E&P Cyprus B.V.	100.00%		Netherlands	Cyprus
	Total E&P Danmark A/S - CPH	100.00%		Denmark	Denmark
	Total E&P Danmark A/S -EBJ	100.00%		Denmark	Denmark
	Total E&P Deep Offshore Borneo B.V.	100.00%		Netherlands	Brunei
	Total E&P Do Brasil Ltda	100.00%		Brazil	Brazil
	Total E&P Dolphin Upstream	100.00%		France	Qatar
	Total E&P Dunga GmbH	100.00%		Germany	Kazakhstan
	Total E&P East El Burullus Offshore B.V.	100.00%		Netherlands	Egypt
	Total E&P Egypt Block 2 B.V.	100.00%		Netherlands	Egypt
	Total E&P Egypte	100.00%		France	Egypt
	Total E&P Europe and Central Asia Limited	100.00%		United Kingdom	United Kingdom
	Total E&P France	100.00%		France	France
	Total E&P Golfe Limited	100.00%		France	France

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Exploration & Production (Continued)					
	Total E&P Gom Moh. LLC	100.00%		United States	United States
	Total E&P Greece B.V.	100.00%		Netherlands	Greece
	Total E&P Guyana B.V.	100.00%		Netherlands	Guyana
	Total E&P Guyane Francaise	100.00%		France	France
	Total E&P Holdings Russia	100.00%		France	France
	Total E&P Holdings UAE B.V.	100.00%		Netherlands	United Arab Emirates
	Total E&P International K1 Limited	100.00%		Kenya	Kenya
	Total E&P International K2 Limited	100.00%		Kenya	Kenya
	Total E&P International K3 Limited	100.00%		Kenya	Kenya
	Total E&P International Limited	100.00%		Kenya	Kenya
	Total E&P Iraq	100.00%		France	Iraq
	Total E&P Ireland B.V.	100.00%		Netherlands	Ireland
	Total E&P Italia	100.00%		Italy	Italy
	Total E&P Jack LLC	100.00%		United States	United States
	Total E&P Jutland Denmark B.V.	100.00%		Netherlands	Denmark
	Total E&P Kazakhstan	100.00%		France	Kazakhstan
	Total E&P Kenya B.V.	100.00%		Netherlands	Kenya
	Total E&P Kurdistan Region of Iraq (Harir) B.V.	100.00%		Netherlands	Iraq
	Total E&P Kurdistan Region of Iraq (Safer) B.V.	100.00%		Netherlands	Iraq
	Total E&P Kurdistan Region of Iraq (Taza) B.V.	100.00%		Netherlands	Iraq
	Total E&P Kurdistan Region of Iraq B.V.	100.00%		Netherlands	Iraq
	Total E&P Liban S.A.L.	100.00%		Lebanon	Lebanon
	Total E&P Libye	100.00%		France	Libya
	Total E&P Lower Zakum B.V.	100.00%		Netherlands	United Arab Emirates
	Total E&P Malaysia	100.00%		France	Malaysia
	Total E&P Mauritania Block C18 B.V.	100.00%		Netherlands	Mauritania
	Total E&P Mauritania Block C9 B.V.	100.00%		Netherlands	Mauritania
	Total E&P Mauritania Blocks DW B.V.	100.00%		Netherlands	Mauritania
	Total E&P Mauritanie	100.00%		France	Mauritania
	Total E&P Mexico S.A. de C.V.	100.00%		Mexico	Mexico
	Total E&P Mozambique B.V.	100.00%		Netherlands	Mozambique
	Total E&P Myanmar	100.00%		France	Myanmar
	Total E&P Namibia B.V.	100.00%		Netherlands	Netherlands
	Total E&P Nederland B.V.	100.00%		Netherlands	Netherlands
	Total E&P New Ventures Inc.	100.00%		United States	United States
	Total E&P Nigeria Deepwater A Limited	100.00%		Nigeria	Nigeria
	Total E&P Nigeria Deepwater B Limited	100.00%		Nigeria	Nigeria
	Total E&P Nigeria Deepwater C Limited	100.00%		Nigeria	Nigeria
	Total E&P Nigeria Deepwater D Limited	100.00%		Nigeria	Nigeria
	Total E&P Nigeria Deepwater E Limited	100.00%		Nigeria	Nigeria
	Total E&P Nigeria Deepwater F Limited	100.00%		Nigeria	Nigeria
	Total E&P Nigeria Deepwater G Limited	100.00%		Nigeria	Nigeria
	Total E&P Nigeria Deepwater H Limited	100.00%		Nigeria	Nigeria
	Total E&P Nigeria Limited	100.00%		Nigeria	Nigeria
	Total E&P Nigeria S.A.S.	100.00%		France	France
	Total E&P Norge AS	100.00%		Norway	Norway
	Total E&P North Sea UK Limited	100.00%		United Kingdom	United Kingdom
	Total E&P Oman	100.00%		France	Oman
	Total E&P Participations Petrolieres Congo	100.00%		Congo	Congo

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Exploration & Production (Continued)					
	Total E&P Philippines B.V.	100.00%		Netherlands	Philippines
	Total E&P Qatar	100.00%		France	Qatar
	Total E&P RDC	100.00%		Democratic Republic of Congo	Democratic Republic of Congo
	Total E&P Research & Technology USA LLC	100.00%		United States	United States
	Total E&P Russie	100.00%		France	Russia
	Total E&P Senegal	100.00%		France	Senegal
	Total E&P Services China Company Limited	100.00%		China	China
	Total E&P South Africa B.V.	100.00%		Netherlands	South Africa
	Total E&P South Pars	100.00%		France	Iran
	Total E&P South Sudan	100.00%		France	Republic of South Sudan
	Total E&P Syrie	100.00%		France	Syrian Arab Republic
	Total E&P Tajikistan B.V.	100.00%		Netherlands	Tajikistan
	Total E&P Thailand	100.00%		France	Thailand
	Total E&P Three PI B.V.	100.00%		Netherlands	Brazil
	Total E&P Timan-Pechora LLC	100.00%		Russia	Russia
	Total E&P UAE Unconventional Gas B.V.	100.00%		Netherlands	United Arab Emirates
	Total E&P Uganda B.V.	100.00%		Netherlands	Uganda
	Total E&P UK Limited	100.00%		United Kingdom	United Kingdom
	Total E&P Umm Shaif Nasr B.V.	100.00%		Netherlands	United Arab Emirates
	Total E&P Uruguay B.V.	100.00%		Netherlands	Uruguay
	Total E&P Uruguay Onshore B.V.	100.00%		Netherlands	Uruguay
	Total E&P US Well Containment, LLC	100.00%		United States	United States
	Total E&P USA Inc.	100.00%		United States	United States
	Total E&P USA Oil Shale, LLC	100.00%		United States	United States
	Total E&P Well Response	100.00%		France	France
	Total E&P Yemen	100.00%		France	Yemen
	Total E&P Yemen Block 3 B.V.	100.00%		Netherlands	Yemen
	Total East Africa Midstream B.V.	100.00%		Netherlands	Uganda
	Total Energy (Meuk) Limited	100.00%		United Kingdom	United Kingdom
	Total Exploration M'Bridge	100.00%		Netherlands	Angola
	Total Facilities Management B.V.	100.00%		Netherlands	Netherlands
	Total Gabon	58.28%		Gabon	Gabon
	Total Gass Handel Norge AS	100.00%		Norway	Norway
	Total Gastransport Nederland B.V.	100.00%		Netherlands	Netherlands
	Total Holding Dolphin Amont	100.00%		France	Qatar
	Total Holdings Nederland B.V.	100.00%		Netherlands	Netherlands
	Total Holdings Nederland International B.V.	100.00%		Netherlands	Netherlands
	Total Iran B.V.	100.00%		Netherlands	Iran
	Total LNG Supply Services USA Inc.	100.00%		United States	United States
	Total Oil and Gas South America	100.00%		France	France
	Total Oil and Gas Venezuela B.V.	100.00%		Netherlands	Venezuela
	Total Oil Gb Limited	100.00%		United Kingdom	United Kingdom
	Total Oil UK Limited	100.00%		United Kingdom	United Kingdom
	Total P&G do Brasil Ltda	100.00%		Brazil	Brazil
	Total Pars LNG	100.00%		France	Iran
	Total Petroleum Angola	100.00%		France	Angola
	Total Profils Petroliers	100.00%		France	France
	Total Qatar	100.00%		France	Qatar

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Exploration & Production (Continued)					
	Total South Pars	100.00%		France	Iran
	Total Upstream Danmark A/S	100.00%		Denmark	Denmark
	Total Upstream Nigeria Limited	100.00%		Nigeria	Nigeria
	Total Upstream UK Limited	100.00%		United Kingdom	United Kingdom
	Total Venezuela	100.00%		France	France
	Uintah Colorado Resources, LLC	66.67%		United States	United States
	Unitah Colorado Resources II, LLC	100.00%		United States	United States
	Ypergas S.A.	37.33%		France	Venezuela
Integrated Gas, Renewables & Power					
	Abu Dhabi Gas Liquefaction Company Limited	5.00%	E	United Arab Emirates	United Arab Emirates
	Adani Total Private Limited ^(a)	50.00%	E	India	India
	Advanced Thermal Batteries Inc.	49.67%	E	United States	United States
	Aerospatiale Batteries (ASB)	49.67%	E	France	France
	Aerowatt Energies	65.00%	E	France	France
	Aerowatt Energies 2	51.00%	E	France	France
	Aerowatt Energies Nogara	65.00%	E	France	France
	Aerowatt Energies Nogara 2	51.00%	E	France	France
	Alcad AB	99.34%		Sweden	Sweden
	Altinerie	51.00%	E	France	France
	Angola LNG Limited	13.60%	E	Bermuda	Angola
	Arctic LNG 2 LLC ^(b)	21.64%	E	Russia	Russia
	ATJV Offshore	50.00%	E	Singapore	Singapore
	Bassin Du Capiscol	100.00%		France	France
	Biogaz Breuil	100.00%		France	France
	Biogaz Chatillon	100.00%		France	France
	Biogaz Corcelles	100.00%		France	France
	Biogaz Epinay	100.00%		France	France
	Biogaz Libron	100.00%		France	France
	Biogaz Milhac	100.00%		France	France
	Biogaz Soignolles	100.00%		France	France
	Biogaz Torcy	100.00%		France	France
	Biogaz Vert Le Grand	100.00%		France	France
	Biogaz Viriat	100.00%		France	France
	Borrowed Sunshine II Parent, LLC	46.74%		United States	United States
	Borrowed Sunshine II, LLC	46.74%		United States	United States
	BSP Class B Member HoldCo, LLC	46.74%		United States	United States
	BSP Class B Member, LLC	46.74%		United States	United States
	BSP Holding Company, LLC	46.74%		United States	United States
	BSP II Parent, LLC	46.74%		United States	United States
	Cameron LNG Holdings LLC	16.60%	E	United States	United States
	Centrale Eolienne De Couloumi	51.00%		France	France
	Centrale Eolienne De Coume	100.00%		France	France
	Centrale Eolienne De Dainville	100.00%		France	France
	Centrale Eolienne De Goulien	100.00%		France	France
	Centrale Eolienne De La Vallee Gentillesse	74.80%		France	France
	Centrale Eolienne De L'Olivier	51.00%		France	France
	Centrale Eolienne Des Malandaux	51.00%		France	France
	Centrale Eolienne Du Plan Du Pal	51.00%		France	France
	Centrale Eolienne La Cote Du Moulin A Vent	100.00%		France	France

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Integrated Gas, Renewables & Power (Continued)					
	Centrale Eolienne La Croix De Cuitot	51.00%		France	France
	Centrale Eolienne Les Champs Parents	51.00%		France	France
	Centrale Eolienne Varades	51.00%		France	France
	Centrale Hydrolique Alas	100.00%		France	France
	Centrale Hydrolique Ardon	90.00%		France	France
	Centrale Hydrolique Arvan	100.00%		France	France
	Centrale Hydrolique Barbaira	100.00%		France	France
	Centrale Hydrolique Bonnart	100.00%		France	France
	Centrale Hydrolique La Buisserie	100.00%		France	France
	Centrale Hydrolique Previnquieres	100.00%		France	France
	Centrale Photovoltaïque De La Croix	100.00%		France	France
	Centrale Photovoltaïque De Merle Sud	40.58%	E	France	France
	Centrale Photovoltaïque Du Seneguiet	100.00%		France	France
	Centrale Photovoltaïque Le Barou	100.00%		France	France
	Centrale Solaire 2	100.00%		France	United States
	Centrale Solaire Autoprod	100.00%		France	France
	Centrale Solaire Base 112	100.00%		France	France
	Centrale Solaire Bethenville	51.12%	E	France	France
	Centrale Solaire Briffaut	100.00%		France	France
	Centrale Solaire Centre Ouest 2	100.00%		France	France
	Centrale Solaire Cet De Hesse	100.00%		France	France
	Centrale Solaire Chemin De Melette	100.00%		France	France
	Centrale Solaire Couloumine	100.00%		France	France
	Centrale Solaire De Cazedarnes	75.00%		France	France
	Centrale Solaire de la Med	100.00%		France	France
	Centrale Solaire Dom	100.00%		France	France
	Centrale Solaire Du Centre Ouest	100.00%		France	France
	Centrale Solaire Du Lavoit	60.00%		France	France
	Centrale Solaire Du Pla De La Roque	100.00%		France	France
	Centrale Solaire Estarac	35.00%	E	France	France
	Centrale Solaire Felix	100.00%		France	France
	Centrale Solaire Ficon	100.00%		France	France
	Centrale Solaire Forum Laudun	100.00%		France	France
	Centrale Solaire Fremy	100.00%		France	France
	Centrale Solaire Gardanne	100.00%		France	France
	Centrale Solaire Gigognan	51.49%	E	France	France
	Centrale Solaire Guinots	100.00%		France	France
	Centrale Solaire Heliovale	59.63%	E	France	France
	Centrale Solaire La Metairie	100.00%		France	France
	Centrale Solaire La Potence	100.00%		France	France
	Centrale Solaire La Sauteirane	100.00%		France	France
	Centrale Solaire La Tastere	100.00%		France	France
	Centrale Solaire Le Castellet	100.00%		France	France
	Centrale Solaire Le Cres	51.49%	E	France	France
	Centrale Solaire Les Ancizes	100.00%		France	France
	Centrale Solaire Les Aspres	100.00%		France	France
	Centrale Solaire Les Canebieres	100.00%		France	France
	Centrale Solaire Les Cordeliers	83.98%		France	France
	Centrale Solaire Les Cordeliers 2	100.00%		France	France

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Integrated Gas, Renewables & Power (Continued)					
	Centrale Solaire Les Gallienes	100.00%		France	France
	Centrale Solaire Les Melettes	100.00%		France	France
	Centrale Solaire Lodes	100.00%		France	France
	Centrale Solaire Lyreco	100.00%		France	France
	Centrale Solaire Manosque Ombriere	100.00%		France	France
	Centrale Solaire Mazeran Lr	100.00%		France	France
	Centrale Solaire Mazeran Paca	100.00%		France	France
	Centrale Solaire Olinoca	10.00%	E	France	France
	Centrale Solaire Ombrieres Cap Agathois	83.98%		France	France
	Centrale Solaire Ombrieres De Blyes	100.00%		France	France
	Centrale Solaire Ombrieres De Boujan	100.00%		France	France
	Centrale Solaire Ombrieres P5	100.00%		France	France
	Centrale Solaire Pezenas	100.00%		France	France
	Centrale Solaire Piennes	100.00%		France	France
	Centrale Solaire Plateau De Pouls	51.00%		France	France
	Centrale Solaire Pont Sur Sambre	100.00%		France	France
	Centrale Solaire Quadrao	100.00%		France	France
	Centrale Solaire Sableyes	51.49%	E	France	France
	Centrale Solaire SPW2	100.00%		France	France
	Centrale Solaire Supdevenergie	100.00%		France	France
	Centrale Solaire Toiture Josse	100.00%		France	France
	Centrale Solaire Valorbi	100.00%		France	France
	Centrale Solaire Viguier	100.00%		France	France
	Centrale Solaire Zabo	100.00%		France	France
	Centrale Solaire Zabo 2	100.00%		France	France
	Co Biogaz	26.00%	E	France	France
	Cogenra Solar, Inc.	46.74%		United States	United States
	Colón LNG Marketing S. de R. L.	50.00%	E	Panama	Panama
	Cote d'Ivoire GNL	34.00%	E	Côte d'Ivoire	Côte d'Ivoire
	DAJA 148	100.00%		France	France
	DAJA 154	100.00%		France	France
	DAJA 160	100.00%		France	France
	Dongfang Huansheng Photovoltaic (Jiangsu) Company Limited	9.35%	E	China	United States
	Electricite Solaire De Molleges	100.00%		France	France
	Eole Balaze 2	65.00%	E	France	France
	Eole Balaze S.A.R.L.	66.75%	E	France	France
	Eole Boin	100.00%		France	France
	Eole Broceliande	51.00%		France	France
	Eole Champagne Conlinoise	100.00%		France	France
	Eole Cote Du Moulin	100.00%		France	France
	Eole Desirade 4	66.67%	E	France	France
	Eole Du Bocage	51.00%		France	France
	Eole Fonds Caraibes	100.00%		France	France
	Eole Grand Maison	100.00%		France	France
	Eole La Montagne	87.60%		France	France
	Eole La Motelle	66.67%	E	France	France
	Eole La Perriere S.A.R.L.	100.00%		France	France
	Eole Les Buissons	100.00%		France	France

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Integrated Gas, Renewables & Power (Continued)					
	Eole Les Patoures	51.00%		France	France
	Eole Maxent	66.75%	E	France	France
	Eole Morne Carriere	100.00%		France	France
	Eole Morne Constant	100.00%		France	France
	Eole Moulin Tizon	100.00%		France	France
	Eole Petit Fougeray	51.00%		France	France
	Eole Petite Place	53.45%	E	France	France
	Eole Pierrefitte Es Bois	100.00%		France	France
	Eole Saint-Jean Lachalm	100.00%		France	France
	Eole Sorbon II	100.00%		France	France
	Eole Sorbon S.A.R.L.	100.00%		France	France
	Eole Yate	100.00%		France	France
	Eoliennes Arques 1	100.00%		France	France
	Eoliennes Arques 2	100.00%		France	France
	Eoliennes Arques 3	100.00%		France	France
	Eoliennes De La Chaussee Brunehaut	51.00%		France	France
	Eoliennes De La Chaussee Brunehaut 1	51.00%		France	France
	Eoliennes De La Chaussee Brunehaut 2	51.00%		France	France
	Eoliennes De La Chaussee Brunehaut 3	51.00%		France	France
	Eoliennes De La Chaussee Brunehaut 4	51.00%		France	France
	Eoliennes De La Chaussee Brunehaut 5	51.00%		France	France
	Eoliennes De L'Ourcq Et Du Clignon	51.00%		France	France
	Eoliennes Du Champ Chardon	100.00%		France	France
	Eoloue	17.34%	E	France	France
	Fast Jung KB	99.34%		Sweden	Sweden
	Finansol 1	100.00%		France	France
	Finansol 2	100.00%		France	France
	Finansol 3	100.00%		France	France
	Fosmax LNG	27.50%	E	France	France
	Frieman & Wolf Batterietechnik GmbH	99.34%		Germany	Germany
	Gas Del Litoral SRLCV	25.00%	E	Mexico	Mexico
	GFS I Class B Member, LLC	46.74%		United States	United States
	Gfs I Holding Company, LLC	46.74%		United States	United States
	Glaciere De Palisse	100.00%		France	France
	Global Energy Armateur SNC	100.00%		France	France
	Global LNG Armateur S.A.S.	100.00%		France	France
	Global LNG Downstream S.A.S.	100.00%		France	France
	Global LNG North America Corporation	100.00%		United States	United States
	Global LNG S.A.S.	100.00%		France	France
	Global LNG Supply S.A.	100.00%		France	France
	Global LNG UK Limited	100.00%		United Kingdom	United Kingdom
	Go Electric	100.00%		United States	United States
	Golden Fields Solar I, LLC	46.74%		United States	United States
	Goodfellow Solar Construction, LLC	46.74%		United States	United States
	Goodfellow Solar II, LLC	46.74%		United States	United States
	Goodfellow Solar III, LLC	46.74%		United States	United States
	Greenflex Actirent Group, S.L.	100.00%		Spain	Spain
	Greenflex S.A.S.	100.00%		France	France
	Gulf Total Tractebel Power Company PSJC	20.00%	E	United Arab Emirates	United Arab Emirates

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Integrated Gas, Renewables & Power (Continued)					
	Helio 100 Kw	100.00%		France	France
	Helio 21	100.00%		France	France
	Helio 974 Toitures	100.00%		France	France
	Helio Bakia	100.00%		France	France
	Helio Beziers	65.53%	E	France	France
	Helio Boulouparis	100.00%		France	France
	Helio Boulouparis 2	100.00%		France	France
	Helio Florensac	65.35%	E	France	France
	Helio Fonds Caraibes	100.00%		France	France
	Helio Koumac	100.00%		France	France
	Helio La Perriere	66.67%	E	France	France
	Helio Logistique	65.09%	E	France	France
	Helio L'R	100.00%		France	France
	Helio Moindah	100.00%		France	France
	Helio Orange	65.06%	E	France	France
	Helio Piin Patch	100.00%		France	France
	Helio Popidery	100.00%		France	France
	Helio Reunion	100.00%		France	France
	Helio Tamoa	100.00%		France	France
	Helio Temala	100.00%		France	France
	Helix Project III, LLC	46.74%		United States	United States
	Helix Project V, LLC	46.74%		United States	United States
	HETTY	100.00%		France	France
	Holding Eole 2018	100.00%		France	France
	Holding Otev	100.00%		France	France
	Holding Pdr	100.00%		France	France
	Huaxia CPV (Inner Mongolia) Power Corporation, Limited	11.68%	E	China	United States
	Hydro Tinee	50.00%	E	France	France
	Hydro-M Ingenierie Des Energies Renouvelables	100.00%		France	France
	Hydromons	100.00%		France	France
	Ichthys LNG PTY Limited	26.00%	E	Australia	Australia
	Institut Photovoltaique D'Ile De France (IPVF)	43.00%		France	France
	Ise Total Nanao Power Plant G.K.	50.00%	E	Japan	Japan
	JDA Overseas Holdings, LLC	46.74%		United States	United States
	Jingdan New Energy investment (Shanghai) Co. Ltd	50.00%	E	China	China
	Jmb Hydro S.A.R.L.	100.00%		France	France
	Jmb Solar	100.00%		France	France
	Jmb Solar Nogara	100.00%		France	France
	Jmcp	50.05%		France	France
	Kozani Energy Anonymi Energeiaki Etaireia (distinctive title) Kozani Energy S.A.	46.74%		Greece	Greece
	Kozani Energy Malta Limited	46.74%		Malta	Malta
	LA Basin Solar I, LLC	46.74%		United States	United States
	La Compagnie Electrique de Bretagne	100.00%		France	France
	La Metairie Neuve	25.00%	E	France	France
	La Seauve	95.01%		France	France
	Lampiris S.A.	100.00%		Belgium	Belgium

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Integrated Gas, Renewables & Power (Continued)					
	Lemoore Stratford Land Holdings IV, LLC	46.74%		United States	United States
	Les Eoliennes De Conquereuil	100.00%		France	France
	Les Moulins A Vent De Kermadeen	51.00%		France	France
	Les Vents De Nivillac	100.00%		France	France
	Les Vents De Ranès	100.00%		France	France
	Libcom	100.00%		France	France
	Libwatt	100.00%		France	France
	Lincoln Solar Star, LLC	46.74%		United States	United States
	Margeriaz Energie	100.00%		France	France
	Marysville Unified School District Solar, LLC	46.74%		United States	United States
	Maxeon Solar Technologies, Pte. Ltd.	46.74%		Singapore	United States
	Messigaz SNC	100.00%		France	France
	Methanergy	100.00%		France	France
	Missiles & Space Batteries Limited	49.67%	E	United Kingdom	United Kingdom
	Miyagi Osato Solar Park G.K.	90.00%		Japan	Japan
	Miyako Kuzakai Solarpark G.K.	50.00%	E	Japan	Japan
	Mojave Solar Investment, LLC	46.74%		United States	United States
	Mulilo Prieska PV (RF) Proprietary Limited	27.00%	E	South Africa	South Africa
	National Gas Shipping Company Limited	5.00%	E	United Arab Emirates	United Arab Emirates
	NEM Solar Targetco, LLC	46.74%		United States	United States
	Nigeria LNG Limited	15.00%	E	Nigeria	Nigeria
	NorthStar Energy Management, LLC	46.74%		United States	United States
	Northstar Santa Clara County 2016, LLC	46.74%		United States	United States
	Nouvelle Centrale Eolienne de Lastours	50.00%	E	France	France
	Nouvelle Entreprise D'Energie Solaire	51.00%	E	France	France
	Nyk Armateur S.A.S.	50.00%	E	France	France
	Oman LNG, LLC	5.54%	E	Oman	Oman
	Ombrieres Te Vendres	100.00%		France	France
	Parc Des Hauts Vents	66.75%	E	France	France
	Parc Eolien De Nesle La Reposte	100.00%		France	France
	Parc Eolien Nordex III	50.00%	E	France	France
	Parc Eolien Nordex XXIX	50.00%	E	France	France
	Parc Eolien Nordex XXX	50.00%	E	France	France
	Parc Solaire De Servian	100.00%		France	France
	Parc Solaire De Servian 2	100.00%		France	France
	Partrederiet Bw Gas Global LNG	49.00%	E	Norway	Norway
	Perpetual Sunhine Solar Program I, LLC	46.74%		United States	United States
	Perpetual Sunshine I, LLC	46.74%		United States	United States
	Photovoltaic Park Malta Limited	46.74%		Malta	United States
	Photovoltaica Parka Veroia Anonymi Etaireia	46.74%		Greece	Greece
	Pos	100.00%		France	France
	Pos Production Ii	60.00%		France	France
	Pos Production Iii	70.00%		France	France
	Pos Production Iv	70.00%		France	France
	Pos Production V	70.00%		France	France
	PV Salvador SPA	20.00%	E	Chile	Chile
	Qatar Liquefied Gas Company Limited	10.00%	E	Qatar	Qatar
	Qatar Liquefied Gas Company Limited (II)	16.70%	E	Qatar	Qatar
	Quadran Caraibes	100.00%		France	France

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Integrated Gas, Renewables & Power (Continued)					
	Quadran Holding Nc	100.00%		France	France
	Quadran Nogara	100.00%		France	France
	Quadran Pacific	100.00%		France	France
	Quadrello	100.00%		France	France
	Quadrica	51.00%	E	France	France
	Roquefort Solar	51.00%	E	France	France
	Rosamond Raven Holdings, LLC	46.74%		United States	United States
	Saft (Zhuhai FTZ) Batteries Company Limited	99.34%		China	China
	Saft (Zhuhai) Energy Storage Co	100.00%		China	China
	Saft AB	99.34%		Sweden	Sweden
	Saft Acquisition S.A.S.	99.34%		France	France
	Saft America Inc.	99.34%		United States	United States
	Saft AS	99.34%		Norway	Norway
	Saft Australia PTY Limited	99.34%		Australia	Australia
	Saft Batterias SL	99.34%		Spain	Spain
	Saft Batterie Italia S.R.L.	99.34%		Italy	Italy
	Saft Batterien GmbH	99.34%		Germany	Germany
	Saft Batteries Pte Limited	99.34%		Singapore	Singapore
	Saft Batteries PTY Limited	99.34%		Australia	Australia
	Saft Batterijen B.V.	99.34%		Netherlands	Netherlands
	Saft Do Brasil Ltda	99.34%		Brazil	Brazil
	Saft Ferak AS	99.34%		Czech Republic	Czech Republic
	Saft Finance S.A.R.L.	99.34%		Luxembourg	Luxembourg
	Saft Groupe S.A.	99.34%		France	France
	Saft Hong Kong Limited	99.34%		Hong Kong	Hong Kong
	Saft India Private Limited	99.34%		India	India
	Saft Japan KK	99.34%		Japan	Japan
	Saft Limited	99.34%		United Kingdom	United Kingdom
	Saft LLC	99.34%		Russia	Russia
	Saft Nife ME Limited	99.34%		Cyprus	Cyprus
	Saft S.A.S.	99.34%		France	France
	SGS Antelope Valley Development, LLC	46.74%		United States	United States
	Sgula (East) Green Energies Limited	46.74%		Israel	United States
	Shams Power Company PJSC	20.00%	E	United Arab Emirates	United Arab Emirates
	Smalt Energie	100.00%		France	France
	Societe Champenoise d'Energie	16.00%	E	France	France
	Societe d'exploitation de centrales photovoltaïques 1	27.65%		France	France
	Societe Economie Mixte Production Energetique Renouvelable	35.92%	E	France	France
	Solaire Grand Sud	100.00%		France	France
	Solaire Libron	100.00%		France	France
	Solaire Villon	51.60%	E	France	France
	Solar Carport NJ, LLC	46.74%		United States	United States
	Solar Energies	65.00%	E	France	France
	Solar Mimizan	100.00%		France	France
	Solar Sail Commercial Holdings, LLC	46.74%		United States	United States
	Solar Sail Holdings, LLC	46.74%		United States	United States
	Solar Sail, LLC	46.74%		United States	United States

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Integrated Gas, Renewables & Power (Continued)					
	Solar Star Always Low Prices Ct, LLC	46.74%		United States	United States
	Solar Star Always Low Prices Hi, LLC	46.74%		United States	United States
	Solar Star Always Low Prices II, LLC	46.74%		United States	United States
	Solar Star Always Low Prices Ma, LLC	46.74%		United States	United States
	Solar Star Arizona HMR-I, LLC	46.74%		United States	United States
	Solar Star Arizona II, LLC	46.74%		United States	United States
	Solar Star Arizona VII, LLC	46.74%		United States	United States
	Solar Star Bay City 2, LLC	46.74%		United States	United States
	Solar Star California I, LLC	46.74%		United States	United States
	Solar Star California IV, LLC	46.74%		United States	United States
	Solar Star California LXXV, LLC	46.74%		United States	United States
	Solar Star California LXXVI, LLC	46.74%		United States	United States
	Solar Star California XXXV, LLC	46.74%		United States	United States
	Solar Star California XXXVI, LLC	46.74%		United States	United States
	Solar Star California XXXVIII, LLC	46.74%		United States	United States
	Solar Star Co Co 1, LC	46.74%		United States	United States
	Solar Star Coastal Pirate, LLC	46.74%		United States	United States
	Solar Star Colorado II, LLC	46.74%		United States	United States
	Solar Star Cougars, LLC	46.74%		United States	United States
	Solar Star HD Connecticut, LLC	46.74%		United States	United States
	Solar Star HD Maryland, LLC	46.74%		United States	United States
	Solar Star HD New Jersey, LLC	46.74%		United States	United States
	Solar Star HD New York, LLC	46.74%		United States	United States
	Solar Star Healthy 1, LLC	46.74%		United States	United States
	Solar Star Healthy Lake, LLC	46.74%		United States	United States
	Solar Star IL – TFS, LLC	46.74%		United States	United States
	Solar Star Irwd Baker, LLC	46.74%		United States	United States
	Solar Star Kale 1, LLC	46.74%		United States	United States
	Solar Star Kale 2	46.74%		United States	United States
	Solar Star Khsd, LLC	46.74%		United States	United States
	Solar Star LCR Culver City, LLC	46.74%		United States	United States
	Solar Star LCR Irvine, LLC	46.74%		United States	United States
	Solar Star LCR LA 1, LLC	46.74%		United States	United States
	Solar Star LCR LA 2, LLC	46.74%		United States	United States
	Solar Star LCR Split 1, LLC	46.74%		United States	United States
	Solar Star LCR Split 2, LLC	46.74%		United States	United States
	Solar Star MA - Tewksbury, LLC	46.74%		United States	United States
	Solar Star Massachusetts II, LLC	46.74%		United States	United States
	Solar Star Massachusetts III, LLC	46.74%		United States	United States
	Solar Star Maxx 1, LLC	46.74%		United States	United States
	Solar Star Northwestern University, LLC	46.74%		United States	United States
	Solar Star Parent CRC Kern Front, LLC	46.74%		United States	United States
	Solar Star Parent CRC Mt. Poso, LLC	46.74%		United States	United States
	Solar Star Parent CRC North Shafter, LLC	46.74%		United States	United States
	Solar Star Parent CRC Pier A West, LLC	46.74%		United States	United States
	Solar Star Parent CRC Yowlumne 1 North, LLC	46.74%		United States	United States
	Solar Star Parent CRC Yowlumne 2 South, LLC	46.74%		United States	United States
	Solar Star Prairie Holding, LLC	46.74%		United States	United States

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Integrated Gas, Renewables & Power (Continued)					
	Solar Star Prime 2, LLC	46.74%		United States	United States
	Solar Star Prime 3, LLC	46.74%		United States	United States
	Solar Star Prime 4, LLC	46.74%		United States	United States
	Solar Star Rancho CWD I, LLC	46.74%		United States	United States
	Solar Star River, LLC	46.74%		United States	United States
	Solar Star Track, LLC	46.74%		United States	United States
	Solar Star Urbana Landfill Central, LLC	46.74%		United States	United States
	Solar Star Urbana Landfill East, LLC	46.74%		United States	United States
	Solar Star Urbana Landfill West, LLC	46.74%		United States	United States
	Solar Star Wildcats, LLC	46.74%		United States	United States
	Solar Star Woodlands St Cr, LLC	46.74%		United States	United States
	SolarBridge Technologies Inc.	46.74%		United States	United States
	Solarstar Billerica I, LLC	46.74%		United States	United States
	Solarstar Ma I, LLC	46.74%		United States	United States
	Solarstar Prime I, LLC	46.74%		United States	United States
	SolarStorage Fund A, LLC	46.74%		United States	United States
	SolarStorage Fund B, LLC	46.74%		United States	United States
	SolarStorage Fund C, LLC	46.74%		United States	United States
	Sophye Lacmort	50.00%	E	France	France
	South Hook LNG Terminal Company Limited	8.35%	E	United Kingdom	United Kingdom
	SPML Land Inc.	46.74%		Philippines	Philippines
	SPWR SS 1, LLC	46.74%		United States	United States
	SPWR SunStrong Holdings, LLC	46.74%		United States	United States
	SREC NE II Holdings, LLC	46.74%		United States	United States
	SREC NE II, LLC	46.74%		United States	United States
	SSCA XLI Holding Company, LLC	46.74%		United States	United States
	SunPower AssetCo, LLC	46.74%		United States	United States
	SunPower Bermuda Holdings	46.74%		Bermuda	Bermuda
	SunPower Bobcat Solar, LLC	46.74%		United States	United States
	SunPower Capital Services, LLC	46.74%		United States	United States
	SunPower Capital, LLC	46.74%		United States	United States
	SunPower Commercial FTB Construction, LLC	46.74%		United States	United States
	SunPower Commercial Holding Company FTB SLB Parent, LLC	46.74%		United States	United States
	SunPower Commercial Holding Company FTB SLB, LLC	46.74%		United States	United States
	Sunpower Commercial St Revolver, LLC	46.74%		United States	United States
	SunPower Corp Israel Limited	46.74%		Israel	Israel
	SunPower Corporation	46.74%		United States	United States
	SunPower Corporation (Switzerland) S.A.R.L.	46.74%		Switzerland	Switzerland
	SunPower Corporation Australia PTY Limited	46.74%		Australia	Australia
	SunPower Corporation Limited	46.74%		Hong Kong	United States
	SunPower Corporation Mexico, S. de R.L. de C.V.	46.74%		Mexico	Mexico
	SunPower Corporation Southern Africa (PTY) Limited	46.74%		South Africa	France
	SunPower Corporation SPA	46.74%		Chile	Chile
	SunPower Corporation UK Limited	46.74%		United Kingdom	United Kingdom
	SunPower Corporation, Systems	46.74%		United States	United States
	SunPower DevCo, LLC	46.74%		United States	United States

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Integrated Gas, Renewables & Power (Continued)					
	SunPower Energia SPA	46.74%		Chile	Chile
	SunPower Energy Corporation Limited	46.74%		Hong Kong	United States
	SunPower Energy Solutions France S.A.S.	46.74%		France	France
	SunPower Energy Systems Canada Corporation	46.74%		Canada	Canada
	SunPower Energy Systems Korea	46.74%		South Korea	South Korea
	SunPower Energy Systems Singapore PTE Limited	46.74%		Singapore	Singapore
	SunPower Energy Systems Southern Africa (PTY) Limited	46.74%		South Africa	South Africa
	SunPower Energy Systems Spain, SL	46.74%		Spain	Spain
	SunPower Equity Holdings, LLC	46.74%		United States	United States
	SunPower Foundation	46.74%		United States	United States
	SunPower GmbH	46.74%		Germany	Germany
	SunPower Helix I, LLC	46.74%		United States	United States
	SunPower HoldCo, LLC	46.74%		United States	United States
	SunPower Italia S.R.L.	46.74%		Italy	Italy
	SunPower Japan KK	46.74%		Japan	Japan
	SunPower Malaysia Manufacturing Sdn. Bhd.	46.74%		Malaysia	Malaysia
	SunPower Malta Limited	46.74%		Malta	Malta
	SunPower Manufacturing (PTY) Limited	46.74%		South Africa	South Africa
	SunPower Manufacturing Corporation Limited	46.74%		Hong Kong	United States
	SunPower Manufacturing de Vernejoul	46.74%		France	France
	SunPower Manufacturing Oregon, LLC	46.74%		United States	United States
	SunPower Muhendislik Insaat Enerji Üretim ve Ticaret A.S	46.74%		Turkey	Turkey
	SunPower Nanao Parent, LLC	46.74%		United States	United States
	SunPower Netherlands B.V.	46.74%		Netherlands	Netherlands
	SunPower North America, LLC	46.74%		United States	United States
	SunPower NY CDG 1, LLC	46.74%		United States	United States
	SunPower Osato Parent, LLC	46.74%		United States	United States
	SunPower Philippines Limited - Regional Operating Headquarters	46.74%		Cayman Islands	Cayman Islands
	SunPower Philippines Manufacturing Limited	46.74%		Cayman Islands	Cayman Islands
	SunPower Revolver HoldCo I Parent, LLC	46.74%		United States	United States
	SunPower Revolver HoldCo I, LLC	46.74%		United States	United States
	SunPower Solar Energy Technology (Tianjin) Corporation, Limited	46.74%		China	United States
	SunPower Solar India Private Limited	46.74%		India	India
	SunPower Solar Malaysia Sdn. Bhd.	46.74%		Malaysia	Malaysia
	SunPower Systems Belgium SPRL	46.74%		Belgium	Belgium
	SunPower Systems International Limited	46.74%		Hong Kong	United States
	SunPower Systems Mexico S. de R.L. de C.V.	46.74%		Mexico	Mexico
	SunPower Systems S.A.R.L.	46.74%		Switzerland	Switzerland
	SunPower Technologies France S.A.S.	46.74%		France	France
	Sunpower Technologies, Inc.	46.74%		United States	United States
	SunPower Technology Limited	46.74%		Cayman Islands	Cayman Islands
	SunStrong Capital Acquisition 3, LLC	46.74%		United States	United States
	Sunstrong Capital Holdings, LLC	23.84%	E	United States	United States
	SunStrong Partners, LLC	14.83%	E	United States	United States

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Integrated Gas, Renewables & Power (Continued)					
	Sunzil	50.00%	E	France	France
	Sunzil Caraibes	50.00%	E	France	France
	Sunzil Mayotte S.A.S.	50.00%	E	France	France
	Sunzil Ocean Indien	50.00%	E	France	France
	Sunzil Pacific	50.00%	E	France	France
	Sunzil Polynesie	50.00%	E	France	France
	Sunzil Polynesie Services	50.00%	E	France	France
	Sunzil Services Caraibes	50.00%	E	France	France
	Sunzil Services Ocean Indien	50.00%	E	France	France
	Swingletree Operations, LLC	46.74%		United States	United States
	Tadiran Batteries GmbH	99.34%		Germany	Germany
	Tadiran Batteries Limited	99.34%		Israel	Israel
	Temasol	46.74%		Morocco	Morocco
	Tenesol SPV 1	100.00%		France	France
	Tenesol Venezuela	46.74%		Venezuela	Venezuela
	Thezan Solar	100.00%		France	France
	Tianneng Saft Energy Joint Stock Company	40.00%	E	China	China
	Toitures Capiscol	100.00%		France	France
	Total Carbon Neutrality Ventures Europe	100.00%		France	France
	Total Carbon Neutrality Ventures International	100.00%		France	France
	Total Direct Energie Centrale Electrique Bayet	100.00%		France	France
	Total Direct Energie Centrale Electrique Marchienne au Pont	100.00%		Belgium	Belgium
	Total Direct Energie Belgium	100.00%		Belgium	Belgium
	Total Direct Energie Centrale Electrique de Toul	100.00%		France	France
	Total Direct Energie Concessions	100.00%		France	France
	Total Direct Energie Generation	100.00%		France	France
	Total Direct Energie Hambregie	100.00%		France	France
	Total Direct Energie S.A.	100.00%		France	France
	Total Direct Energie Services	100.00%		Belgium	Belgium
	Total Direct Energie Yfregie	100.00%		France	France
	Total Direct Energies Centrale Electrique de Pont Sur Sambres	100.00%		France	France
	Total E&P Australia	100.00%		France	Australia
	Total E&P Australia Exploration PTY Limited	100.00%		Australia	Australia
	Total E&P Australia II	100.00%		France	Australia
	Total E&P Australia III	100.00%		France	Australia
	Total E&P Barnett Usa (75)	100.00%		United States	United States
	Total E&P Holding Ichthys	100.00%		France	France
	Total E&P Holdings Australia PTY Limited	100.00%		Australia	Australia
	Total E&P Ichthys B.V.	100.00%		Netherlands	Australia
	Total E&P Indonesia Mentawai B.V.	100.00%		Netherlands	Indonesia
	Total E&P Indonesie	100.00%		France	Indonesia
	Total E&P Mauritius Holding Limited	100.00%		Mauritius Island	Mozambique
	Total E&P Mozambique Area 1, Limitada	100.00%		Mozambique	Mozambique
	Total E&P Oman Dev. B.V	100.00%		Netherlands	Oman
	Total E&P PNG 2 B.V.	100.00%		Netherlands	Papua New Guinea
	Total E&P PNG 5 B.V.	100.00%		Netherlands	Papua New Guinea

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Integrated Gas, Renewables & Power (Continued)					
	Total E&P PNG Limited	100.00%		Papua New Guinea	Papua New Guinea
	Total E&P Salmanov	100.00%		France	Russia
	Total E&P Sebuk	100.00%		France	Indonesia
	Total E&P Yamal	100.00%		France	France
	Total Energie Do Brasil	46.74%		Brazil	Brazil
	Total Energie Gas GmbH	100.00%		Germany	Germany
	Total Energy Investments Tianjin	100.00%		China	China
	Total Energy Services	100.00%		France	France
	Total Energy Ventures Emerging Markets	100.00%		France	France
	Total Eren ^(d)	29.60%	E	France	France
	Total Eren Holding	33.86%	E	France	France
	Total Gas & Power Actifs Industriels	100.00%		France	France
	Total Gas & Power Asia Private Limited	100.00%		Singapore	Singapore
	Total Gas & Power Brazil	100.00%		France	France
	Total Gas & Power Chartering Limited	100.00%		United Kingdom	United Kingdom
	Total Gas & Power Limited	100.00%		United Kingdom	United Kingdom
	Total Gas & Power North America Inc.	100.00%		United States	United States
	Total Gas & Power Services Limited	100.00%		United Kingdom	United Kingdom
	Total Gas & Power Thailand	100.00%		France	France
	Total Gas and Power Limited, London, Meyrin - Geneva Branch	100.00%		Switzerland	Switzerland
	Total Gas Pipeline USA Inc.	100.00%		United States	United States
	Total Gas Y Electricidad Argentina S.A.	100.00%		Argentina	Argentina
	Total Gasandes	100.00%		France	France
	Total Gaz Electricite Holdings France	100.00%		France	France
	Total GLNG Australia	100.00%		France	Australia
	Total GLNG Australia Holdings	100.00%		France	Australia
	Total Investment Management Tianjin	100.00%		China	China
	Total LNG Angola	100.00%		France	France
	Total Midstream Holdings UK Limited	100.00%		United Kingdom	United Kingdom
	Total New Energies Limited	100.00%		United Kingdom	United Kingdom
	Total New Energies Ventures USA, Inc.	100.00%		United States	United States
	Total Quadran	100.00%		France	France
	Total Renewables	100.00%		France	France
	Total Solar Intl	100.00%		France	France
	Total Solar Latin America SPA	100.00%		Chile	Chile
	Total SunPower Energia S.A.	46.74%		Chile	Chile
	Total Tengah	100.00%		France	Indonesia
	Total Tractebel Emirates O & M Company	50.00%	E	France	United Arab Emirates
	Total Tractebel Emirates Power Company	50.00%	E	France	United Arab Emirates
	Total USA International, LLC	100.00%		United States	Mozambique
	Total Yemen LNG Company Limited	100.00%		Bermuda	Yemen
	Transportadora de Gas del Mercosur S.A.	32.68%	E	Argentina	Argentina
	TSGF SpA	50.00%	E	Chile	Chile
	Tugboat Commercial Pledgor, LLC	46.74%		United States	United States
	Valorene	66.00%		France	France
	Vega Solar 1 S.A.P.I. de C.V.	46.74%		Mexico	United States
	Vega Solar 2 S.A.P.I. de C.V.	46.74%		Mexico	United States

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Integrated Gas, Renewables & Power (Continued)					
	Vega Solar 3 S.A.P.I. de C.V.	46.74%		Mexico	United States
	Vent De Thierache 01	51.00%		France	France
	Vent De Thierache 02	51.00%		France	France
	Vent De Thierache 03	100.00%		France	France
	Vents D'Oc Centrale D'Energie Renouvelable 18	100.00%		France	France
	Vents D'Oc Energies Renouvelables	100.00%		France	France
	Vertigo	25.00%	E	France	France
	Watt Prox	100.00%		France	France
	Winergy	100.00%		France	France
	Yamal LNG ^(b)	29.73%	E	Russia	Russia
	Yemen LNG Company Limited	39.62%	E	Bermuda	Yemen
	Zeeland Solar B.V.	100.00%		Netherlands	Netherlands
Refining & Chemicals					
	Appryl S.N.C	50.00%		France	France
	Atlantic Trading and Marketing Financial Inc.	100.00%		United States	United States
	Atlantic Trading and Marketing Inc.	100.00%		United States	United States
	Balzatex S.A.S.	100.00%		France	France
	Barry Controls Aerospace S.N.C.	100.00%		France	France
	BASF Total Petrochemicals LLC	40.00%		United States	United States
	Bay Junction Inc.	100.00%		United States	United States
	Bayport Polymers LLC	50.00%	E	United States	United States
	Borrachas Portalegre Ltda	100.00%		Portugal	Portugal
	BOU Verwaltungs GmbH	100.00%		Germany	Germany
	Buckeye Products Pipeline LP	14.66%	E	United States	United States
	Catelsa-Caceres S.A.U.	100.00%		Spain	Spain
	Cie Tunisienne du Caoutchouc S.A.R.L.	100.00%		Tunisia	Tunisia
	Composite Industrie Maroc S.A.R.L.	100.00%		Morocco	Morocco
	Composite Industrie S.A.	100.00%		France	France
	Cosden, LLC	100.00%		United States	United States
	COS-MAR Company	50.00%		United States	United States
	Cray Valley (Guangzhou) Chemical Company, Limited	100.00%		China	China
	Cray Valley Czech	100.00%		Czech Republic	Czech Republic
	Cray Valley HSC Asia Limited	100.00%		China	Hong Kong
	Cray Valley Italia S.R.L.	100.00%		Italy	Italy
	Cray Valley S.A.	100.00%		France	France
	CSSA - Chartering and Shipping Services S.A.	100.00%		Switzerland	Country for Shipping
	Espa S.A.R.L.	100.00%		France	France
	Ethylene Est	99.98%		France	France
	Feluy Immobati	100.00%		Belgium	Belgium
	Fina Pipeline Co	100.00%		United States	United States
	FINA Technology, Inc.	100.00%		United States	United States
	Gasket (Suzhou) Valve Components Company, Limited	100.00%		China	China
	Gasket International S.R.L.	100.00%		Italy	Italy
	Grande Paroisse S.A.	100.00%		France	France
	Gulf Coast Pipeline LP	14.66%	E	United States	United States
	Hanwha Total Petrochemical Co. Limited	50.00%	E	South Korea	South Korea

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Refining & Chemicals (Continued)					
	HBA Hutchinson Brasil Automotive Ltda	100.00%		Brazil	Brazil
	Hutchinson (UK) Limited	100.00%		United Kingdom	United Kingdom
	Hutchinson (Wuhan) Automotive Rubber Products Company Limited	100.00%		China	China
	Hutchinson Aeronautique & Industrie Limited	100.00%		Canada	Canada
	Hutchinson Aeroservices S.A.S.	100.00%		France	France
	Hutchinson Aerospace & Industry Inc.	100.00%		United States	United States
	Hutchinson Aerospace GmbH	100.00%		Germany	Germany
	Hutchinson Aftermarket USA Inc.	100.00%		United States	United States
	Hutchinson Antivibration Systems Inc.	100.00%		United States	United States
	Hutchinson Automotive Systems Company, Limited	100.00%		China	China
	Hutchinson Autopartes Mexico S.A. de C.V.	100.00%		Mexico	Mexico
	Hutchinson Borrachas de Portugal Ltda	100.00%		Portugal	Portugal
	Hutchinson Corporation	100.00%		United States	United States
	Hutchinson d.o.o Ruma	100.00%		Serbia	Serbia
	Hutchinson Do Brasil S.A.	100.00%		Brazil	Brazil
	Hutchinson Fluid Management Systems Inc.	100.00%		United States	United States
	Hutchinson GmbH	100.00%		Germany	Germany
	Hutchinson Holding GmbH	100.00%		Germany	Germany
	Hutchinson Holdings UK Limited	100.00%		United Kingdom	United Kingdom
	Hutchinson Iberia S.A.	100.00%		Spain	Spain
	Hutchinson Industrial Rubber Products (Suzhou) Company, Limited	100.00%		China	China
	Hutchinson Industrias Del Caucho SAU	100.00%		Spain	Spain
	Hutchinson Industries Inc.	100.00%		United States	United States
	Hutchinson Japan Company Limited	100.00%		Japan	Japan
	Hutchinson Korea Limited	100.00%		South Korea	South Korea
	Hutchinson Maroc S.A.R.L. AU	100.00%		Morocco	Morocco
	Hutchinson Poland SP ZO.O.	100.00%		Poland	Poland
	Hutchinson Polymers S.N.C.	100.00%		France	France
	Hutchinson Porto	100.00%		Portugal	Portugal
	Hutchinson Precision Sealing Systems Inc.	100.00%		United States	United States
	Hutchinson Research & Innovation Singapore PTE. Limited	100.00%		Singapore	Singapore
	Hutchinson Rubber Products Private Limited Inde	100.00%		France	India
	Hutchinson S.A.	100.00%		France	France
	Hutchinson S.N.C.	100.00%		France	France
	Hutchinson S.R.L. (Italie)	100.00%		Italy	Italy
	Hutchinson S.R.L. (Roumanie)	100.00%		Romania	Romania
	Hutchinson Sales Corporation	100.00%		United States	United States
	Hutchinson Seal De Mexico S.A. de CV.	100.00%		Mexico	Mexico
	Hutchinson Sealing Systems Inc.	100.00%		United States	United States
	Hutchinson SRO	100.00%		Czech Republic	Czech Republic
	Hutchinson Stop - Choc GmbH & CO. KG	100.00%		Germany	Germany
	Hutchinson Suisse S.A.	100.00%		Switzerland	Switzerland
	Hutchinson Transferencia de Fluidos S.A. de C.V.	100.00%		Mexico	Mexico
	Hutchinson Tunisie S.A.R.L.	100.00%		Tunisia	Tunisia

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Refining & Chemicals (Continued)					
	Hutchinson Vietnam Company Limited	100.00%		Vietnam	Vietnam
	Industrias Tecnicas De La Espuma SL	100.00%		Spain	Spain
	Industrielle Desmarquoy S.N.C.	100.00%		France	France
	Jehier S.A.S.	99.89%		France	France
	Joint Precision Rubber	100.00%		France	France
	KTN Kunststofftechnik Nobitz GmbH	100.00%		Germany	Germany
	Laffan Refinery Company Limited	10.00%	E	Qatar	Qatar
	Laffan Refinery Company Limited 2	10.00%	E	Qatar	Qatar
	LaPorte Pipeline Company LP	20.16%	E	United States	United States
	LaPorte Pipeline GP LLC	19.96%	E	United States	United States
	Le Joint Francais S.N.C.	100.00%		France	France
	Legacy Site Services Funding Inc.	100.00%		United States	United States
	Legacy Site Services LLC	100.00%		United States	United States
	Les Stratifies S.A.S.	100.00%		France	France
	Lone Wolf Land Company	100.00%		United States	United States
	Machen Land Limited	100.00%		United Kingdom	United Kingdom
	Mide Technology Corporation	100.00%		United States	United States
	Naphtachimie	50.00%		France	France
	Novogy, Inc.	100.00%		United States	United States
	Olutex Oberlausitzer Luftfahrttextilien GmbH	100.00%		Germany	Germany
	Pamargan (Malta) Products Limited	100.00%		Malta	Malta
	Pamargan Products Limited	100.00%		United Kingdom	United Kingdom
	Paulstra S.N.C.	100.00%		France	France
	Paulstra Silentbloc S.A.	100.00%		Belgium	Belgium
	PFW Aerospace GmbH	100.00%		Germany	Germany
	PFW Havacilik Sanayi ve Dis Ticaret Limited Sirketi	100.00%		Turkey	Turkey
	PFW Uk Machining Ltd.	100.00%		United Kingdom	United Kingdom
	Polyblend GmbH	68.00%		Germany	Germany
	Qatar Petrochemical Company Q.S.C. (QAPCO)	20.00%	E	Qatar	Qatar
	Qatofin Company Limited	49.09%	E	Qatar	Qatar
	Resilium	100.00%		Belgium	Belgium
	Retia	100.00%		France	France
	Retia USA LLC	100.00%		United States	United States
	San Jacinto Rail Limited	17.00%	E	United States	United States
	Saudi Aramco Total Refining & Petrochemical Company	37.50%	E	Saoudia Arabia	Saoudia Arabia
	SigmaKalon Group B.V.	100.00%		Netherlands	Netherlands
	Societe Bearnaise De Gestion Industrielle	100.00%		France	France
	Societe du Pipeline Sud-Europeen	35.14%	E	France	France
	SPA Sonatrach Total Entreprise de Polymères	49.00%	E	Algeria	Algeria
	Stillman Seal Corporation	100.00%		United States	United States
	Stop-Choc (UK) Limited	100.00%		United Kingdom	United Kingdom
	Techlam S.A.S.	100.00%		France	France
	Thermal Control Systems Automotive Sasu	60.00%		France	France
	Total Activites Maritimes	100.00%		France	France
	Total Atlantic Trading Mexico SA De CV	100.00%		Mexico	Mexico
	Total Corbion PLA B.V.	50.00%	E	Netherlands	Netherlands

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Refining & Chemicals (Continued)					
	Total Country Services Belgium	100.00%		Belgium	Belgium
	Total Deutschland GmbH ^(e)	100.00%		Germany	Germany
	Total Downstream UK PLC	100.00%		United Kingdom	United Kingdom
	Total Energy Marketing A/S	100.00%		Denmark	Denmark
	Total European Trading	100.00%		France	France
	Total Laffan Refinery	100.00%		France	France
	Total Laffan Refinery II B.V.	100.00%		Netherlands	Netherlands
	Total Lindsey Oil Refinery Limited	100.00%		United Kingdom	United Kingdom
	Total New Energies USA, Inc.	100.00%		United States	United States
	Total Olefins Antwerp	100.00%		Belgium	Belgium
	Total Opslag En Pijpleiding Nederland NV	55.00%		Netherlands	Netherlands
	Total PAR LLC	100.00%		United States	United States
	Total Petrochemicals (Hong Kong) Limited	100.00%		Hong Kong	Hong Kong
	Total Petrochemicals (Shanghai) Limited	100.00%		China	China
	Total Petrochemicals Development Feluy	100.00%		Belgium	Belgium
	Total Petrochemicals Ecaussinnes	100.00%		Belgium	Belgium
	Total Petrochemicals Feluy	100.00%		Belgium	Belgium
	Total Petrochemicals France	100.00%		France	France
	Total Petrochemicals Iberica	100.00%		Spain	Spain
	Total Petrochemicals Pipeline USA Inc.	100.00%		United States	United States
	Total Petrochemicals UK Limited	100.00%		United Kingdom	United Kingdom
	Total Polymers Antwerp	100.00%		Belgium	Belgium
	Total Raffinaderij Antwerpen N.V.	100.00%		Belgium	Belgium
	Total Raffinage France	100.00%		France	France
	Total Raffinerie Mitteldeutschland GmbH	100.00%		Germany	Germany
	Total Raffinage Chimie S.A.S.	100.00%		France	France
	Total Refining & Chemicals Saudi Arabia S.A.S.	100.00%		France	France
	Total Research & Technology Feluy	100.00%		Belgium	Belgium
	Total Splitter USA Inc	100.00%		United States	United States
	Total Trading and Marketing Canada LP	100.00%		Canada	Canada
	Total Trading Asia Pte Limited	100.00%		Singapore	Singapore
	Total Trading Canada Limited	100.00%		Canada	Canada
	Total Trading Products S.A.	100.00%		Switzerland	Switzerland
	TOTSA Total Oil Trading S.A.	100.00%		Switzerland	Switzerland
	Totseanergy	49.00%	E	Belgium	Belgium
	Transalpes S.N.C.	67.00%		France	France
	Trans-Ethylene	99.98%		France	France
	Tssa Total Storage & Services S.A.	100.00%		Switzerland	Switzerland
	Vibrachoc S.A.U.	100.00%		Spain	Spain
	Zeeland Refinery NV	55.00%		Netherlands	Netherlands
Marketing & Services					
	Air Total (Suisse) S.A.	100.00%		Switzerland	Switzerland
	Air Total International S.A.	100.00%		Switzerland	Switzerland
	Alvea	100.00%		France	France
	Antilles Gaz	100.00%		France	France
	Argedis	100.00%		France	France
	Aristea	51.00%	E	Belgium	Belgium
	Arteco	49.99%	E	Belgium	Belgium

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Marketing & Services (Continued)					
	AS 24	100.00%		France	France
	AS24 Belgie N.V.	100.00%		Belgium	Belgium
	AS24 Espanola S.A.	100.00%		Spain	Spain
	AS24 Fuel Cards Limited	100.00%		United Kingdom	United Kingdom
	AS24 Lithuanie	100.00%		Lithuania	Lithuania
	AS24 Polska SP ZO.O.	100.00%		Poland	Poland
	AS24 Tankservice GmbH	100.00%		Germany	Germany
	Caldeo	100.00%		France	France
	Charvet La Mure Bianco	100.00%		France	France
	Clean Energy	24.85%	E	United States	United States
	Compagnie Petroliere de l'Ouest - CPO	100.00%		France	France
	CPE Energies	100.00%		France	France
	Cristal Marketing Egypt	80.78%		Egypt	Egypt
	DCA-MORY-SHIPP	100.00%		France	France
	Egedis	100.00%		France	France
	Elf Oil UK Aviation Limited	100.00%		United Kingdom	United Kingdom
	Elf Oil UK Properties Limited	100.00%		United Kingdom	United Kingdom
	Fioulmarket.fr	100.00%		France	France
	Gapco Kenya Limited	100.00%		Kenya	Kenya
	Gapco Tanzania Limited	100.00%		Tanzania	Tanzania
	Gapco Uganda Limited	100.00%		Uganda	Uganda
	Guangzhou Elf Lubricants Company Limited	77.00%		China	China
	Gulf Africa Petroleum Corporation	100.00%		Mauritius Island	Mauritius Island
	Lubricants Vietnam Holding Limited	100.00%		Hong Kong	Hong Kong
	National Petroleum Refiners Of South Africa (PTY) Limited	18.22%	E	South Africa	South Africa
	Pitpoint B.V.	100.00%		Netherlands	Netherlands
	Pitpoint Cng B.V.	100.00%		Netherlands	Netherlands
	Produits Petroliers Stela	99.99%		France	France
	Quimica Vasca S.A.U.	100.00%		Spain	Spain
	Saudi Total Petroleum Products	51.00%	E	Saoudia Arabia	Saoudia Arabia
	Servauto Nederland B.V.	100.00%		Netherlands	Netherlands
	Societe d'exploitation de l'usine de Rouen	98.98%		France	France
	Societe mahoraise de stockage de produits petroliers	100.00%		France	France
	Societe Urbaine des Petroles	100.00%		France	France
	S-Oil Total Lubricants Company Limited	50.00%	E	South Korea	South Korea
	South Asia LPG Private Limited	50.00%	E	India	India
	Total (Africa) Limited	100.00%		United Kingdom	United Kingdom
	Total (Fiji) Limited	100.00%		Fiji Islands	Fiji Islands
	Total Additifs et Carburants Speciaux	100.00%		France	France
	Total Africa S.A.	100.00%		France	France
	Total Aviation & Export Limited	100.00%		Zambia	Zambia
	Total Belgium	100.00%		Belgium	Belgium
	Total Bitumen Deutschland GmbH	100.00%		Germany	Germany
	Total Bitumen UK Limited	100.00%		United Kingdom	United Kingdom
	Total Botswana (PTY) Limited	50.10%		Botswana	Botswana
	Total Brasil Diesel Comercio e Transportes Ltda	100.00%		Brazil	Brazil
	Total Brasil Distribuidora Ltda	100.00%		Brazil	Brazil

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Marketing & Services (Continued)					
	Total Burkina	100.00%		Burkina Faso	Burkina Faso
	Total Cambodge	100.00%		Cambodia	Cambodia
	Total Cameroun	67.01%		Cameroon	Cameroon
	Total Caraibes	100.00%		France	France
	Total Ceska Republika S.R.O.	100.00%		Czech Republic	Czech Republic
	Total China Investment Company Limited	100.00%		China	China
	Total Congo	100.00%		Congo	Congo
	Total Corse	100.00%		France	France
	Total Cote D'Ivoire	72.99%		Côte d'Ivoire	Côte d'Ivoire
	Total Denmark A/S	100.00%		Denmark	Denmark
	Total Egypt	80.78%		Egypt	Egypt
	Total Espana S.A.	100.00%		Spain	Spain
	Total Especialidades Argentina	98.78%		Argentina	Argentina
	Total Ethiopia	100.00%		Ethiopia	Ethiopia
	Total Fluides	100.00%		France	France
	Total Freeport Corporation	51.00%	E	Philippines	Philippines
	Total Fuels Wuhan Company Limited	100.00%		China	China
	Total Glass Lubricants Europe GmbH	100.00%		Germany	Germany
	Total Guadeloupe	100.00%		France	Guadeloupe
	Total Guinea Ecuatorial	70.00%		Equatorial Guinea	Equatorial Guinea
	Total Guinee	100.00%		Guinea	Guinea
	Total Holding Asie	100.00%		France	France
	Total Holding India	100.00%		France	France
	Total Italia	100.00%		Italy	Italy
	Total Jamaica Limited	100.00%		Jamaica	Jamaica
	Total Jordan PSC	100.00%		Jordan	Jordan
	Total Kenya	93.96%		Kenya	Kenya
	Total Liban	100.00%		Lebanon	Lebanon
	Total Liberia Inc.	100.00%		Liberia	Liberia
	Total Lubricants (China) Company Limited	77.00%		China	China
	Total Lubricants Taiwan Limited	63.00%		Taiwan	Taiwan
	Total Lubrifiants	99.98%		France	France
	Total Lubrifiants Algerie	78.90%		Algeria	Algeria
	Total Lubrifiants Service Automobile	99.98%		France	France
	Total Luxembourg S.A.	100.00%		Luxembourg	Luxembourg
	Total Madagasikara S.A.	79.44%		Madagascar	Madagascar
	Total Malawi Limited	100.00%		Malawi	Malawi
	Total Mali	100.00%		Mali	Mali
	Total Marine Fuels	100.00%		Singapore	Singapore
	Total Marketing Egypt	80.78%		Egypt	Egypt
	Total Marketing France	100.00%		France	France
	Total Marketing Gabon	90.00%		Gabon	Gabon
	Total Marketing Middle East Free Zone	100.00%		United Arab Emirates	United Arab Emirates
	Total Marketing Services	100.00%		France	France
	Total Marketing Tchad	100.00%		Chad	Chad
	Total Marketing Uganda	100.00%		Uganda	Uganda
	Total Maroc	55.00%		Morocco	Morocco
	Total Mauritius	55.00%		Mauritius Island	Mauritius Island
	Total Mayotte	100.00%		France	Mayotte

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Marketing & Services (Continued)					
	Total Mexico S.A. de C.V.	100.00%		Mexico	Mexico
	Total Mineraloel und Chemie GmbH	100.00%		Germany	Germany
	Total Mineralol GmbH	100.00%		Germany	Germany
	Total Mozambique	100.00%		Mozambique	Mozambique
	Total Namibia (PTY) Limited	50.10%		Namibia	Namibia
	Total Nederland NV	100.00%		Netherlands	Netherlands
	Total Niger S.A.	100.00%		Niger	Niger
	Total Nigeria PLC	61.72%		Nigeria	Nigeria
	Total Oil Asia-Pacific Pte Limited	100.00%		Singapore	Singapore
	Total Oil India Private Limited	100.00%		India	India
	Total Outre-Mer	100.00%		France	France
	Total Pacifique	100.00%		France	New Caledonia
	Total Paiement Services	100.00%		France	France
	Total Parco Pakistan Limited	50.00%	E	Pakistan	Pakistan
	Total Petroleum (Shanghai) Company Limited	100.00%		China	China
	Total Petroleum Ghana Limited	76.74%		Ghana	Ghana
	Total Petroleum Puerto Rico Corp.	100.00%		Puerto Rico	Puerto Rico
	Total Philippines Corporation	51.00%	E	Philippines	Philippines
	Total Polska	100.00%		Poland	Poland
	Total Polynesie	100.00%		France	French Polynesia
	Total RDC	60.00%		Democratic Republic of Congo	Democratic Republic of Congo
	Total Reunion	100.00%		France	Reunion
	Total Romania S.A.	100.00%		Romania	Romania
	Total Senegal	69.14%		Senegal	Senegal
	Total Singapore Shared Services Pte Limited	100.00%		Singapore	Singapore
	Total Sinochem Fuels Company Limited	49.00%	E	China	China
	Total Sinochem Oil Company Limited	49.00%	E	China	China
	Total South Africa (PTY) Limited	50.10%		South Africa	South Africa
	Total Specialties USA Inc.	100.00%		United States	United States
	Total Supply MS S.A.	100.00%		Switzerland	Switzerland
	Total Swaziland (PTY) Limited	50.10%		Swaziland	Swaziland
	Total Tanzania Limited	100.00%		Tanzania	Tanzania
	Total Tianjin Manufacturing Company Limited	77.00%		China	China
	Total Togo	76.72%		Togo	Togo
	Total Tunisie	100.00%		Tunisia	Tunisia
	Total Turkey Pazarlama	100.00%		Turkey	Turkey
	Total UAE LLC	49.00%		United Arab Emirates	United Arab Emirates
	Total Uganda Limited	100.00%		Uganda	Uganda
	Total UK Limited	100.00%		United Kingdom	United Kingdom
	Total Ukraine LLC	100.00%		Ukraine	Ukraine
	Total Vietnam Limited	100.00%		Vietnam	Vietnam
	Total Vostok	100.00%		Russia	Russia
	Total Zambia	100.00%		Zambia	Zambia
	Total Zimbabwe	80.00%		Zimbabwe	Zimbabwe
	Totalgaz Vietnam LLC	100.00%		Vietnam	Vietnam
	Trapil	35.50%	E	France	France
	Upbeatprops 100 PTY Limited	50.10%		South Africa	South Africa
	V Energy S.A.	70.00%		Dominican Republic	Dominican Republic

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Corporate					
	Albatros	100.00%		France	France
	Elf Aquitaine Fertilisants	100.00%		France	France
	Elf Aquitaine Inc.	100.00%		United States	United States
	Elf Forest Products LLC	100.00%		United States	United States
	Etmofina	100.00%		Belgium	Belgium
	Omnium Reinsurance Company S.A.	100.00%		Switzerland	Switzerland
	Pan Insurance Limited	100.00%		Ireland	Ireland
	Septentrion Participations	100.00%		France	France
	Socap S.A.S.	100.00%		France	France
	Societe Civile Immobiliere CB2	100.00%		France	France
	Sofax Banque	100.00%		France	France
	Total American Services Inc.	100.00%		United States	United States
	Total Capital	100.00%		France	France
	Total Capital Canada Limited	100.00%		Canada	Canada
	Total Capital International	100.00%		France	France
	Total Consulting	100.00%		France	France
	Total Corporate Management (Beijing) Company Limited	100.00%		China	China
	Total Delaware Inc.	100.00%		United States	United States
	Total Developpement Regional S.A.S.	100.00%		France	France
	Total Facilities Management Services (TFMS)	100.00%		France	France
	Total Finance	100.00%		France	France
	Total Finance Corporate Services Limited	100.00%		United Kingdom	United Kingdom
	Total Finance Global Services (TOFIG)	100.00%		Belgium	Belgium
	Total Finance international B.V.	100.00%		Netherlands	Netherlands
	Total Finance Nederland B.V.	100.00%		Netherlands	Netherlands
	Total Finance USA Inc.	100.00%		United States	United States
	Total Funding Nederland B.V.	100.00%		Netherlands	Netherlands
	Total Funding Nederland International B.V.	100.00%		Netherlands	Netherlands
	Total Gestion Filiales	100.00%		France	France
	Total Gestion USA	100.00%		France	France
	Total Global Financial Services	100.00%		France	France
	Total Global Human Ressources Services	100.00%		France	France
	Total Global Information Technology Services Belgium	99.98%		Belgium	Belgium
	Total Global IT Services (TGITS)	100.00%		France	France
	Total Global Procurement (TGP)	100.00%		France	France
	Total Global Procurement Belgium S.A. (TGPB)	100.00%		Belgium	Belgium
	Total Global Services Bucharest	99.01%		Romania	Romania
	Total Global Services Philippines	100.00%		Philippines	Philippines
	Total Holding Allemagne	100.00%		France	France
	Total Holdings Europe	100.00%		France	France
	Total Holdings International B.V.	100.00%		Netherlands	Netherlands
	Total Holdings S.A.S.	100.00%		France	France
	Total Holdings UK Limited	100.00%		United Kingdom	United Kingdom
	Total Holdings USA Inc.	100.00%		United States	United States
	Total International NV	100.00%		Netherlands	Netherlands
	Total Investments	100.00%		France	France
	Total Learning Solutions (TLS)	100.00%		France	France

Business segment	Statutory corporate name	% Group interest	Method	Country of incorporation	Country of operations
Corporate (Continued)					
	Total Operations Canada Limited	100.00%		Canada	Canada
	Total Overseas Holding (PTY) Limited	100.00%		South Africa	Netherlands
	Total Participations	100.00%		France	France
	Total Petrochemicals & Refining S.A./NV ^(a)	100.00%		Belgium	Belgium
	Total Petrochemicals & Refining USA Inc. ^(a)	100.00%		United States	United States
	Total Petrochemicals Security USA Inc.	100.00%		United States	United States
	Total Resources (Canada) Limited	100.00%		Canada	Canada
	TOTAL S.A.	–		France	France
	Total Treasury	100.00%		France	France
	Total UK Finance Limited	100.00%		United Kingdom	United Kingdom

(a) % of control different from % of interest: 49.00%.

(b) % of control different from % of interest: 10.00%.

(c) % of control different from % of interest: 5.80%.

(d) % of control different from % of interest: 20.02%.

(e) Multi-segment entities.

8

Consolidated Financial Statements

Notes to the Consolidated Financial Statements

Note 18

9

Supplemental oil and gas information (unaudited)

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9.1 Oil and gas information pursuant to FASB Accounting Standards Codification 932

Proved reserves estimates are calculated according to the Securities and Exchange Commission (SEC) Rule 4-10 of Regulation S-X set forth in the “Modernization of Oil and Gas Reporting” release (SEC Release

n° 33-8995) and the Financial Accounting Standard Board (FASB) Accounting Standards Update regarding Extractive Activities – Oil and Gas (ASC 932), which provide definitions and disclosure requirements.

9.1.1 Assessment process for reserves

Reserves estimations are performed by experienced geoscientists, engineers and economists under the supervision of each subsidiary’s General Management. Staff involved in reserves evaluation are trained to follow SEC-compliant internal guidelines and policies regarding criteria that must be met before reserves can be considered as proved. All of the Group’s proved reserves held in subsidiaries and equity affiliates are estimated within the affiliates of the Group with the exception of the proved reserves held by the equity affiliate PAO Novatek. The assessment of the net proved liquids and natural gas reserves of certain properties owned by PAO Novatek was completed as of December 31, 2019, in accordance with the standards applied by the Group, based on an independent third-party report from DeGolyer & MacNaughton. These independently assessed reserves account for 44% of the total net proved reserves TOTAL held in Russia as of December 31, 2019.

The technical validation process relies on a Technical Reserves Committee that is responsible for approving proved reserves variations above a certain threshold and technical evaluations of reserves associated with an investment decision that requires approval from the Exploration & Production Executive Committee. The Chairman of the Technical Reserves Committee is appointed by the Senior Management of Exploration & Production and its members have expertise in reservoir engineering, production geology, production geophysics, reserves methodology, drilling and development studies.

An internal control process related to reserves estimation is formalized and involves the following elements:

- a central Reserves Entity the responsibility of which is: to consolidate, document and archive the Group’s reserves; to ensure coherence of evaluations worldwide; to maintain the Corporate Reserves Guidelines Standards in line with SEC guidelines and policies; to deliver training on reserves evaluation and classification; and to conduct periodically in-depth technical review of reserves for each affiliate;

- a review of affiliate reserves conducted by an internal group of specialists selected for their expertise in geosciences and engineering and their knowledge of the affiliate. All members of this group, chaired by the Reserves Vice-President (“RVP”) of the Development and Support to Operations division and composed of at least three Technical Reserves Committee members, are knowledgeable in the SEC guidelines for proved reserves evaluation. Their responsibility is to provide an independent review of significant reserves changes proposed by affiliates and ensure that reserves are estimated using appropriate standards and procedures;
- at the end of the annual review carried out by the Development and Support to Operations division, a SEC Reserves Committee chaired by the Exploration & Production Senior Vice President Finance and Economics and comprised of the Development and Support to Operations and Strategy-Business Development-R&D Senior Vice Presidents, and the Finance and Legal Vice Presidents as well as the Chairman of the Technical Reserves Committee and the RVP, approves the elements of the SEC reserve booking proposals concerning criteria that are not dependent upon technical expertise (reservoir, geosciences, etc.). The results of the annual review and the proposals for including revisions or additions of SEC Proved Reserves are presented to the Exploration & Production Executive Committee for approval before final validation by the Group’s General Management and Chief Financial Officer.

The reserves evaluation and control process is audited periodically by the Group’s internal auditors.

The RVP of the Development and Support to Operations division is the technical person responsible for preparing the reserves estimates for the Group. Appointed by the President of Exploration & Production, the RVP supervises the Reserves Entity, chairs the annual review of reserves, and is a member of the Technical Reserves Committee and the SEC Reserves Committee. The current RVP has over 25 years of experience in the oil and gas industry. He previously held several management positions in the Group in reservoir engineering and geosciences, and in the field of reserves evaluation and control process. He holds an engineering degree from *École Centrale Paris*, France, and a petroleum engineering degree from IFP School, France. He is a member of the UNECE (United Nations Economic Commission for Europe) Expert Group on Resource Classification, and an active member of the Society of Petroleum Engineers.

9.1.2 Proved developed reserves

As of December 31, 2019, proved developed reserves of hydrocarbons (oil, bitumen and gas) were 8,532 Mboe and represented 67% of the proved reserves. As of December 31, 2018, proved developed reserves of hydrocarbons (oil, bitumen and gas) were 8,400 Mboe and represented 70% of the proved reserves. As of December 31, 2017,

proved developed reserves of hydrocarbons (oil, bitumen and gas) were 7,010 Mboe and represented 61% of the proved reserves. Over the past three years, the average of proved developed reserves renewal has remained well above 1,300 Mboe per year.

9.1.3 Proved undeveloped reserves

As of December 31, 2019, TOTAL's combined proved undeveloped reserves (PUDs) of oil and gas were 4,149 Mboe compared to 3,650 Mboe at the end of 2018.

The variation is due to -826 Mboe converted from PUDs to proved developed reserves and to +223 Mboe revisions of previous estimates, mainly in the United Arab Emirates; and concerning the variations of PUDs not included in opening balance, +675 Mboe related to extensions and discoveries, mainly in Russia, +441 Mboe from acquisitions mainly in Mozambique and -14 Mboe converted from PUDs to proved developed reserves.

In 2019, out of 826 Mboe converted from PUDs to proved developed reserves, 571 Mboe of PUDs were converted to proved developed within the scope of development activity on 6 main fields, Yamal LNG (Russia) and Kashagan (Kazakhstan), the start up of Culzean (United Kingdom), Johan Sverdrup (Norway), Kaombo Sul (Angola) and North Russkoye (Russia) and 255 Mboe on various other fields. These developments confirm once again the Group's ability to develop and bring into production large scale and complex projects.

In 2019, the costs incurred to develop proved undeveloped reserves were \$6.8 billion, which represented 75% of 2019 development costs incurred, and were related to projects located for the most part in Angola, Norway, United Kingdom, Nigeria, the United Arab Emirates, the United States, Russia and Australia.

9.1.4 Estimated proved reserves of oil, bitumen and gas

The following tables present, for oil, bitumen and gas reserves, an estimate of the Group's oil, bitumen and gas quantities by geographic areas as of December 31, 2019, 2018 and 2017.

Quantities shown correspond to proved developed and undeveloped reserves together with changes in quantities for 2019, 2018 and 2017.

The definitions used for proved, proved developed and proved undeveloped oil and gas reserves are in accordance with the revised Rule 4-10 of SEC Regulation S-X.

All references in the following tables to reserves or production are to the Group's entire share of such reserves or production. TOTAL's worldwide proved reserves include the proved reserves of its consolidated subsidiaries as well as its proportionate share of the proved reserves of equity affiliates.

Significant changes in proved reserves between 2018 and 2019 are discussed below.

The Group's PUDs that may remain undeveloped for five years or more after first disclosure (PUD5+) correspond to the remaining PUD on large scale and complex development projects and to field development projects the implementation of which is dependent on capacity constraints.

Indeed, although the Group has converted significant amount of reserves associated to large scale and complex projects from PUD5+ into developed reserves in the last years, those projects still hold PUD5+ that are expected to be developed over time as part of initial field development plans or additional development phases.

In addition, some projects are designed and optimized for a given production capacity that controls the pace at which the field is developed and the wells are drilled. At production start-up, only a portion of the proved reserves is developed to meet capacity constraints and contractual obligations.

Under these specific circumstances, the Group believes that it is justified to report those PUDs as proved reserves, despite the fact that some of these PUDs may remain undeveloped for more than five years.

For consolidated subsidiaries, the revisions of +494 Mboe for the year 2019 were due to:

- +524 Mboe due to new information obtained from drilling and production history mainly in the United Arab Emirates, Angola and Norway;
- -30 Mboe due to economic factors as a result of lower yearly average hydrocarbon prices, including an earlier economic limit on a number of assets, partly compensated by higher entitlement share from production sharing and risked service contracts.

The extensions in the Americas correspond mainly to recognition of proved reserves in the United States.

For equity affiliates, the revisions of +88 Mboe for the year 2019 were mainly due to new information obtained from drilling and production history in Russia.

The extensions in Russia correspond mainly to recognition of reserves on Arctic LNG 2.

9.1.4.1 Changes in oil, bitumen and gas reserves

Proved developed and undeveloped reserves	Consolidated subsidiaries						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
<i>(in million barrels of oil equivalent)</i>							
BALANCE AS OF DECEMBER 31, 2016 – BRENT AT 42.82\$/b	1,726	11	1,802	1,442	1,639	982	7,602
Revisions of previous estimates	122	2	106	50	195	44	519
Extensions, discoveries and other	–	–	29	62	149	6	246
Acquisitions of reserves in place	9	–	2	–	–	–	11
Sales of reserves in place	(17)	–	(28)	–	(52)	–	(97)
Production for the year	(162)	(2)	(232)	(104)	(115)	(89)	(704)
BALANCE AS OF DECEMBER 31, 2017 – BRENT AT 54.36\$/b	1,678	11	1,679	1,450	1,816	943	7,577
Revisions of previous estimates	126	–	132	137	28	27	450
Extensions, discoveries and other	69	–	45	444	27	13	598
Acquisitions of reserves in place	316	–	–	85	86	–	487
Sales of reserves in place	(103)	–	(5)	–	(24)	(89)	(221)
Production for the year	(190)	(1)	(238)	(154)	(134)	(51)	(768)
BALANCE AS OF DECEMBER 31, 2018 – BRENT AT 71.43\$/b	1,896	10	1,613	1,962	1,799	843	8,123
Revisions of previous estimates	67	2	113	211	76	25	494
Extensions, discoveries and other	9	–	1	1	76	32	119
Acquisitions of reserves in place	40	–	421	17	–	–	478
Sales of reserves in place	(3)	–	–	–	(1)	–	(4)
Production for the year	(197)	(2)	(249)	(175)	(131)	(79)	(833)
BALANCE AS OF DECEMBER 31, 2019 – BRENT AT 62.74\$/b	1,812	10	1,899	2,016	1,819	821	8,377

Minority interest in proved developed and undeveloped reserves as of

December 31, 2017 – Brent at 54.36\$/b	–	–	102	–	–	–	102
December 31, 2018 – Brent at 71.43\$/b	–	–	98	–	–	–	98
DECEMBER 31, 2019 – BRENT AT 62.74\$/b	–	–	86	–	–	–	86

Proved developed and undeveloped reserves	Equity affiliates						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
<i>(in million barrels of oil equivalent)</i>							
BALANCE AS OF DECEMBER 31, 2016 – BRENT AT 42.82\$/b	–	2,389	70	1,292	165	–	3,916
Revisions of previous estimates	–	17	–	45	(6)	–	56
Extensions, discoveries and other	–	124	–	–	–	–	124
Acquisitions of reserves in place	–	35	–	–	–	–	35
Sales of reserves in place	–	–	–	–	–	–	–
Production for the year	–	(114)	(7)	(100)	(12)	–	(233)
BALANCE AS OF DECEMBER 31, 2017 – BRENT AT 54.36\$/b	–	2,451	63	1,237	147	–	3,898
Revisions of previous estimates	–	128	(1)	61	(1)	–	187
Extensions, discoveries and other	–	11	–	–	–	–	11
Acquisitions of reserves in place	–	102	–	–	–	–	102
Sales of reserves in place	–	(26)	–	–	–	–	(26)
Production for the year	–	(141)	(7)	(89)	(8)	–	(245)
BALANCE AS OF DECEMBER 31, 2018 – BRENT AT 71.43\$/b	–	2,525	55	1,209	138	–	3,927
Revisions of previous estimates	–	85	(0)	41	(38)	–	88
Extensions, discoveries and other	–	538	–	18	–	–	556
Acquisitions of reserves in place	–	–	–	–	–	–	–
Sales of reserves in place	–	–	–	–	–	–	–
Production for the year	–	(175)	(8)	(82)	(2)	–	(267)
BALANCE AS OF DECEMBER 31, 2019 – BRENT AT 62.74\$/b	–	2,973	47	1,186	98	–	4,304

Proved developed and undeveloped reserves	Consolidated subsidiaries and equity affiliates						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
<i>(in million barrels of oil equivalent)</i>							
AS OF DECEMBER 31, 2017 – BRENT AT 54.36\$/b							
Proved developed and undeveloped reserves	1,678	2,462	1,742	2,687	1,963	943	11,475
Consolidated subsidiaries	1,678	11	1,679	1,450	1,816	943	7,577
Equity affiliates	–	2,451	63	1,237	147	–	3,898
Proved developed reserves	1,100	1,344	1,206	2,256	907	197	7,010
Consolidated subsidiaries	1,100	8	1,192	1,177	836	197	4,510
Equity affiliates	–	1,336	14	1,079	71	–	2,500
Proved undeveloped reserves	578	1,118	536	431	1,056	746	4,465
Consolidated subsidiaries	578	3	487	273	979	746	3,066
Equity affiliates	–	1,115	49	158	77	–	1,399
AS OF DECEMBER 31, 2018 – BRENT AT 71.43\$/b							
Proved developed and undeveloped reserves	1,896	2,535	1,668	3,171	1,937	843	12,050
Consolidated subsidiaries	1,896	10	1,613	1,962	1,799	843	8,123
Equity affiliates	–	2,525	55	1,209	138	–	3,927
Proved developed reserves	1,275	1,395	1,266	2,702	1,245	517	8,400
Consolidated subsidiaries	1,275	8	1,257	1,649	1,182	517	5,888
Equity affiliates	–	1,387	9	1,053	63	–	2,512
Proved undeveloped reserves	621	1,140	402	469	692	326	3,650
Consolidated subsidiaries	621	2	356	313	617	326	2,235
Equity affiliates	–	1,138	46	156	75	–	1,415
AS OF DECEMBER 31, 2019 – BRENT AT 62.74\$/b							
Proved developed and undeveloped reserves	1,812	2,983	1,946	3,202	1,917	821	12,681
Consolidated subsidiaries	1,812	10	1,899	2,016	1,819	821	8,377
Equity affiliates	–	2,973	47	1,186	98	–	4,304
Proved developed reserves	1,454	1,506	1,217	2,628	1,225	502	8,532
Consolidated subsidiaries	1,454	8	1,211	1,604	1,181	502	5,960
Equity affiliates	–	1,498	6	1,024	44	–	2,572
Proved undeveloped reserves	358	1,477	729	574	692	319	4,149
Consolidated subsidiaries	358	2	688	412	638	319	2,417
Equity affiliates	–	1,475	41	162	54	–	1,732

9.1.4.2 Changes in oil & bitumen reserves

The oil reserves include crude oil, condensates and natural gas liquids reserves.

Proved developed and undeveloped reserves	Consolidated subsidiaries							Bitumen Americas
	Oil						Total	
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific		
<i>(in million barrels)</i>								
BALANCE AS OF DECEMBER 31, 2016 – BRENT AT 42.82\$/b	936	10	1,282	1,210	85	200	3,723	813
Revisions of previous estimates	42	–	94	57	7	2	202	189
Extensions, discoveries and other	–	–	18	38	91	–	147	–
Acquisitions of reserves in place	3	–	2	–	–	–	5	–
Sales of reserves in place	(8)	–	(26)	–	–	–	(34)	(52)
Production for the year	(71)	(1)	(182)	(87)	(15)	(10)	(366)	(22)
BALANCE AS OF DECEMBER 31, 2017 – BRENT AT 54.36\$/b	902	9	1,188	1,218	168	192	3,677	928
Revisions of previous estimates	34	–	122	141	51	3	351	(26)
Extensions, discoveries and other	34	–	7	404	2	8	455	–
Acquisitions of reserves in place	221	–	–	60	83	–	364	–
Sales of reserves in place	(36)	–	(3)	–	–	(23)	(62)	(24)
Production for the year	(95)	(1)	(185)	(136)	(24)	(6)	(447)	(35)
BALANCE AS OF DECEMBER 31, 2018 – BRENT AT 71.43\$/b	1,060	8	1,129	1,687	280	174	4,338	843
Revisions of previous estimates	46	2	97	206	51	8	410	(1)
Extensions, discoveries and other	8	–	1	1	62	1	73	–
Acquisitions of reserves in place	20	–	7	16	–	–	43	–
Sales of reserves in place	(2)	–	–	–	(0)	–	(2)	–
Production for the year	(101)	(2)	(202)	(152)	(23)	(16)	(496)	(36)
BALANCE AS OF DECEMBER 31, 2019 – BRENT AT 62.74\$/b	1,031	8	1,032	1,758	370	167	4,366	806
Minority interest in proved developed and undeveloped reserves as of								
December 31, 2017 – Brent at 54.36\$/b	–	–	93	–	–	–	93	–
December 31, 2018 – Brent at 71.43\$/b	–	–	90	–	–	–	90	–
DECEMBER 31, 2019 – BRENT AT 62.74\$/b	–	–	77	–	–	–	77	–

Proved developed and undeveloped reserves <i>(in million barrels)</i>	Equity affiliates*						Total
	Oil						
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia- Pacific	
BALANCE AS OF DECEMBER 31, 2016							
– BRENT AT 42.82\$/b	–	276	13	432	157	–	878
Revisions of previous estimates	–	16	–	44	(6)	–	54
Extensions, discoveries and other	–	12	–	–	–	–	12
Acquisitions of reserves in place	–	4	–	–	–	–	4
Sales of reserves in place	–	–	–	–	–	–	–
Production for the year	–	(24)	(2)	(66)	(11)	–	(103)
BALANCE AS OF DECEMBER 31, 2017							
– BRENT AT 54.36\$/b	–	284	11	410	140	–	845
Revisions of previous estimates	–	54	–	57	(3)	–	108
Extensions, discoveries and other	–	–	–	–	–	–	–
Acquisitions of reserves in place	–	10	–	–	–	–	10
Sales of reserves in place	–	(5)	–	–	–	–	(5)
Production for the year	–	(26)	(2)	(54)	(8)	–	(90)
BALANCE AS OF DECEMBER 31, 2018							
– BRENT AT 71.43\$/b	–	317	9	413	129	–	868
Revisions of previous estimates	–	6	(0)	32	(35)	–	3
Extensions, discoveries and other	–	24	–	18	–	–	42
Acquisitions of reserves in place	–	–	–	–	–	–	–
Sales of reserves in place	–	–	–	–	–	–	–
Production for the year	–	(27)	(2)	(48)	(2)	–	(79)
BALANCE AS OF DECEMBER 31, 2019							
– BRENT AT 62.74\$/b	–	320	7	415	92	–	834

* There are no bitumen reserves for equity affiliates.

Proved developed and undeveloped reserves	Consolidated subsidiaries and equity affiliates*							Bitumen Americas
	Oil						Total	
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific		
<i>(in million barrels)</i>								
AS OF DECEMBER 31, 2017								
– BRENT AT 54.36\$/b								
Proved developed and undeveloped reserves^(a)	902	293	1,199	1,628	308	192	4,522	928
Consolidated subsidiaries	902	9	1,188	1,218	168	192	3,677	928
Equity affiliates	–	284	11	410	140	–	845	–
Proved developed reserves	541	176	853	1,321	145	10	3,046	142
Consolidated subsidiaries	541	8	849	1,000	77	10	2,485	142
Equity affiliates	–	168	4	321	68	–	561	–
Proved undeveloped reserves	361	117	346	307	163	182	1,476	786
Consolidated subsidiaries	361	2	338	217	91	182	1,191	786
Equity affiliates	–	115	8	90	72	–	285	–
AS OF DECEMBER 31, 2018								
– BRENT AT 71.43\$/b								
Proved developed and undeveloped reserves^(a)	1,060	325	1,138	2,100	409	174	5,206	843
Consolidated subsidiaries	1,060	8	1,129	1,687	280	174	4,338	843
Equity affiliates	–	317	9	413	129	–	868	–
Proved developed reserves	698	196	928	1,750	164	118	3,854	512
Consolidated subsidiaries	698	6	927	1,430	106	118	3,285	512
Equity affiliates	–	190	1	320	58	–	569	–
Proved undeveloped reserves	362	129	210	350	245	56	1,352	331
Consolidated subsidiaries	362	2	202	257	174	56	1,053	331
Equity affiliates	–	127	8	93	71	–	299	–
AS OF DECEMBER 31, 2019								
– BRENT AT 62.74\$/b								
Proved developed and undeveloped reserves^(a)	1,031	328	1,039	2,173	462	167	5,200	806
Consolidated subsidiaries	1,031	8	1,032	1,758	370	167	4,366	806
Equity affiliates	–	320	7	415	92	–	834	–
Proved developed reserves	859	199	900	1,718	155	114	3,945	497
Consolidated subsidiaries	859	7	899	1,402	113	114	3,394	497
Equity affiliates	–	192	1	316	42	–	551	–
Proved undeveloped reserves	172	129	139	455	307	53	1,255	309
Consolidated subsidiaries	172	1	133	356	257	53	972	309
Equity affiliates	–	128	6	99	50	–	283	–

(a) The tables do not include separate figures for NGL reserves because they represented less than 8.5% of the Group's proved developed and undeveloped oil reserves in each of the years 2017, 2018 and 2019.

* There are no bitumen reserves for equity affiliates.

9.1.4.3 Changes in gas reserves

Proved developed and undeveloped reserves <i>(in billion cubic feet)</i>	Consolidated subsidiaries						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
BALANCE AS OF DECEMBER 31, 2016 – BRENT AT 42.82\$/b	4,208	5	2,584	1,297	4,204	4,265	16,563
Revisions of previous estimates	434	2	52	(44)	(21)	233	656
Extensions, discoveries and other	–	–	53	131	323	35	542
Acquisitions of reserves in place	34	–	–	–	–	–	34
Sales of reserves in place	(49)	–	(10)	–	–	–	(59)
Production for the year	(495)	–	(248)	(94)	(440)	(455)	(1,732)
BALANCE AS OF DECEMBER 31, 2017 – BRENT AT 54.36\$/b	4,132	7	2,431	1,290	4,066	4,078	16,004
Revisions of previous estimates	481	1	39	(21)	24	141	665
Extensions, discoveries and other	176	–	191	214	141	29	751
Acquisitions of reserves in place	516	–	–	130	14	–	660
Sales of reserves in place	(362)	–	(5)	–	–	(343)	(710)
Production for the year	(515)	–	(257)	(110)	(421)	(273)	(1,576)
BALANCE AS OF DECEMBER 31, 2018 – BRENT AT 71.43\$/b	4,428	8	2,399	1,503	3,824	3,632	15,794
Revisions of previous estimates	115	(0)	76	40	142	114	487
Extensions, discoveries and other	4	–	–	–	79	178	261
Acquisitions of reserves in place	104	–	2,272	5	–	–	2,381
Sales of reserves in place	(10)	–	–	–	(2)	–	(12)
Production for the year	(514)	(1)	(236)	(129)	(405)	(368)	(1,653)
BALANCE AS OF DECEMBER 31, 2019 – BRENT AT 62.74\$/b	4,127	7	4,511	1,419	3,638	3,556	17,258
Minority interest in proved developed and undeveloped reserves as of							
December 31, 2017 – Brent at 54.36\$/b	–	–	44	–	–	–	44
December 31, 2018 – Brent at 71.43\$/b	–	–	43	–	–	–	43
DECEMBER 31, 2019 – BRENT AT 62.74\$/b	–	–	44	–	–	–	44

Proved developed and undeveloped reserves	Equity affiliates						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
<i>(in billion cubic feet)</i>							
BALANCE AS OF DECEMBER 31, 2016							
– BRENT AT 42.82\$/b	–	11,378	301	4,697	45	–	16,421
Revisions of previous estimates	–	3	4	3	(1)	–	9
Extensions, discoveries and other	–	607	–	–	–	–	607
Acquisitions of reserves in place	–	164	–	–	–	–	164
Sales of reserves in place	–	–	–	–	–	–	–
Production for the year	–	(481)	(29)	(187)	(2)	–	(699)
BALANCE AS OF DECEMBER 31, 2017							
– BRENT AT 54.36\$/b	–	11,671	276	4,513	42	–	16,502
Revisions of previous estimates	–	394	(9)	28	11	–	424
Extensions, discoveries and other	–	60	–	–	–	–	60
Acquisitions of reserves in place	–	489	–	–	–	–	489
Sales of reserves in place	–	(112)	–	–	–	–	(112)
Production for the year	–	(616)	(30)	(184)	(2)	–	(832)
BALANCE AS OF DECEMBER 31, 2018							
– BRENT AT 71.43\$/b	–	11,886	237	4,357	51	–	16,531
Revisions of previous estimates	–	425	19	45	(14)	–	475
Extensions, discoveries and other	–	2,786	–	–	–	–	2,786
Acquisitions of reserves in place	–	–	–	–	–	–	–
Sales of reserves in place	–	–	–	–	–	–	–
Production for the year	–	(798)	(53)	(184)	(0)	–	(1,035)
BALANCE AS OF DECEMBER 31, 2019							
– BRENT AT 62.74\$/b	–	14,299	203	4,218	37	–	18,757

Proved developed and undeveloped reserves	Consolidated subsidiaries and equity affiliates						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
<i>(in billion cubic feet)</i>							
AS OF DECEMBER 31, 2017 – BRENT AT 54.36\$/b							
Proved developed and undeveloped reserves	4,132	11,678	2,707	5,803	4,108	4,078	32,506
Consolidated subsidiaries	4,132	7	2,431	1,289	4,066	4,078	16,004
Equity affiliates	–	11,671	276	4,514	42	–	16,502
Proved developed reserves	2,964	6,262	1,749	5,151	3,493	1,127	20,746
Consolidated subsidiaries	2,964	4	1,692	1,013	3,476	1,127	10,276
Equity affiliates	–	6,258	57	4,138	17	–	10,470
Proved undeveloped reserves	1,168	5,416	958	652	615	2,951	11,760
Consolidated subsidiaries	1,168	3	739	276	590	2,951	5,727
Equity affiliates	–	5,413	219	376	25	–	6,033
AS OF DECEMBER 31, 2018 – BRENT AT 71.43\$/b							
Proved developed and undeveloped reserves	4,428	11,894	2,636	5,860	3,875	3,632	32,325
Consolidated subsidiaries	4,428	8	2,399	1,503	3,824	3,632	15,794
Equity affiliates	–	11,886	237	4,357	51	–	16,531
Proved developed reserves	3,050	6,426	1,658	5,233	3,213	2,219	21,799
Consolidated subsidiaries	3,050	4	1,625	1,224	3,188	2,219	11,310
Equity affiliates	–	6,422	33	4,009	25	–	10,489
Proved undeveloped reserves	1,378	5,468	978	627	662	1,413	10,526
Consolidated subsidiaries	1,378	4	774	279	636	1,413	4,484
Equity affiliates	–	5,464	204	348	26	–	6,042
AS OF DECEMBER 31, 2019 – BRENT AT 62.74\$/b							
Proved developed and undeveloped reserves	4,127	14,306	4,714	5,637	3,675	3,556	36,015
Consolidated subsidiaries	4,127	7	4,511	1,419	3,638	3,556	17,258
Equity affiliates	–	14,299	203	4,218	37	–	18,757
Proved developed reserves	3,137	7,018	1,547	5,009	3,237	2,152	22,100
Consolidated subsidiaries	3,137	4	1,526	1,141	3,219	2,152	11,179
Equity affiliates	–	7,014	21	3,868	18	–	10,921
Proved undeveloped reserves	990	7,288	3,167	628	438	1,404	13,915
Consolidated subsidiaries	990	3	2,985	278	419	1,404	6,079
Equity affiliates	–	7,285	182	350	19	–	7,836

9.1.5 Results of operations for oil and gas producing activities

The following tables do not include revenues and expenses related to oil and gas transportation activities and LNG liquefaction and transportation.

(M\$)	Consolidated subsidiaries						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
2017							
Revenues Non-Group sales	1,454	–	975	934	1,335	2,160	6,858
Group sales	3,932	41	8,486	3,706	821	453	17,439
Total Revenues	5,386	41	9,461	4,640	2,156	2,613	24,297
Production costs	(1,072)	(14)	(1,350)	(434)	(601)	(318)	(3,789)
Exploration expenses	(419)	(2)	(164)	(10)	(193)	(76)	(864)
Depreciation, depletion and amortization and valuation allowances	(2,928)	(36)	(5,790)	(511)	(2,569)	(820)	(12,654)
Other expenses ^(a)	(352)	(7)	(775)	(2,619)	(338)	(121)	(4,212)
Pre-tax income from producing activities^(b)	615	(18)	1,382	1,066	(1,545)	1,278	2,778
Income tax	(776)	(2)	(853)	(469)	387	(482)	(2,195)
Results of oil and gas producing activities^(b)	(161)	(20)	529	597	(1,158)	796	583

(a) Included production taxes and accretion expense as provided by IAS 37 (\$525 million in 2017).

(b) Including adjustment items applicable to ASC 932 perimeter, amounting to a net charge of \$3.712 million before tax and \$3.305 million after tax, related to asset impairments.

2018

Revenues Non-Group sales	2,199	–	1,899	2,331	1,109	1,384	8,922
Group sales	6,686	86	10,702	6,760	1,730	222	26,186
Total Revenues	8,885	86	12,601	9,091	2,839	1,606	35,108
Production costs	(1,546)	(14)	(1,208)	(617)	(864)	(147)	(4,396)
Exploration expenses	(297)	(1)	(144)	(45)	(218)	(93)	(798)
Depreciation, depletion and amortization and valuation allowances	(2,464)	(33)	(4,400)	(1,227)	(1,356)	(1,066)	(10,546)
Other expenses ^(a)	(395)	(12)	(993)	(5,561)	(423)	(141)	(7,525)
Pre-tax income from producing activities^(b)	4,183	26	5,856	1,641	(22)	159	11,843
Income tax	(2,356)	(16)	(2,440)	(868)	88	(25)	(5,617)
Results of oil and gas producing activities^(b)	1,827	10	3,416	773	66	134	6,226

(a) Included production taxes and accretion expense as provided by IAS 37 (\$515 million in 2018).

(b) Including adjustment items applicable to ASC 932 perimeter, amounting to a net charge of \$1.238 million before tax and \$703 million after tax, related to asset impairments.

2019

Revenues Non-Group sales	1,011	–	1,260	1,686	972	2,171	7,100
Group sales	6,383	83	11,286	7,369	2,110	390	27,621
Total Revenues	7,394	83	12,546	9,055	3,082	2,561	34,721
Production costs	(1,521)	(12)	(1,249)	(639)	(873)	(239)	(4,533)
Exploration expenses	(230)	(2)	(65)	(24)	(392)	(72)	(785)
Depreciation, depletion and amortization and valuation allowances	(2,238)	(100)	(5,556)	(798)	(1,924)	(1,019)	(11,635)
Other expenses ^(a)	(456)	(12)	(918)	(5,560)	(392)	(173)	(7,511)
Pre-tax income from producing activities^(b)	2,949	(43)	4,758	2,034	(499)	1,058	10,257
Income tax	(1,564)	13	(2,004)	(814)	309	(108)	(4,168)
Results of oil and gas producing activities^(b)	1,385	(30)	2,754	1,220	(190)	950	6,089

(a) Included production taxes and accretion expense as provided by IAS 37 (\$615 million in 2019).

(b) Including adjustment items applicable to ASC 932 perimeter, amounting to a net charge of \$899 million before tax and \$392 million after tax, related to asset impairments.

(M\$)	Equity affiliates						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
2017							
Revenues Non-Group sales	–	1,027	81	1,526	351	–	2,985
Group sales	–	8	–	2,247	19	–	2,274
Total Revenues	–	1,034	81	3,774	370	–	5,259
Production costs	–	(106)	–	(283)	(55)	–	(444)
Exploration expenses	–	(5)	–	–	–	–	(5)
Depreciation, depletion and amortization and valuation allowances	–	(149)	–	(423)	(88)	–	(660)
Other expenses	–	(187)	(9)	(2,309)	(159)	–	(2,664)
Pre-tax income from producing activities	–	587	72	759	67	–	1,485
Income tax	–	(104)	–	(212)	(5)	–	(321)
Results of oil and gas producing activities	–	483	72	547	62	–	1,164
2018							
Revenues Non-Group sales	–	1,915	122	3,429	346	–	5,812
Group sales	–	45	32	941	–	–	1,018
Total Revenues	–	1,960	154	4,370	346	–	6,830
Production costs	–	(139)	–	(399)	(49)	–	(587)
Exploration expenses	–	(14)	–	–	–	–	(14)
Depreciation, depletion and amortization and valuation allowances	–	(196)	–	(253)	(68)	–	(517)
Other expenses	–	(239)	(32)	(2,548)	(185)	–	(3,004)
Pre-tax income from producing activities	–	1,372	122	1,170	44	–	2,708
Income tax	–	(228)	–	(424)	(3)	–	(655)
Results of oil and gas producing activities	–	1,144	122	746	41	–	2,053
2019							
Revenues Non-Group sales	–	2,317	67	3,128	41	–	5,553
Group sales	–	–	–	606	–	–	606
Total Revenues	–	2,317	67	3,734	41	–	6,159
Production costs	–	(182)	–	(311)	(19)	–	(512)
Exploration expenses	–	(30)	–	–	–	–	(30)
Depreciation, depletion and amortization and valuation allowances	–	(254)	–	(227)	(23)	–	(504)
Other expenses	–	(230)	(9)	(2,086)	(39)	–	(2,364)
Pre-tax income from producing activities	–	1,621	58	1,110	(40)	–	2,749
Income tax	–	(222)	–	(469)	13	–	(678)
Results of oil and gas producing activities	–	1,399	58	641	(27)	–	2,071

9.1.6 Cost incurred

The following tables set forth the costs incurred in the Group's oil and gas property acquisition, exploration and development activities, including both capitalized and expensed amounts. They do not include costs incurred related to oil and gas transportation and LNG liquefaction and transportation activities.

(M\$)	Consolidated subsidiaries						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
2017							
Proved property acquisition	47	–	1	1	14	–	63
Unproved property acquisition	13	–	56	5	153	507	734
Exploration costs	415	2	170	61	388	141	1,177
Development costs ^(a)	1,445	20	3,544	948	1,957	1,073	8,987
TOTAL COST INCURRED	1,919	22	3,771	1,014	2,512	1,721	10,959
2018^(b)							
Proved property acquisition	2,899	–	210	473	1,417	–	4,999
Unproved property acquisition	3,173	–	245	2,337	2,137	1	7,893
Exploration costs	379	1	196	34	406	156	1,172
Development costs ^(a)	1,642	23	3,252	1,378	1,649	1,346	9,290
TOTAL COST INCURRED	8,093	24	3,903	4,222	5,609	1,503	23,354
2019^(c)							
Proved property acquisition	16	–	244	10	14	–	284
Unproved property acquisition	7	–	3,124	42	509	3	3,685
Exploration costs	262	2	198	78	469	84	1,093
Development costs ^(a)	2,273	28	2,724	1,074	1,547	598	8,244
TOTAL COST INCURRED	2,558	30	6,290	1,204	2,539	685	13,306

(M\$)	Equity affiliates						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
2017							
Proved property acquisition	–	–	–	–	–	–	–
Unproved property acquisition	–	–	–	–	–	–	–
Exploration costs	–	–	–	4	–	–	4
Development costs ^(a)	–	219	–	625	88	–	932
TOTAL COST INCURRED	–	219	–	629	88	–	936
2018							
Proved property acquisition	–	153	–	–	–	–	153
Unproved property acquisition	–	9	–	–	–	–	9
Exploration costs	–	–	–	3	–	–	3
Development costs ^(a)	–	204	–	590	67	–	861
TOTAL COST INCURRED	–	366	–	593	67	–	1,026
2019							
Proved property acquisition	–	–	–	–	–	–	–
Unproved property acquisition	–	1,673	–	–	–	–	1,673
Exploration costs	–	–	–	5	–	–	5
Development costs ^(a)	–	390	–	400	4	–	794
TOTAL COST INCURRED	–	2,063	–	405	4	–	2,472

(a) Including asset retirement costs capitalized during the year and any gains or losses recognized upon settlement of asset retirement obligation during the year.

(b) Including costs incurred relating to acquisitions of Maerk Oil, Iara and Lapa concessions and Marathon Oil Libya Ltd.

(c) Including costs incurred relating to acquisitions of Anadarko in Mozambique.

9.1.7 Capitalized costs related to oil and gas producing activities

Capitalized costs represent the amount of capitalized proved and unproved property costs, including support equipment and facilities, along with the related accumulated depreciation, depletion and amortization. The following tables do not include capitalized costs related to oil and gas transportation and LNG liquefaction and transportation activities.

(M\$)	Consolidated subsidiaries							Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific		
As of December 31, 2017								
Proved properties	58,624	619	79,793	12,544	25,354	24,626	201,560	
Unproved properties	1,085	4	4,289	1,331	8,265	1,630	16,604	
TOTAL CAPITALIZED COSTS	59,709	623	84,082	13,874	33,619	26,256	218,163	
Accumulated depreciation, depletion and amortization	(34,370)	(421)	(46,725)	(8,450)	(14,345)	(15,550)	(119,861)	
Net capitalized costs	25,339	202	37,357	5,424	19,274	10,706	98,303	
As of December 31, 2018								
Proved properties	58,981	641	82,077	15,684	28,744	26,122	212,249	
Unproved properties	2,873	4	4,631	2,802	8,969	1,708	20,987	
TOTAL CAPITALIZED COSTS	61,854	645	86,708	18,486	37,713	27,830	233,236	
Accumulated depreciation, depletion and amortization	(35,036)	(454)	(50,029)	(10,012)	(14,398)	(16,682)	(126,611)	
Net capitalized costs	26,818	191	36,679	8,474	23,315	11,148	106,625	
As of December 31, 2019								
Proved properties	61,556	669	84,170	16,773	29,580	25,705	218,453	
Unproved properties	2,720	4	8,253	2,998	8,987	1,792	24,754	
TOTAL CAPITALIZED COSTS	64,276	673	92,423	19,771	38,567	27,497	243,207	
Accumulated depreciation, depletion and amortization	(36,815)	(551)	(55,686)	(10,720)	(15,414)	(17,645)	(136,831)	
NET CAPITALIZED COSTS	27,461	122	36,737	9,051	23,153	9,852	106,376	

(M\$)	Equity affiliates							Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific		
As of December 31, 2017								
Proved properties	–	6,232	–	5,583	1,676	–	13,491	
Unproved properties	–	185	–	–	–	–	185	
TOTAL CAPITALIZED COSTS	–	6,417	–	5,583	1,676	–	13,676	
Accumulated depreciation, depletion and amortization	–	(1,344)	–	(4,340)	(592)	–	(6,276)	
Net capitalized costs	–	5,074	–	1,243	1,084	–	7,401	
As of December 31, 2018								
Proved properties	–	6,268	–	3,463	1,743	–	11,474	
Unproved properties	–	132	–	–	–	–	132	
TOTAL CAPITALIZED COSTS	–	6,400	–	3,463	1,743	–	11,606	
Accumulated depreciation, depletion and amortization	–	(1,461)	–	(1,856)	(660)	–	(3,977)	
Net capitalized costs	–	4,939	–	1,607	1,083	–	7,629	
As of December 31, 2019								
Proved properties	–	9,004	–	3,791	1,699	–	14,494	
Unproved properties	–	110	–	–	–	–	110	
TOTAL CAPITALIZED COSTS	–	9,114	–	3,791	1,699	–	14,604	
Accumulated depreciation, depletion and amortization	–	(1,995)	–	(2,036)	(681)	–	(4,712)	
NET CAPITALIZED COSTS	–	7,119	–	1,755	1,018	–	9,892	

9.1.8 Standardized measure of discounted future net cash flows (excluding transportation)

The standardized measure of discounted future net cash flows relating to proved oil and gas reserve quantities was developed as follows:

- estimates of proved reserves and the corresponding production profiles are based on existing technical and economic conditions;
- the estimated future cash flows are determined based on prices used in estimating the Group's proved oil and gas reserves;
- the future cash flows incorporate estimated production costs (including production taxes), future development costs and asset retirement costs. All cost estimates are based on year-end technical and economic conditions;
- future income taxes are computed by applying the year-end statutory tax rate to future net cash flows after consideration of permanent differences and future income tax credits; and
- future net cash flows are discounted at a standard discount rate of 10%.

These principles applied are those required by ASC 932 and do not reflect the expectations of real revenues from these reserves, nor their present value; hence, they do not constitute criteria for investment decisions. An estimate of the fair value of reserves should also take into account, among other things, the recovery of reserves not presently classified as proved, anticipated future changes in prices and costs and a discount factor more representative of the time value of money and the risks inherent in reserves estimates.

	Consolidated subsidiaries						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
<i>(M\$)</i>							
As of December 31, 2017							
Future cash inflows	58,133	420	63,319	67,180	37,203	20,616	246,871
Future production costs	(16,644)	(221)	(18,554)	(50,240)	(19,372)	(5,780)	(110,811)
Future development costs	(13,302)	(115)	(15,319)	(5,648)	(6,337)	(4,044)	(44,765)
Future income taxes	(9,385)	(36)	(11,403)	(4,450)	(921)	(1,721)	(27,916)
Future net cash flows, after income taxes	18,802	47	18,043	6,843	10,572	9,070	63,377
Discount at 10%	(8,106)	(3)	(4,977)	(3,065)	(6,562)	(3,567)	(26,280)
Standardized measure of discounted future net cash flows	10,696	44	13,066	3,778	4,010	5,503	37,097
As of December 31, 2018							
Future cash inflows	90,506	508	79,258	121,614	41,224	19,936	353,046
Future production costs	(21,813)	(226)	(19,236)	(95,749)	(21,282)	(4,570)	(162,876)
Future development costs	(17,735)	(135)	(13,861)	(6,656)	(6,584)	(3,093)	(48,064)
Future income taxes	(22,486)	(63)	(16,357)	(5,965)	(2,322)	(2,809)	(50,002)
Future net cash flows, after income taxes	28,472	84	29,804	13,244	11,036	9,464	92,104
Discount at 10%	(11,811)	(16)	(8,277)	(5,469)	(5,479)	(3,247)	(34,299)
Standardized measure of discounted future net cash flows	16,661	68	21,527	7,775	5,557	6,217	57,805
As of December 31, 2019							
Future cash inflows	70,868	436	70,854	110,796	50,810	19,953	323,717
Future production costs	(18,957)	(224)	(18,940)	(85,511)	(20,843)	(5,187)	(149,662)
Future development costs	(15,668)	(107)	(14,942)	(7,865)	(9,171)	(3,014)	(50,767)
Future income taxes	(12,932)	(46)	(12,341)	(4,887)	(1,790)	(1,867)	(33,863)
Future net cash flows, after income taxes	23,311	59	24,631	12,533	19,006	9,885	89,425
Discount at 10%	(10,029)	(11)	(10,004)	(5,143)	(10,061)	(3,588)	(38,836)
Standardized measure of discounted future net cash flows	13,282	48	14,627	7,390	8,945	6,297	50,589
Minority interests in future net cash flows as of							
December 31, 2017	–	–	862	–	–	–	862
December 31, 2018	–	–	1,440	–	–	–	1,440
DECEMBER 31, 2019	–	–	968	–	–	–	968

(M\$)	Equity affiliates						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
As of December 31, 2017							
Future cash inflows	–	30,769	365	39,518	6,719	–	77,371
Future production costs	–	(7,647)	(46)	(17,654)	(3,209)	–	(28,556)
Future development costs	–	(1,267)	(1)	(3,066)	(299)	–	(4,633)
Future income taxes	–	(2,097)	(17)	(7,459)	–	–	(9,573)
Future net cash flows, after income taxes	–	19,758	301	11,338	3,211	–	34,608
Discount at 10%	–	(12,050)	(166)	(5,901)	(1,549)	–	(19,666)
Standardized measure of discounted future net cash flows	–	7,708	135	5,437	1,662	–	14,942
As of December 31, 2018							
Future cash inflows	–	40,376	1,368	48,144	6,969	–	96,857
Future production costs	–	(11,136)	(47)	(21,248)	(3,372)	–	(35,803)
Future development costs	–	(1,118)	(28)	(2,731)	(326)	–	(4,203)
Future income taxes	–	(4,825)	–	(11,631)	(1,233)	–	(17,689)
Future net cash flows, after income taxes	–	23,297	1,293	12,534	2,038	–	39,162
Discount at 10%	–	(12,454)	(658)	(6,279)	(1,019)	–	(20,410)
Standardized measure of discounted future net cash flows	–	10,843	635	6,255	1,019	–	18,752
As of December 31, 2019							
Future cash inflows	–	43,959	326	39,513	3,970	–	87,768
Future production costs	–	(9,904)	(44)	(17,392)	(2,062)	–	(29,402)
Future development costs	–	(1,894)	(44)	(3,272)	(242)	–	(5,452)
Future income taxes	–	(4,499)	–	(9,852)	(996)	–	(15,347)
Future net cash flows, after income taxes	–	27,662	238	8,997	670	–	37,567
Discount at 10%	–	(16,507)	(156)	(4,626)	(406)	–	(21,695)
Standardized measure of discounted future net cash flows	–	11,155	82	4,371	264	–	15,872

9.1.9 Changes in the standardized measure of discounted future net cash flows

Consolidated subsidiaries (M\$)	2017	2018	2019
Discounted future net cash flows at January 1	19,502	37,097	57,805
Sales and transfers, net of production costs	(16,822)	(23,700)	(23,292)
Net change in sales and transfer prices and in production costs and other expenses	26,699	28,420	(15,484)
Extensions, discoveries and improved recovery	3,244	8,412	558
Changes in estimated future development costs	(324)	(1,071)	(1,735)
Previously estimated development costs incurred during the year	8,952	6,636	6,755
Revisions of previous quantity estimates	2,427	4,588	7,845
Accretion of 10% discount	1,950	3,710	5,780
Net change in income taxes	(8,155)	(11,538)	12,146
Purchases of reserves in place	98	7,876	266
Sales of reserves in place	(474)	(2,625)	(55)
END OF YEAR	37,097	57,805	50,589
Equity affiliates (M\$)	2017	2018	2019
Discounted future net cash flows at January 1	9,917	14,942	18,752
Sales and transfers, net of production costs	(2,151)	(3,248)	(3,160)
Net change in sales and transfer prices and in production costs and other expenses	7,075	7,322	(8,191)
Extensions, discoveries and improved recovery	57	76	4,386
Changes in estimated future development costs	(1,171)	(255)	(736)
Previously estimated development costs incurred during the year	789	789	845
Revisions of previous quantity estimates	783	1,030	(104)
Accretion of 10% discount	992	1,494	1,875
Net change in income taxes	(1,420)	(3,691)	2,205
Purchases of reserves in place	71	388	–
Sales of reserves in place	–	(95)	–
END OF YEAR	14,942	18,752	15,872

9.2 Other information

9.2.1 Natural Gas Production available for sale

	Consolidated subsidiaries						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
2017							
Natural Gas production available for sale ^(a) (Bcf)	465	–	205	80	432	436	1,618
2018							
Natural Gas production available for sale ^(a) (Bcf)	480	–	215	91	413	262	1,461
2019							
Natural Gas production available for sale ^(a) (Bcf)	476	–	177	110	395	348	1,506

(a) The reported volumes are different from those shown in the reserves table due to gas consumed in operations.

	Equity affiliates						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
2017							
Natural Gas production available for sale ^(a) (Bcf)	–	461	25	176	–	–	662
2018							
Natural Gas production available for sale ^(a) (Bcf)	–	586	26	173	–	–	785
2019							
Natural Gas production available for sale ^(a) (Bcf)	–	747	66	175	–	–	988

(a) The reported volumes are different from those shown in the reserves table due to gas consumed in operations.

9.2.2 Production prices

	Consolidated subsidiaries						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
2017^(a)							
Oil (\$/b) ^(b)	47.73	40.94	50.02	52.28	31.69	48.86	49.25
Bitumen (\$/b)	–	–	–	–	20.77	–	20.77
Natural Gas (\$/kcf)	4.51	–	1.45	1.29	2.68	4.99	3.60
2018^(a)							
Oil (\$/b) ^(b)	61.71	59.88	67.17	69.56	50.29	66.29	65.72
Bitumen (\$/b)	–	–	–	–	11.48	–	11.48
Natural Gas (\$/kcf)	6.58	–	2.05	2.06	2.89	4.86	4.30
2019^(a)							
Oil (\$/b) ^(b)	55.83	52.11	60.97	63.42	43.09	46.61	59.25
Bitumen (\$/b)	–	–	–	–	30.53	–	30.53
Natural Gas (\$/kcf)	3.76	–	1.83	2.54	2.49	5.01	3.42

(a) The volumes used for calculation of the average sales prices are the ones sold from the Group's own production.

(b) The reported price represents an average aggregate price of prices for crude oil, condensates and NGL. The table does not include separate figures for NGL production prices because the production of NGL represented less than 7.5% of the Group's total liquids production in each of the years 2017, 2018 and 2019.

	Equity affiliates						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
2017^(a)							
Oil (\$/b) ^(b)	–	26.28	–	50.03	34.36	–	43.51
Bitumen (\$/b)	–	–	–	–	–	–	–
Natural Gas (\$/kcf)	–	1.49	2.35	2.23	–	–	1.78
2018^(a)							
Oil (\$/b) ^(b)	–	38.85	–	64.41	50.80	–	56.13
Bitumen (\$/b)	–	–	–	–	–	–	–
Natural Gas (\$/kcf)	–	2.38	5.11	5.92	–	–	3.26
2019^(a)							
Oil (\$/b) ^(b)	–	35.15	–	60.30	19.36	–	50.15
Bitumen (\$/b)	–	–	–	–	–	–	–
Natural Gas (\$/kcf)	–	2.07	3.83	6.55	–	–	2.74

(a) The volumes used for calculation of the average sales prices are the ones sold from the Group's own production.

(b) The reported price represents an average aggregate price of prices for crude oil, condensates and NGL. The table does not include separate figures for NGL production prices because the production of NGL represented less than 7.5% of the Group's total liquids production in each of the years 2017, 2018 and 2019.

9.2.3 Production costs

	Consolidated subsidiaries						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
<i>(in \$/boe)</i>							
2017^(a)							
Total oil and natural gas	6.85	9.59	6.05	4.28	5.27	3.72	5.56
Including bitumen	–	–	–	–	12.06	–	12.06
2018^(a)							
Total oil and natural gas	8.44	9.72	5.27	4.08	6.54	2.97	5.89
Including bitumen	–	–	–	–	13.69	–	13.69
2019^(a)							
Total oil and natural gas	8.04	7.81	5.19	3.73	6.75	3.13	5.60
Including bitumen	–	–	–	–	15.28	–	15.28

(a) The volumes of oil used for this computation are shown in the proved reserves tables of this report. The reported volumes for natural gas are different from those shown in the reserves table due to gas consumed in operations.

	Equity affiliates						Total
	Europe and Central Asia (excl. Russia)	Russia	Africa (excl. North Africa)	Middle East and North Africa	Americas	Asia-Pacific	
<i>(in \$/boe)</i>							
2017^(a)							
Total oil and natural gas	–	0.95	–	2.88	4.94	–	1.96
Including bitumen	–	–	–	–	–	–	–
2018^(a)							
Total oil and natural gas	–	1.03	–	4.62	6.00	–	2.49
Including bitumen	–	–	–	–	–	–	–
2019^(a)							
Total oil and natural gas	–	1.10	–	3.90	8.96	–	2.01
Including bitumen	–	–	–	–	–	–	–

(a) The volumes of oil used for this computation are shown in the proved reserves tables of this report. The reported volumes for natural gas are different from those shown in the reserves table due to gas consumed in operations.

9.3 Report on the payments made to governments (Article L. 225-102-3 of the French Commercial Code)

Article L. 225-102-3 of the French Commercial Code⁽¹⁾ requires large undertakings and public-interest entities that are active in the extractive industry or logging of primary forests to disclose in an annual report payments of at least 100,000 euros made to governments in the countries in which they operate.

The consolidated report of TOTAL is presented below pursuant to the aforementioned provisions. This report covers the aforementioned payments made by the Group's extractive companies as defined below, for the benefit of each government of states or territories in which TOTAL carries out its activities, by detailing the total amount of payments made, the total amount by payment type, the total amount by project and the total amount by payment type for each project. When payments were made in kind, valuated hydrocarbons' volumes are specified.

This report has been approved by the Board of Directors of TOTAL S.A.

Definitions

The meaning of certain terms used in this report are set forth below:

Extractive Companies: TOTAL S.A. and any company of undertaking of which the activities consist, in whole or in part, of exploration, prospection, discovery, development and extraction of minerals, crude oil and natural gas, among others, fully consolidated by TOTAL S.A.

Payment: a single payment of multiple interconnected payments of an amount equal to, or in excess of, 100,000 euros (or its equivalent) paid, whether in money or in kind, for extractive activities.

Payment types included in this report are the following:

- **Taxes:** taxes and levies paid on income, production or profits, excluding taxes levied on consumption such as added value taxes, customs duties, personal income taxes and sales taxes.
- **Royalties:** percentage of production payable to the owner of mineral rights.
- **License Fees:** license fees, surface or rental fees, and other consideration for licenses and /or concessions that are paid for access to the area where the extractive activities will be conducted.
- **License bonus:** bonuses paid for and in consideration of signature, discovery, production, awards, grants and transfers of extraction rights; bonuses related to the achievement or failure to achieve certain production levels or certain targets, and discovery of additional mineral reserves /deposits.

- **Dividends:** dividends paid to a host government holding an interest in an Extractive Company.
- **Payments for Infrastructure Improvements:** payments for local development, including the improvement of infrastructure, not directly necessary for the conduct of extractive activities but mandatory pursuant to the terms of a production sharing contract or to the terms of a law relating to oil and gas activities.
- **Production entitlement:** host Government's share of production. This payment is generally made in kind.

Government: any national, regional or local authority of a country or territory, or any department, agency or undertaking controlled by that authority.

Project: operational activities governed by a single contract, license, lease, concession or similar legal agreement and that form the basis for payment liabilities with a Government. If multiple such agreements are substantially interconnected, they shall be considered as a single Project. Payments (such as company income tax when it concerns several projects which cannot be separated in application of the fiscal regulations) unable to be attributed to a Project are disclosed under the item "non-attributable".

Reporting principles

This report sets forth all payments as booked in the Extractive Companies' accounts. They are presented based on the Group share in each Project, whether the payments have been made directly by the Group Extractive Companies as operator or indirectly through third-party operating companies.

Production entitlement and Royalties that are mandatorily paid in kind and that are owed to host Governments pursuant to legal or contractual provisions (not booked in the Extractive Companies' accounts pursuant to accounting standards) are reported in proportion of the interest held by the Extractive Company in the Project as of the date on which such Production entitlements and Royalties are deemed to be acquired.

Payments in kind are estimated at fair value. Fair value corresponds to the contractual price of hydrocarbons used to calculate Production entitlement, market price (if available) or an appropriate benchmark price. These prices might be calculated on an averaged basis over a given period.

(1) Article L. 225-102-3 of the French Commercial Code transposes certain provisions set out in Directive 2013/34/UE of the European Parliament and of the Council of June 26, 2013 (chapter 10).

9.3.1 Reporting by country and type of Payment

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
EUROPE AND CENTRAL ASIA	1,694,250	–	26,014	4,020	–	13,217	84,529	1,822,030
Bulgaria	–	–	160	–	–	–	–	160
Denmark	267,380	–	8,938	–	–	–	–	276,318
Greece	–	–	397	1,344	–	–	–	1,741
Italy	–	–	782	–	–	–	–	782
Kazakhstan	26,466	–	31	2,676	–	13,217	41,224	83,614
Netherlands	28,971	–	1,212	–	–	–	–	30,183
Norway	1,049,079	–	4,942	–	–	–	–	1,054,021
Russia	20,431	–	76	–	–	–	43,305	63,812
United Kingdom	301,923	–	9,476	–	–	–	–	311,399
AFRICA	2,402,886	–	70,226	73,929	12,375	87,398	1,765,741	4,412,555
Angola	775,701	–	9,976	5,068	–	10,000	1,631,198	2,431,943
Côte d'Ivoire	–	–	1,729	4,500	–	–	–	6,229
Gabon	176,017	–	4,736	–	12,375	28,269	–	221,397
Kenya	–	–	378	–	–	54	–	432
Mauritania	–	–	2,821	40,000	–	–	–	42,821
Namibia	–	–	161	–	–	–	–	161
Nigeria	819,433	–	19,302	–	–	48,725	132,045	1,019,505
Republic of the Congo	631,735	–	29,303	12,743	–	–	2,498	676,279
Senegal	–	–	1,119	10,000	–	350	–	11,469
São Tomé and Príncipe	–	–	–	1,618	–	–	–	1,618
South Africa	–	–	112	–	–	–	–	112
Uganda	–	–	589	–	–	–	–	589
MIDDLE EAST AND NORTH AFRICA	6,477,157	–	9,505	34,035	–	–	1,887,982	8,408,679
Algeria	501,972	–	1,725	11,892	–	–	–	515,589
Cyprus	–	–	628	4,421	–	–	–	5,049
Iraq	19,534	–	–	–	–	–	–	19,534
Libya	503,258	–	239	–	–	–	1,224,801	1,728,298
Oman	276,608	–	–	–	–	–	20,763	297,371
Qatar	158,582	–	–	–	–	–	642,418	801,000
United Arab Emirates	5,017,203	–	6,913	17,722	–	–	–	5,041,838
AMERICAS	326,194	91,732	47,617	423,081	–	293	47,868	936,785
Argentina	95,043	–	4,941	753	–	–	–	100,737
Bolivia	173,446	–	1,178	6,931	–	293	24,270	206,118
Brazil	39,800	–	904	395,446	–	–	23,598	459,748
Canada	–	37,052	30,352	–	–	–	–	67,404
Colombia	3,628	722	–	–	–	–	–	4,350
Mexico	5,486	–	4,209	–	–	–	–	9,695
United States	8,791	53,958	6,033	19,951	–	–	–	88,733
ASIA PACIFIC	480,308	–	217	52,933	–	–	220,094	753,552
Australia	13,830	–	–	–	–	–	–	13,830
Brunei	66,257	–	5	–	–	–	4,879	71,141
China	14,078	–	–	–	–	–	26,878	40,956
Indonesia	8,117	–	–	–	–	–	9,747	17,864
Myanmar	51,007	–	–	–	–	–	178,590	229,597
Papua New Guinea	–	–	212	–	–	–	–	212
Thailand	327,019	–	–	52,933	–	–	–	379,952
TOTAL	11,380,795	91,732	153,579	587,998	12,375	100,908	4,006,214	16,333,601

9.3.2 Reporting of Payments by Project and by type of Payment, and by Government and by type of Payment

(in thousands of dollars)

	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
ALGERIA								
Payments per Project								
Groupement Berkine	317,695 ^(a)	–	–	–	–	–	–	317,695
Organisation Orhoud	64,080 ^(b)	–	–	–	–	–	–	64,080
Timimoun	6,728	–	1,122	–	–	–	–	7,850
Tin Fouyé Tabankort II	113,469	–	446	4,227	–	–	–	118,142
Tin Fouyé Tabankort Sud	–	–	157	7,665	–	–	–	7,822
TOTAL	501,972	–	1,725	11,892	–	–	–	515,589
Payments per Government								
Direction Générale des Impôts, Direction des Grandes Entreprises c/o Sonatrach	381,775 ^(c)	–	–	–	–	–	–	381,775
Direction Générale des Impôts, Direction des Grandes Entreprises	73,801	–	1,725	–	–	–	–	75,526
Agence Nationale pour Valorisation des Ressources en Hydrocarbures (ALNAFT)	46,396	–	–	–	–	–	–	46,396
Sonatrach	–	–	–	11,892	–	–	–	11,892
TOTAL	501,972	–	1,725	11,892	–	–	–	515,589

(a) Corresponds to the valuation of 5,249 kboe at fiscal selling prices for taxes of different natures.

(b) Corresponds to the valuation of 988 kboe at fiscal selling prices for taxes of different natures.

(c) Corresponds to the valuation of 6,237 kboe at fiscal selling prices for taxes of different natures.

ANGOLA

Payments per Project								
Block 17	443,883	–	6,286	–	–	–	1,497,941 ^(a)	1,948,110
Block 0	194,768	–	946	–	–	–	–	195,714
Block 14	19,005	–	442	–	–	–	70,561 ^(b)	90,008
Block 14k	3,268	–	100	68	–	–	2,498 ^(c)	5,934
Block 16	–	–	162	–	–	–	–	162
Block 48	–	–	116	–	–	10,000	–	10,116
Block 32	114,729	–	1,805	5,000	–	–	60,198 ^(d)	181,732
Block 17/06	10	–	80	–	–	–	–	90
Block 25	35	–	18	–	–	–	–	53
Block 40	3	–	21	–	–	–	–	24
TOTAL	775,701	–	9,976	5,068	–	10,000	1,631,198	2,431,943
Payments per Government								
Caixa do Tesouro Nacional	775,701	–	505	–	–	–	–	776,206
Sonangol, E.P.	–	–	–	5,000	–	10,000	1,631,198 ^(e)	1,646,198
Ministério dos Recursos Minerais e Petróleos	–	–	9,471	68	–	–	–	9,539
TOTAL	775,701	–	9,976	5,068	–	10,000	1,631,198	2,431,943

(a) Corresponds to the valuation of 22,833 kboe at the weighted average fiscal price of the year.

(b) Corresponds to the valuation of 1,092 kboe at the weighted average fiscal price of the year.

(c) Corresponds to the valuation of 39 kboe at the weighted average fiscal price of the year.

(d) Corresponds to the valuation of 934 kboe at the weighted average fiscal price of the year.

(e) Corresponds to the valuation of 24,898 kboe at the weighted average fiscal price of the year.

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
ARGENTINA								
Payments per Project								
Neuquen	33,485	–	143	–	–	–	–	33,628
Tierra del Fuego	48,859	–	4,683	753	–	–	–	54,295
Santa Cruz	–	–	108	–	–	–	–	108
Cuenca Argentina Norte – Block 111	–	–	3	–	–	–	–	3
Cuenca Argentina Norte – Block 113	–	–	3	–	–	–	–	3
Malvinas Occidental – Block 123	–	–	1	–	–	–	–	1
Non-attributable	12,699	–	–	–	–	–	–	12,699
TOTAL	95,043	–	4,941	753	–	–	–	100,737
Payments per Government								
Administracion Federal de Ingresos Publicos	12,699	–	–	–	–	–	–	12,699
Secretaria de Energia, Republica Argentina	27,410	–	221	–	–	–	–	27,631
Provincia del Neuquen	33,485	–	143	–	–	–	–	33,628
Provincia de Tierra del Fuego	21,449	–	4,577	753	–	–	–	26,779
TOTAL	95,043	–	4,941	753	–	–	–	100,737
AUSTRALIA								
Payments per Project								
GLNG	13,830	–	–	–	–	–	–	13,830
TOTAL	13,830	–	–	–	–	–	–	13,830
Payments per Government								
Queensland Government, Office of State Revenue	13,830	–	–	–	–	–	–	13,830
TOTAL	13,830	–	–	–	–	–	–	13,830
BOLIVIA								
Payments per Project								
Ipati	81,209	–	222	–	–	115	–	81,546
Azero	–	–	601	–	–	178	–	779
Aquio	25,541	–	142	–	–	–	–	25,683
Itaú	8,625	–	121	–	–	–	–	8,746
San Alberto	12,908	–	31	2,583	–	–	3,650 ^(a)	19,172
San Antonio	45,163	–	61	4,348	–	–	20,620 ^(b)	70,192
TOTAL	173,446	–	1,178	6,931	–	293	24,270	206,118
Payments per Government								
Yacimientos Petroliferos Fiscales Bolivianos (YPFB)	–	–	1,178	6,931	–	–	24,270 ^(c)	32,379
Servicio de Impuestos Nacionales (SIN) c/o YPFB	111,005	–	–	–	–	–	–	111,005
Departamentos c/o YPFB	62,441	–	–	–	–	–	–	62,441
Fundesoc c/o Indigeneous Communities	–	–	–	–	–	293	–	293
TOTAL	173,446	–	1,178	6,931	–	293	24,270	206,118

(a) Corresponds to the valuation of 183 kboe for production entitlements at a fixed regulated price for condensates and on a net-back regulated price for gas.

(b) Corresponds to the valuation of 988 kboe for production entitlements at a fixed regulated price for condensates and on a net-back regulated price for gas.

(c) Corresponds to the valuation of 1,171 kboe for production entitlements at a fixed regulated price for condensates and on a net-back regulated price for gas.

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
BRAZIL								
Payments per Project								
Foz de Amazonas	-	-	33	-	-	-	-	33
Ceara (CE-M-661)	-	-	77	-	-	-	-	77
Xerelete (BC-2)	-	-	31	-	-	-	-	31
Barreirinhas	-	-	42	-	-	-	-	42
Espirito Santo	-	-	18	-	-	-	-	18
Pelotas	-	-	43	-	-	-	-	43
Lapa	17,011	-	297	-	-	-	-	17,308
Iara	791	-	-	-	-	-	-	791
Sul do Gato do Mato	-	-	52	-	-	-	-	52
Libra	21,698	-	-	-	-	-	23,598 ^(a)	45,296
C-M-541	-	-	-	395,446	-	-	-	395,446
Non-attributable	300	-	311	-	-	-	-	611
TOTAL	39,800	-	904	395,446	-	-	23,598	459,748
Payments per Government								
Agencia Nacional de Petroleo, Gas Natural e Biocombustiveis	-	-	904	-	-	-	-	904
Receita Federal	39,800	-	-	-	-	-	-	39,800
Pré-sal Petroleo (PPSA)	-	-	-	-	-	-	23,598 ^(a)	23,598
Secretaria do Tesouro Nacional	-	-	-	395,446	-	-	-	395,446
TOTAL	39,800	-	904	395,446	-	-	23,598	459,748
(a) Corresponds to the valuation of 395 kboe at the fiscal reference price determined by ANP (Agencia Nacional de Petroleo) for production entitlements.								
BRUNEI								
Payments per Project								
Block B	37,479	-	5	-	-	-	-	37,484
Block CA1	28,778	-	-	-	-	-	4,879	33,657
TOTAL	66,257	-	5	-	-	-	4,879	71,141
Payments per Government								
Brunei Government	48,139	-	5	-	-	-	-	48,144
Brunei National Petroleum Company Sdn Bhd	18,118	-	-	-	-	-	4,879	22,997
TOTAL	66,257	-	5	-	-	-	4,879	71,141
BULGARIA								
Payments per Project								
Khan Asparuh	-	-	160	-	-	-	-	160
TOTAL	-	-	160	-	-	-	-	160
Payments per Government								
Ministry of Energy of Bulgaria	-	-	160	-	-	-	-	160
TOTAL	-	-	160	-	-	-	-	160

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
CANADA								
Payments per Project								
Joslyn	–	–	2	–	–	–	–	2
Surmont	–	22,789	15,979	–	–	–	–	38,768
Northern Lights	–	–	21	–	–	–	–	21
Fort Hills	–	14,263	14,331	–	–	–	–	28,594
Other oil sands projects	–	–	6	–	–	–	–	6
Deer Creek	–	–	13	–	–	–	–	13
TOTAL	–	37,052	30,352	–	–	–	–	67,404
Payments per Government								
Province of Alberta	–	37,052	2,830	–	–	–	–	39,882
Municipality of Wood Buffalo (Alberta)	–	–	27,180	–	–	–	–	27,180
Fort McKay First Nations (FMFN)	–	–	342	–	–	–	–	342
TOTAL	–	37,052	30,352	–	–	–	–	67,404
CHINA								
Payments per Project								
Sulige	14,078 ^(a)	–	–	–	–	–	26,878 ^(b)	40,956
TOTAL	14,078	–	–	–	–	–	26,878	40,956
Payments per Government								
China National Petroleum Company	14,078 ^(a)	–	–	–	–	–	26,878 ^(b)	40,956
TOTAL	14,078	–	–	–	–	–	26,878	40,956
(a) Includes the valuation for 12,880 k\$ of 444 kboe for taxes of different natures.								
(b) Corresponds to the valuation of 926 kboe for production entitlements.								
COLOMBIA								
Payments per Project								
Niscota	3,628	722 ^(a)	–	–	–	–	–	4,350
TOTAL	3,628	722	–	–	–	–	–	4,350
Payments per Government								
Dirección de Impuestos y aduanas Nacionales	1,122	–	–	–	–	–	–	1,122
Agencia Nacional de Hidrocarburos	2,506	722 ^(a)	–	–	–	–	–	3,228
TOTAL	3,628	722	–	–	–	–	–	4,350
(a) Includes the valuation for 696 k\$ of 13 kboe as royalties, based on the crude oil average selling price.								
CÔTE D'IVOIRE								
Payments per Project								
CI-100	–	–	233	–	–	–	–	233
CI-605	–	–	684	–	–	–	–	684
CI-705	–	–	406	3,000	–	–	–	3,406
CI-706	–	–	406	1,500	–	–	–	1,906
TOTAL	–	–	1,729	4,500	–	–	–	6,229
Payments per Government								
République de Côte d'Ivoire, Direction Générale des Hydrocarbures	–	–	1,729	4,500	–	–	–	6,229
TOTAL	–	–	1,729	4,500	–	–	–	6,229

(in thousands of dollars)	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
CYPRUS								
Payments per Project								
Block 7	–	–	81	4,421	–	–	–	4,502
Block 11	–	–	246	–	–	–	–	246
Block 6	–	–	174	–	–	–	–	174
Block 2	–	–	26	–	–	–	–	26
Block 3	–	–	29	–	–	–	–	29
Block 8	–	–	51	–	–	–	–	51
Block 9	–	–	21	–	–	–	–	21
TOTAL	–	–	628	4,421	–	–	–	5,049
Payments per Government								
Ministry of Energy, Commerce, Industry and Tourism	–	–	628	4,421	–	–	–	5,049
TOTAL	–	–	628	4,421	–	–	–	5,049
DENMARK								
Payments per Project								
Sole Concession Area	267,380	–	8,938	–	–	–	–	276,318
TOTAL	267,380	–	8,938	–	–	–	–	276,318
Payments per Government								
Arbejdstilsynet	–	–	273	–	–	–	–	273
Energistyrelsen	–	–	213	–	–	–	–	213
Dansk Teknisk Universitet	–	–	8,452	–	–	–	–	8,452
Skat	267,380	–	–	–	–	–	–	267,380
TOTAL	267,380	–	8,938	–	–	–	–	276,318
GABON								
Payments per Project								
Concessions (périmètre Convention d'Etablissement)	16,303	–	3,183	–	–	26,234 ^(a)	–	45,720
Concession Anguille	39,081	–	–	–	–	–	–	39,081
Concession Grondin	31,978	–	–	–	–	–	–	31,978
Concession Torpille	42,150	–	–	–	–	–	–	42,150
Baudroie-Mérou CEPP	41,782 ^(b)	–	1,011	–	–	2,035 ^(a)	–	44,828
Hylia II CEPP	4,723 ^(c)	–	376	–	–	–	–	5,099
Diaba CEPP	–	–	166	–	–	–	–	166
Non-attributable	–	–	–	–	12,375	–	–	12,375
TOTAL	176,017	–	4,736	–	12,375	28,269	–	221,397
Payments per Government								
Trésor Public Gabonais	141,340	–	1,160	–	–	–	–	142,500
Direction Générale des Hydrocarbures	–	–	2,602	–	–	–	–	2,602
République du Gabon	34,677 ^(d)	–	–	–	12,375	17,101	–	64,153
Direction Générale des Impôts	–	–	671	–	–	–	–	671
Ville de Port-Gentil	–	–	303	–	–	5,874	–	6,177
Miscellaneous PID beneficiaries	–	–	–	–	–	210	–	210
Miscellaneous PIH beneficiaries	–	–	–	–	–	5,084	–	5,084
TOTAL	176,017	–	4,736	–	12,375	28,269	–	221,397

(a) Financing of projects (infrastructure, education, health) under joint control of the State and TOTAL within the framework of the *Provision pour Investissements Diversifiés* (PID – contribution to diversified investments) and of the *Provision pour Investissements dans les Hydrocarbures* (PIH – contribution to investments in hydrocarbons).

(b) Includes the valuation for 32,342 k\$ of 518 kboe at the official selling price and applying the fiscal terms of the profit sharing agreements.

(c) Includes the valuation for 2,335 k\$ of 37 kboe at the official selling price and applying the fiscal terms of the profit sharing agreements.

(d) Corresponds to the valuation of 555 kboe at the official selling price and applying the fiscal terms of the profit sharing agreements.

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
GREECE								
Payments per Project								
Block 2	-	-	68	-	-	-	-	68
Block West Crete	-	-	165	672	-	-	-	837
Block SouthWest Crete	-	-	164	672	-	-	-	836
TOTAL	-	-	397	1,344	-	-	-	1,741
Payments per Government								
Hellenic Hydrocarbon Resources Management	-	-	397	1,344	-	-	-	1,741
TOTAL	-	-	397	1,344	-	-	-	1,741
INDONESIA								
Payments per Project								
Mahakam PSC	308	-	-	-	-	-	542 ^{(a)(b)}	850
Tengah PSC	-	-	-	-	-	-	(313) ^(c)	(313)
Sebuku PSC	7,809	-	-	-	-	-	9,518 ^(d)	17,327
TOTAL	8,117	-	-	-	-	-	9,747	17,864
Payments per Government								
Directorate General of Taxation, Ministry of Finance	8,117	-	-	-	-	-	-	8,117
Satuan Khusus Kegiatan Usaha Hulu Minyak dan Gas Bumi (SKK Migas)	-	-	-	-	-	-	9,747 ^(e)	9,747
TOTAL	8,117	-	-	-	-	-	9,747	17,864
(a) Disclosed production entitlements correspond to adjustments of 2017 operations done in 2019. Government Production entitlement for export LNG is valued on a net-back price basis (revenues less costs, such as liquefaction and transportation costs). Production entitlement includes volume of oil taken by the Government to meet domestic obligation. The fees received from the Government are deducted from the valuation of these volumes.								
(b) Corresponds to the valuation at net-back price of 66 kboe for production entitlements, partly dedicated to domestic delivery obligations. The indemnity of the government is deducted from the valuation of these volumes.								
(c) Corresponds to the valuation at net-back price of -1 kboe for production entitlements, partly dedicated to domestic delivery obligations. The indemnity of the government is deducted from the valuation of these volumes.								
(d) Corresponds to the valuation at net-back price of 272 kboe for production entitlements, partly dedicated to domestic delivery obligations. The indemnity of the government is deducted from the valuation of these volumes.								
(e) Corresponds to the valuation at net-back price of 338 kboe for production entitlements, partly dedicated to domestic delivery obligations. The indemnity of the government is deducted from the valuation of these volumes.								
IRAQ								
Payments per Project								
Halfaya	7,590	-	-	-	-	-	-	7,590
Sarsang	11,944 ^(a)	-	-	-	-	-	-	11,944
TOTAL	19,534	-	-	-	-	-	-	19,534
Payments per Government								
Ministry of Natural Resources, Erbil, Kurdistan region of Iraq	11,944 ^(a)	-	-	-	-	-	-	11,944
Ministry of Finance, General Commission of Taxation	7,590	-	-	-	-	-	-	7,590
TOTAL	19,534	-	-	-	-	-	-	19,534
(a) Corresponds to the valuation of 208 kboe based on market prices for taxes of different natures.								

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
ITALY								
Payments per Project								
Gorgoglione Unified License	-	-	782	-	-	-	-	782
TOTAL	-	-	782	-	-	-	-	782
Payments per Government								
Regione Basilicata	-	-	203	-	-	-	-	203
Comune Corleto Perticara	-	-	61	-	-	-	-	61
Comune Guardia Perticara	-	-	314	-	-	-	-	314
Ministero Infrastrutture e Trasporti	-	-	204	-	-	-	-	204
TOTAL	-	-	782	-	-	-	-	782
KAZAKHSTAN								
Payments per Project								
Kashagan	26,466	-	-	1,176	-	13,217	20,738 ^(a)	61,597
Dunga	-	-	31	1,500	-	-	20,486	22,017
TOTAL	26,466	-	31	2,676	-	13,217	41,224	83,614
Payments per Government								
Atyrau and Mangistau regions c/o North Caspian Operating Company b.v.	-	-	-	-	-	310	-	310
Atyrau region c/o North Caspian Operating Company b.v.	-	-	-	-	-	6,255	-	6,255
Mangistau region c/o North Caspian Operating Company b.v.	-	-	-	-	-	6,652	-	6,652
Ministry of Finance	26,466	-	31	2,676	-	-	20,486	49,659
Ministry of Energy	-	-	-	-	-	-	20,738 ^(a)	20,738
TOTAL	26,466	-	31	2,676	-	13,217	41,224	83,614
(a) Corresponds to the valuation of 454 kboe at average net-back prices for production entitlements.								
KENYA								
Payments per Project								
10BA	-	-	115	-	-	-	-	115
10BB	-	-	148	-	-	-	-	148
13T	-	-	21	-	-	-	-	21
L11A	-	-	32	-	-	18	-	50
L11B	-	-	31	-	-	18	-	49
L12	-	-	31	-	-	18	-	49
TOTAL	-	-	378	-	-	54	-	432
Payments per Government								
Kenya Ministry of Energy	-	-	378	-	-	-	-	378
National Oil Corporation of Kenya	-	-	-	-	-	54	-	54
TOTAL	-	-	378	-	-	54	-	432

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
LIBYA								
Payments per Project								
Areas 15, 16 & 32 (Al Jurf)	182,409 ^(a)	–	–	–	–	–	210,233 ^(b)	392,642
Areas 129 & 130	239,454 ^(c)	–	–	–	–	–	711,124 ^(d)	950,578
Waha	2,098	–	239	–	–	–	–	2,337
Areas 130 & 131	79,297 ^(e)	–	–	–	–	–	303,444 ^(f)	382,741
TOTAL	503,258	–	239	–	–	–	1,224,801	1,728,298
Payments per Government								
National Oil Corporation	–	–	–	–	–	–	1,224,801 ^(g)	1,224,801
Ministry of Finance c/o National Oil Corporation	501,160 ^(h)	–	–	–	–	–	–	501,160
Ministry of Oil and Gas	2,098	–	239	–	–	–	–	2,337
TOTAL	503,258	–	239	–	–	–	1,224,801	1,728,298
(a) Corresponds to the valuation of 2,870 kboe at official selling prices and applying the fiscal terms of the profit sharing agreements.								
(b) Corresponds to the valuation of 3,308 kboe at official selling prices and applying the profit sharing agreements, including the share of National Oil Corporation, as partner.								
(c) Corresponds to the valuation of 3,690 kboe at official selling prices and applying the fiscal terms of the profit sharing agreements.								
(d) Corresponds to the valuation of 10,958 kboe at official selling prices and applying the profit sharing agreements, including the share of National Oil Corporation, as partner.								
(e) Corresponds to the valuation of 1,222 kboe at official selling prices and applying the fiscal terms of the profit sharing agreements.								
(f) Corresponds to the valuation of 4,675 kboe at official selling prices and applying the profit sharing agreements, including the share of National Oil Corporation, as partner.								
(g) Corresponds to the valuation of 18,941 kboe at official selling prices and applying the profit sharing agreements, including the share of National Oil Corporation, as partner.								
(h) Corresponds to the valuation of 7,782 kboe at official selling prices and applying the fiscal terms of the profit sharing agreements.								
MAURITANIA								
Payments per Project								
Block C9	–	–	173	–	–	–	–	173
Block C7	–	–	915	–	–	–	–	915
Block C18	–	–	405	–	–	–	–	405
Block C15	–	–	670	10,000	–	–	–	10,670
Block C31	–	–	658	30,000	–	–	–	30,658
TOTAL	–	–	2,821	40,000	–	–	–	42,821
Payments per Government								
Trésor Public de Mauritanie	–	–	1,021	40,000	–	–	–	41,021
SMHPM (Société Mauritanienne des Hydrocarbures et du Patrimoine Minier)	–	–	950	–	–	–	–	950
Commission Environnementale	–	–	850	–	–	–	–	850
TOTAL	–	–	2,821	40,000	–	–	–	42,821
MEXICO								
Payments per Project								
Perdido Block 2	1,634	–	1,253	–	–	–	–	2,887
Block 15	640	–	491	–	–	–	–	1,131
Salina 1	875	–	681	–	–	–	–	1,556
Salina 3	1,108	–	848	–	–	–	–	1,956
G-CS-02 (B32)	566	–	434	–	–	–	–	1,000
AS-CS-06 (B33)	319	–	244	–	–	–	–	563
G-CS-03 (B34)	344	–	258	–	–	–	–	602
TOTAL	5,486	–	4,209	–	–	–	–	9,695
Payments per Government								
Servicio de Administracion Tributaria	5,486	–	–	–	–	–	–	5,486
Fondo Mexicano del Petroleo	–	–	4,209	–	–	–	–	4,209
TOTAL	5,486	–	4,209	–	–	–	–	9,695

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
MYANMAR								
Payments per Project								
Blocks M5 and M6	35,760	-	-	-	-	-	178,590 ^(a)	214,350
Non-attributable	15,247	-	-	-	-	-	-	15,247
TOTAL	51,007	-	-	-	-	-	178,590	229,597
Payments per Government								
Myanmar Ministry of Finance	51,007	-	-	-	-	-	-	51,007
Myanmar Oil and Gas Enterprise	-	-	-	-	-	-	178,590 ^(a)	178,590
TOTAL	51,007	-	-	-	-	-	178,590	229,597
<small>(a) Includes the valuation at a net-back price for 108,017 k\$ of 3,077 kboe for production entitlements dedicated to domestic delivery obligations.</small>								
NAMIBIA								
Payments per Government								
Block 2912	-	-	105	-	-	-	-	105
Block 2913B	-	-	56	-	-	-	-	56
TOTAL	-	-	161	-	-	-	-	161
Payments per Government								
Ministry of Mines & Energy	-	-	161	-	-	-	-	161
TOTAL	-	-	161	-	-	-	-	161
NETHERLANDS								
Payments per Project								
Offshore Blocks	-	-	1,212	-	-	-	-	1,212
Non-attributable	28,971	-	-	-	-	-	-	28,971
TOTAL	28,971	-	1,212	-	-	-	-	30,183
Payments per Government								
Belastingdienst Nederland	28,971	-	1,212	-	-	-	-	30,183
TOTAL	28,971	-	1,212	-	-	-	-	30,183

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
NIGERIA								
Payments per Project								
Joint ventures with NNPC, operated – Non-attributable	–	–	10,997	–	–	11,397	–	22,394
Joint ventures with NNPC, non operated – Non-attributable	107,730	–	5,016	–	–	16,517	–	129,263
OML 58 (joint venture with NNPC, operated)	49,864	–	–	–	–	–	–	49,864
OML 99 Amenam-Kpono (joint venture with NNPC, operated)	35,054	–	–	–	–	–	–	35,054
OML 100 (joint venture with NNPC, operated)	25,128	–	–	–	–	–	–	25,128
OML 102 (joint venture with NNPC, operated)	155,831	–	–	–	–	–	–	155,831
OML 130	7,416	–	3,286	–	–	–	–	10,702
OML 130 PSA (Akpo & Egina)	5,171	–	–	–	–	15,481	–	20,652
OML 118 (Bonga)	106,814 ^(a)	–	–	–	–	4,130	89,631 ^(b)	200,575
OML 138 (Usan)	29,896 ^(c)	–	3	–	–	1,200	42,414 ^(d)	73,513
Non-attributable	296,529 ^(e)	–	–	–	–	–	–	296,529
TOTAL	819,433	–	19,302	–	–	48,725	132,045	1,019,505
Payments per Government								
Federal Inland Revenue Service	316,620	–	–	–	–	–	–	316,620
Department of Petroleum Resources, Federal Government of Nigeria	375,316	–	17,365	–	–	–	–	392,681
Niger Delta Development Commission	–	–	–	–	–	48,725	–	48,725
Nigerian Maritime Administration & Safety Agency, Federal Government of Nigeria	–	–	1,934	–	–	–	–	1,934
Nigerian National Petroleum Corporation	–	–	–	–	–	–	132,045 ^(f)	132,045
Federal Inland Revenue Service c/o Nigerian National Petroleum Corporation	87,891 ^(g)	–	–	–	–	–	–	87,891
Department of Petroleum Resources c/o Nigerian National Petroleum Corporation	39,606 ^(h)	–	3	–	–	–	–	39,609
TOTAL	819,433	–	19,302	–	–	48,725	132,045	1,019,505

(a) Includes the valuation for 102,315 k\$ of 1,563 kboe at average entitlement price and applying the fiscal terms of the profit sharing agreements.

(b) Corresponds to the valuation for 1,356 kboe at average entitlement price and applying the terms of the profit sharing agreements.

(c) Includes the valuation for 25,182 k\$ of 388 kboe at average entitlement price and applying the fiscal terms of the profit sharing agreements.

(d) Corresponds to the valuation for 654 kboe at average entitlement price and applying the terms of the profit sharing agreements.

(e) This amount includes the tax implications of the provisions of the Modified Carry Agreement (MCA). Under the MCA, Total E&P Nigeria is entitled to recover 85% of the Carry Capital Cost through claims of capital allowance, described in the MCA as "Carry Tax Relief". The balance of 15% is to be recovered from NNPC's share of crude oil produced.

(f) Corresponds to the valuation for 2,009 kboe at average entitlement price and applying the terms of the profit sharing agreements.

(g) Corresponds to the valuation for 1,350 kboe at average entitlement price and applying the fiscal terms of the profit sharing agreements.

(h) Corresponds to the valuation for 601 kboe at average entitlement price and applying the fiscal terms of the profit sharing agreements.

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
NORWAY								
Payments per Project								
Asgard area	-	-	160	-	-	-	-	160
Ekofisk area	-	-	3,073	-	-	-	-	3,073
Heimdal area	-	-	145	-	-	-	-	145
Oseberg area	-	-	935	-	-	-	-	935
Snohvit area	-	-	211	-	-	-	-	211
Troll area	-	-	237	-	-	-	-	237
Johan Sverdrup	-	-	63	-	-	-	-	63
PL018C	-	-	118	-	-	-	-	118
Non-attributable	1,049,079	-	-	-	-	-	-	1,049,079
TOTAL	1,049,079	-	4,942	-	-	-	-	1,054,021
Payments per Government								
Norwegian Tax Administration	1,049,079	-	-	-	-	-	-	1,049,079
Norwegian Petroleum Directorate	-	-	4,942	-	-	-	-	4,942
TOTAL	1,049,079	-	4,942	-	-	-	-	1,054,021
OMAN								
Payments per Project								
Block 6	273,148	-	-	-	-	-	-	273,148
Block 53	3,460 ^(a)	-	-	-	-	-	20,763 ^(b)	24,223
TOTAL	276,608	-	-	-	-	-	20,763	297,371
Payments per Government								
Oman Ministry of Oil and Gas	-	-	-	-	-	-	20,763 ^(b)	20,763
Oman Ministry of Finance	276,608 ^(c)	-	-	-	-	-	-	276,608
TOTAL	276,608	-	-	-	-	-	20,763	297,371
(a) Corresponds to the valuation for 57 kboe at the weighted average selling price and applying the fiscal terms of the profit sharing agreements.								
(b) Corresponds to the valuation for 341 kboe at the weighted average selling price and applying the profit sharing agreements.								
(c) Includes the valuation for 3,460 k\$ of 57 kboe at the weighted average selling price and applying the fiscal terms of the profit sharing agreements.								
PAPUA NEW GUINEA								
Payments per Project								
PRL-15	-	-	144	-	-	-	-	144
PPL-576	-	-	68	-	-	-	-	68
TOTAL	-	-	212	-	-	-	-	212
Payments per Government								
Conservation & Environment Protection Authority	-	-	212	-	-	-	-	212
TOTAL	-	-	212	-	-	-	-	212

(in thousands of dollars)

	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
QATAR								
Payments per Project								
Al Khalij	52,782	–	–	–	–	–	–	52,782
Qatargas 1	42,515 ^(a)	–	–	–	–	–	64,154 ^(b)	106,669
Dolphin	63,285 ^(c)	–	–	–	–	–	578,264 ^(d)	641,549
TOTAL	158,582	–	–	–	–	–	642,418	801,000
Payments per Government								
Qatar Petroleum	–	–	–	–	–	–	642,418 ^(e)	642,418
Qatar Ministry of Finance	158,582 ^(f)	–	–	–	–	–	–	158,582
TOTAL	158,582	–	–	–	–	–	642,418	801,000

(a) Corresponds to the valuation of 677 kboe based on the average price of production entitlements and as per the fiscal terms of the profit sharing agreements.

(b) Corresponds to the valuation of 1,021 kboe based on the average price of production entitlements.

(c) Corresponds to the valuation of 3,231 kboe based on the average price of production entitlements and as per the fiscal terms of the profit sharing agreements.

(d) Corresponds to the valuation of 29,668 kboe based on the average price of production entitlements.

(e) Corresponds to the valuation of 30,690 kboe based on the average price of production entitlements.

(f) Includes the valuation for 105,800 k\$ of 3,907 kboe based on the average price of the production entitlements and as per the fiscal terms of the profit sharing agreements.

REPUBLIC OF THE CONGO

	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
Payments per Project								
CPP Haute Mer – Zone A	51,171 ^(a)	–	1,964	–	–	–	–	53,135
CPP Haute Mer – Zone B	4,731 ^(b)	–	5,342	2,675	–	–	–	12,748
CPP Haute Mer – Zone D	378,084 ^(c)	–	19,663	–	–	–	–	397,747
CPP Pointe Noire Grands Fonds (PNGF)	54,607 ^(d)	–	1,306	–	–	–	–	55,913
Kombi, Likalala & Libondo	115,860 ^(e)	–	110	–	–	–	–	115,970
Lianzi	3,268	–	100	68	–	–	2,498 ^(f)	5,934
Madingo	24,014 ^(g)	–	818	–	–	–	–	24,832
Marine XX	–	–	–	5,000	–	–	–	5,000
Nanga	–	–	–	4,000	–	–	–	4,000
Mokelebembembe	–	–	–	1,000	–	–	–	1,000
TOTAL	631,735	–	29,303	12,743	–	–	2,498	676,279
Payments per Government								
Ministère des hydrocarbures	597,210 ^(h)	–	–	–	–	–	–	597,210
Trésor Public	31,257	–	29,303	12,743	–	–	–	73,303
Société Nationale des Pétroles Congolais	3,268	–	–	–	–	–	2,498 ^(f)	5,766
TOTAL	631,735	–	29,303	12,743	–	–	2,498	676,279

(a) Includes the valuation for 21,708 k\$ of 380 kboe at official fiscal prices and applying the fiscal terms of the profit sharing agreements.

(b) Includes the valuation for 2,937 k\$ of 96 kboe at official fiscal prices and applying the fiscal terms of the profit sharing agreements.

(c) Corresponds to the valuation of 5,879 kboe at official fiscal prices and applying the fiscal terms of the profit sharing agreements.

(d) Corresponds to the valuation of 862 kboe at official fiscal prices and applying the fiscal terms of the profit sharing agreements.

(e) Corresponds to the valuation of 1,830 kboe at official fiscal prices and applying the fiscal terms of the profit sharing agreements.

(f) Corresponds to the valuation of 39 kboe at official fiscal prices and applying the profit sharing agreements.

(g) Corresponds to the valuation of 379 kboe at official fiscal prices and applying the fiscal terms of the profit sharing agreements.

(h) Corresponds to the valuation of 9,427 kboe at official fiscal prices and applying the fiscal terms of the profit sharing agreements.

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
RUSSIA								
Payments per Project								
Kharyaga	20,431	–	76	–	–	–	43,305	63,812
TOTAL	20,431	–	76	–	–	–	43,305	63,812
Payments per Government								
Nenets Tax Inspection	20,431	–	76	–	–	–	–	20,507
Ministry of Energy	–	–	–	–	–	–	43,305	43,305
TOTAL	20,431	–	76	–	–	–	43,305	63,812
SÃO TOMÉ AND PRINCIPE								
Payments per Project								
Block 1	–	–	–	1,618	–	–	–	1,618
TOTAL	–	–	–	1,618	–	–	–	1,618
Payments per Government								
National Oil account São Tomé e Príncipe	–	–	–	1,618	–	–	–	1,618
TOTAL	–	–	–	1,618	–	–	–	1,618
SENEGAL								
Payments per Project								
ROP	–	–	769	–	–	200	–	969
UDO	–	–	350	10,000	–	150	–	10,500
TOTAL	–	–	1,119	10,000	–	350	–	11,469
Payments per Government								
Etat du Sénégal (Trésorier Général)	–	–	–	10,000	–	–	–	10,000
Société des Pétroles du Sénégal	–	–	1,119	–	–	–	–	1,119
Etat du Sénégal C/O Fondation Total Sénégal	–	–	–	–	–	350	–	350
TOTAL	–	–	1,119	10,000	–	350	–	11,469
SOUTH AFRICA								
Payments per Project								
Blocks 11b and 12b	–	–	15	–	–	–	–	15
Block South Outeniqua	–	–	97	–	–	–	–	97
TOTAL	–	–	112	–	–	–	–	112
Payments per Government								
Petroleum Agency South Africa (PASA)	–	–	112	–	–	–	–	112
TOTAL	–	–	112	–	–	–	–	112
THAILAND								
Payments per Project								
Bongkot	326,540	–	–	52,933	–	–	–	379,473
G12/48	479	–	–	–	–	–	–	479
TOTAL	327,019	–	–	52,933	–	–	–	379,952
Payments per Government								
Revenue Department	216,005	–	–	–	–	–	–	216,005
Department of Mineral Fuels, Ministry Of Energy	111,014	–	–	–	–	–	–	111,014
Ministry Of Energy	–	–	–	52,933	–	–	–	52,933
TOTAL	327,019	–	–	52,933	–	–	–	379,952

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
UGANDA								
Payments per Project								
Block EA-1	–	–	236	–	–	–	–	236
Block EA-1A	–	–	33	–	–	–	–	33
Block EA-2	–	–	70	–	–	–	–	70
Block EA-3	–	–	230	–	–	–	–	230
Non-attributable	–	–	20	–	–	–	–	20
TOTAL	–	–	589	–	–	–	–	589
Payments per Government								
Ministry of Energy and Mineral Development	–	–	318	–	–	–	–	318
National Environment Management Authority	–	–	271	–	–	–	–	271
TOTAL	–	–	589	–	–	–	–	589
UNITED ARAB EMIRATES								
Payments per Project								
Abu Al Bukhoosh	82,734	–	–	–	–	–	–	82,734
ADNOC Gas Processing	263,105	–	2,344	–	–	–	–	265,449
ADNOC Onshore	3,386,702	–	2,251	–	–	–	–	3,388,953
Umm Shaif Nasr	896,839	–	1,854	672	–	–	–	899,365
Lower Zakum	387,823	–	464	130	–	–	–	388,417
Diyab Phase 1	–	–	–	16,920	–	–	–	16,920
TOTAL	5,017,203	–	6,913	17,722	–	–	–	5,041,838
Payments per Government								
Supreme Petroleum Council – Government of Abu Dhabi	82,734	–	–	–	–	–	–	82,734
Abu Dhabi Fiscal Authorities	4,724,672	–	–	–	–	–	–	4,724,672
Petroleum Institute	–	–	2,344	–	–	–	–	2,344
Abu Dhabi National Oil Company	209,797	–	4,569	17,722	–	–	–	232,088
TOTAL	5,017,203	–	6,913	17,722	–	–	–	5,041,838
UNITED KINGDOM								
Payments per Project								
Northern North Sea	–	–	2,030	–	–	–	–	2,030
Central Graben Area	–	–	562	–	–	–	–	562
Markham Area	–	–	99	–	–	–	–	99
Greater Laggan Area	–	–	2,572	–	–	–	–	2,572
Eastern North Sea	–	–	3,291	–	–	–	–	3,291
Culzean	–	–	10	–	–	–	–	10
Aspen	–	–	767	–	–	–	–	767
Non-attributable	301,923	–	145	–	–	–	–	302,068
TOTAL	301,923	–	9,476	–	–	–	–	311,399
Payments per Government								
HM Revenue & Customs	301,923	–	–	–	–	–	–	301,923
Crown Estate	–	–	145	–	–	–	–	145
Oil and Gas Authority	–	–	9,331	–	–	–	–	9,331
TOTAL	301,923	–	9,476	–	–	–	–	311,399

<i>(in thousands of dollars)</i>	Taxes	Royalties	License fees	License bonus	Dividends	Infrastructure improvements	Production entitlements	Total of Payments
UNITED STATES								
Payments per Project								
Tahiti	–	39,712	–	–	–	–	–	39,712
Barnett Shale	6,814	14,246	–	–	–	–	–	21,060
Utica	1,477	–	–	–	–	–	–	1,477
Gulf of Mexico	–	–	6,033	19,951	–	–	–	25,984
Jack	500	–	–	–	–	–	–	500
TOTAL	8,791	53,958	6,033	19,951	–	–	–	88,733
Payments per Government								
Office of Natural Resources Revenue	–	39,712	6,033	19,951	–	–	–	65,696
State of Ohio	886	–	–	–	–	–	–	886
Johnson County Tax Assessor	2,077	–	–	–	–	–	–	2,077
Tarrant County Tax Assessor	3,009	–	–	–	–	–	–	3,009
Texas State Comptroller's Office	1,589	–	–	–	–	–	–	1,589
City of Fort Worth	–	4,981	–	–	–	–	–	4,981
Dallas / Fort Worth International Airport Board	–	1,797	–	–	–	–	–	1,797
City of Arlington	–	1,684	–	–	–	–	–	1,684
Tarrant Regional Water District	–	755	–	–	–	–	–	755
State of Texas	–	382	–	–	–	–	–	382
City of North Richland Hills	–	521	–	–	–	–	–	521
Fort Worth Independant School District	–	332	–	–	–	–	–	332
Burleson Independant School District	–	691	–	–	–	–	–	691
Arlington Independant School District	–	408	–	–	–	–	–	408
Harrison County	285	–	–	–	–	–	–	285
Carroll County	306	–	–	–	–	–	–	306
Birdville Independent School District	–	691	–	–	–	–	–	691
Tarrant County College	–	442	–	–	–	–	–	442
City of Grand Prairie	–	225	–	–	–	–	–	225
Kennedale Independant School District	–	227	–	–	–	–	–	227
Tarrant County AAAA	–	164	–	–	–	–	–	164
Grapevine-Colleyville Tax Office	139	–	–	–	–	–	–	139
City of Cleburne	–	227	–	–	–	–	–	227
City of Burleson	–	186	–	–	–	–	–	186
Mansfield Independant School District	–	178	–	–	–	–	–	178
Crowley Independant School District	–	159	–	–	–	–	–	159
City of Crowley	–	117	–	–	–	–	–	117
White Settlement Independant School District	–	79	–	–	–	–	–	79
United States Treasury (Federal)	500	–	–	–	–	–	–	500
TOTAL	8,791	53,958	6,033	19,951	–	–	–	88,733

9 Supplemental oil and gas information (unaudited)

Glossary

The terms "TOTAL" and "Group" as used in this document refer to TOTAL S.A. collectively with all of its direct and indirect consolidated companies located in or outside of France. The term "Company" as used in this document exclusively refers to TOTAL S.A., which is the parent company of the Group.

Abbreviations

€:	euro
\$ or dollar:	U.S. dollar
ADR:	American depositary receipt (evidencing an ADS)
ADS:	American depositary share (representing a share of a company)
AMF:	Autorité des marchés financiers (French Financial Markets Authority)
API:	American Petroleum Institute
CO₂:	carbon dioxide
CNG:	compressed natural gas
DACF:	debt adjusted cash flow (refer to definition of operating cash flow before working capital changes w/o financial charges below)
FLNG:	floating liquefied natural gas
FPSO:	floating production, storage and offloading
FSRU:	floating storage and regasification unit
GHG:	greenhouse gas
HSE:	health, safety and the environment
IFRS:	International Financial Reporting Standards
IPIECA:	International Petroleum Industry Environmental Conservation Association
LNG:	liquefied natural gas
LPG:	liquefied petroleum gas
NGL:	natural gas liquids
NGV:	natural gas vehicle
OML:	oil mining lease
ROE:	return on equity
ROACE:	return on average capital employed
SEC:	United States Securities and Exchange Commission
VCM:	variable cost margin – Refining Europe

Units of measurement

b	= barrel ⁽¹⁾
B	= billion
boe	= barrel of oil equivalent
BTU	= British thermal unit
cf	= cubic feet
CO₂e	= carbon dioxide equivalent
/d	= per day
GW	= gigawatt
GWh	= gigawatt hour
k	= thousand
km	= kilometer
m	= meter
m³ or cm	= cubic meter ⁽¹⁾
M	= million
MW	= megawatt
t	= (Metric) ton
TWh	= terawatt hour
W	= watt
/y	= per year

Conversion table

1 acre	≈ 0.405 hectares
1 b	= 42 U.S. gallons ≈ 159 liters
1 b/d of crude oil	≈ 50 t/y of crude oil
1 Bm³/y (1 Bcm)	≈ 0.1 Bcf/d
1 km	≈ 0.62 miles
1 m³	≈ 35.3 cf
1 Mt of LNG	≈ 48 Bcf of gas
1 Mt/y of LNG	≈ 131 Mcf/d of gas
1 t of oil	≈ 7.5 b of oil (assuming a specific gravity of 37° API)
1 boe = 1 b of crude oil	≈ 5,395 cf of gas in 2019 ⁽²⁾ (5,387 cf in 2018 and 5,396 cf in 2017)

(1) Liquid and gas volumes are reported at international standard metric conditions (15°C and 1 atm).

(2) Natural gas is converted to barrels of oil equivalent using a ratio of cubic feet of natural gas per one barrel. This ratio is based on the actual average equivalent energy content of TOTAL's natural gas reserves during the applicable periods and is subject to change. The tabular conversion rate is applicable to TOTAL's natural gas reserves on a Group-wide basis.

A**acreage**

Areas in which mining rights are exercised.

adjusted results

Results using replacement cost, adjusted for special items, excluding the impact of changes for fair value.

API degree

Scale established by the API to measure oil density. A high API degree indicates light oil from which a high yield of gasoline can be refined.

appraisal (delineation)

Work performed after a discovery for the purpose of determining the boundaries or extent of an oil or gas field or assessing its reserves and production potential.

asset retirement (site restitution)

Companies may have obligations related to well-abandonment, dismantlement of facilities, decommissioning of plants or restoration of the environment. These obligations generally result from international conventions, local regulations or contractual obligations.

associated gas

Gas released during oil production.

association/consortium/joint-venture

Terms used to generally describe a project in which two or more entities participate. For the principles and methods of consolidation applicable to different types of joint arrangements according to IFRS, refer to Note 1 to the Consolidated Financial Statements.

B**barrel**

Unit of measurement of volume of crude oil equal to 42 U.S. gallons or 159 liters.

barrel of oil equivalent (boe)

Conventional unit for measuring the energy released by a quantity of fuel by relating it to the energy released by the combustion of a barrel of oil.

biochemical conversion

Conversion of carbonaceous resources through biological transformation (reactions involving living organisms). Fermentation of sugar into ethanol is an example.

biofuel

Liquid or gaseous fuel that can be used for transport, produced from biomass, and meeting criteria of reducing GHG compared to the fossil reference.

biogas (power generation from)

Combustion of gas produced by the fermentation of non-fossil organic matter (biomass).

biomass

All organic matter from vegetal or animal sources.

bitumen

Sometimes referred to as natural bitumen, is petroleum in a solid or semi-solid state in natural deposits. In its natural state, it usually contains sulfur, metals, and other non-hydrocarbons. Bitumen has a viscosity greater than 10,000 centipoise measured at the temperature in the deposit and the atmospheric pressure.

Brent

Quality of crude oil (38° API) produced in the North Sea, from Brent and neighboring fields.

brownfield project

Project concerning developed existing fields.

C**capacity of treatment**

Annual crude oil treatment capacity of the atmospheric distillation units of a refinery.

carbon capture, use and storage (CCUS)

Technologies designed to reduce GHG emissions by capturing (C) CO₂ and then compressing and transporting it either to use (U) it for various industrial processes (e.g., enhanced recovery of oil or gas, production of chemical products), or to permanently store (S) it in deep geological formations.

catalysts

Substances that increase a chemical reaction speed. During the refining processes, they are used in conversion units (reformer, hydrocracker, catalytic cracker) and desulphurization units. Principal catalysts are precious metals (platinum) or other less noble metals such as nickel and cobalt.

cogeneration

Simultaneous generation of electrical and thermal energies from a combustible source (gas, fuel oil or coal).

coker (deep conversion unit)

Unit that produces light products (gas, gasoline, diesel) and coke through the cracking of distillation residues.

commercial gas

Gas produced by the upstream facilities and sent directly or indirectly to the gas market.

concession contract

Exploration and production contract under which a host country grants to an oil and gas company (or a consortium) the right to explore a geographic area and develop and produce potential reserves. The oil and gas company (or consortium) undertakes the execution and financing, at its own risk, of all operations. In return, it is entitled to the entire production.

condensate

Light hydrocarbon products produced with natural gas that exist – either in a gaseous phase or in solution – in the oil and gas under the initial pressure and temperature conditions in the reservoir, and which are recovered in a liquid state in separators, on-site facilities or gas treatment units.

condensate splitter

Unit that distillates condensates upstream of refining or petrochemical units.

consortium

Refer to the definition above of “association/consortium/joint-venture”.

conversion

Refining operation aiming at transforming heavy products (heavy fuel oil) into lighter or less viscous products (e.g., gasoline, jet fuels).

cost oil/gas

In a production sharing contract, the portion of the oil and gas production made available to the contractor (contractor group) and contractually reserved for reimbursement of exploration, development, operation and site restitution costs (“recoverable” costs). The reimbursement may be capped by a contractual stop that corresponds to the maximum share of production that may be allocated to the reimbursement of costs.

cracking

Refining process that entails converting the molecules of large, complex, heavy hydrocarbons into simpler, lighter molecules using heat, pressure and, in some cases, a catalyst. A distinction is made between catalytic cracking and steam cracking, which uses heat instead of a catalyst. Cracking then produces ethylene and propylene, in particular.

crude oil

A mixture of compounds (mainly pentanes and heavier hydrocarbons) that exists in a liquid phase at original reservoir temperature and pressure and remains liquid at atmospheric pressure and ambient temperature.

D**Dated Brent**

A market term representing the minimum value of physical cargoes of Brent, Forties, Oseberg, or Ekofisk crude oil, loading between the 10th and the 25th day forward. Dated Brent prices are used, directly and indirectly, as a benchmark for a large proportion of the crude oil that is traded internationally.

debottlenecking

Change made to a facility to increase its production capacity.

desulphurization unit

Unit in which sulphur and sulphur compounds are eliminated from mixtures of gaseous or liquid hydrocarbons.

development

Operations carried out to access the proved reserves and set up the technical facilities for extraction, processing, transportation and storage of the oil and gas: drilling of development or injection wells, platforms, pipelines, etc.

distillates

Products obtained through the atmospheric distillation of crude oil or through vacuum distillation. Includes medium distillate such as aviation fuel, diesel fuel and heating oil.

E**effective tax rate**

$(\text{Tax on adjusted net operating income}) / (\text{adjusted net operating income} - \text{income from equity affiliates} - \text{dividends received from investments} - \text{impairment of goodwill} + \text{tax on adjusted net operating income})$.

effect of changes in fair value

The effect of changes in fair value presented as an adjustment item reflects, for some transactions, differences between internal measures of performance used by TOTAL's Executive Committee and the accounting for these transactions under IFRS. IFRS requires that trading inventories be recorded at their fair value using period-end spot prices. In order to best reflect the management of economic exposure through derivative transactions, internal indicators used to measure performance include valuations of trading inventories based on forward prices. Furthermore, TOTAL, in its trading activities, enters into storage contracts, the future effects of which are recorded at fair value in the Group's internal economic performance. IFRS precludes recognition of this fair value effect.

energy mix

The various energy sources used to meet the demand for energy.

ethane

A colorless, odorless combustible gas of the alkanes class composed of two carbon atoms found in natural gas and petroleum gas.

ethanol

Also commonly called ethyl alcohol or alcohol, ethanol is obtained through the fermentation of sugar (beetroot, sugarcane) or starch (grains). Ethanol has numerous food, chemical and energy (biofuel) applications.

ethylene/propylene

Petrochemical products derived from cracking naphtha or light hydrocarbons and used mainly in the production of polyethylene and polypropylene, two plastics frequently used in packaging, the automotive industry, household appliances, healthcare and textiles.

F**fair value**

Fair value is the price that would be received to sell an asset or paid to transfer a liability in a transaction under normal conditions between market participants at the measurement date.

farm-in (or farm-out)

Acquisition (or sale) of all or part of a participating interest in an oil and gas mining property by way of an assignment of rights and obligations in the corresponding permit or license and related contracts.

farnesane

A hydrocarbon molecule containing 15 carbon atoms, which can be used to produce fuel or chemical compounds.

FEED studies (front-end engineering design)

Studies aimed at defining the project and preparing for its execution. In the TOTAL process, this covers the pre-project and basic engineering phases.

FLNG (floating liquefied natural gas)

Floating unit permitting the liquefaction of natural gas and the storage of LNG.

fossil energies

Energies produced from oil, natural gas and coal.

FPSO (floating production, storage and offloading)

Floating integrated offshore unit comprising the equipment used to produce, process and store hydrocarbons and offload them directly to an offshore oil tanker.

FSRU (floating storage and regasification unit)

Floating unit permitting the regasification and the storage of natural gas.

G**gearing ratio**

Net Debt / (Net debt + shareholders equity Group share + Non-controlling interests).

greenfield project

Project concerning fields that have never been developed.

gross capacity

Capacity expressed on a 100% basis regardless of the ownership share in the asset.

gross investments

Investments including acquisitions and increases in non-current loans.

H**hydraulic fracturing**

Technique that involves fracturing rock to improve its permeability.

hydrocarbons

Molecules composed principally of carbon and hydrogen atoms. They can be solid such as asphalt, liquid such as crude oil or gaseous such as natural gas. They may also include compounds with sulphur, nitrogen, metals, etc.

hydrocracker

A refinery unit that uses catalysts and extraordinarily high pressure, in the presence of surplus hydrogen, to convert heavy oils into lighter fractions.

I**inventory valuation effect**

The adjusted results of the Refining & Chemicals and Marketing & Services segments are presented according to the replacement cost method. This method is used to assess the segments' performance and facilitate the comparability of the segments' performance with those of its competitors. In the replacement cost method, which approximates the LIFO (Last-In, First-Out) method, the variation of inventory values in the statement of income is, depending on the nature of the inventory, determined using either the month-end price differentials between one period and another or the average prices of the period rather than the historical value. The inventory valuation effect is the difference between the results according to the FIFO (First-In, First-Out) and the replacement cost.

J**joint-venture**

Refer to the definition above of "association/consortium/joint-venture".

L**lignocellulose**

Lignocellulose is the main component of the wall of plant cells. It can be sourced from agricultural and farming wastes or by-products of wood transformation as well as dedicated plantations and constitutes the most abundant renewable carbon source on the planet. This abundance and its composition (very rich in polymerized sugars) makes it an excellent choice to produce biofuels. As a result, its conversion, whether by thermochemical (e.g., gasification) or biochemical techniques, is widely studied.

liquids

Liquids consist of crude oil, bitumen, condensates and NGL.

LNG (liquefied natural gas)

Natural gas which has been liquefied by cooling to a temperature of approximately -160°C which allows its volume to be reduced by a factor of almost 600 in order to transport it.

LNG bunkering

Specific type of operation where the LNG is transferred from a determined distribution source (e.g., bunkering ship, LNG terminal) to an LNG-fueled vessel.

LNG train

Installation forming part of a liquefaction plant and allowing the separation of natural gas from other gases such as acid gases and LPG, to then liquefy it and finally store it, before loading on to the LNG carriers.

LNG carrier

Vessel specially designed for the transport of LNG and equipped with tanks which enable to minimize thermal losses in order to maintain the LNG in a liquid state.

LPG (liquefied petroleum gas)

Light hydrocarbons (comprised of butane and propane, belonging to the alkanes class and composed of three and four carbon atoms respectively) that are gaseous under normal temperature and pressure conditions and that are kept in liquid state by increasing the pressure or reducing the temperature. LPG is included in NGL.

M**mining interests**

Rights to explore for and/or produce oil and gas in a specific area for a fixed period. Covers the concepts of "permit", "license", "title", etc.

N**naphtha**

Heavy gasoline used as a base in petrochemicals.

natural gas

Mixture of light gaseous hydrocarbons extracted from underground reservoirs. It is mainly composed of methane, but can also contain ethane up to 10%, one or two carbon atoms, and other compounds in small quantities.

natural gas liquids (NGL)

A mixture of light hydrocarbons that exist in the gaseous phase at room temperature and pressure and are recovered as liquid in gas processing plants. NGL include very light hydrocarbons (ethane, propane and butane).

net cash flow

Cash flow from operating activities before working capital changes at replacement cost – net investments (including other transactions with non-controlling interests).

net financial debts

Non-current financial debts, including current portion, current borrowings, other current financial liabilities less cash and cash equivalents and other current financial assets.

net investments

Organic investments + net acquisitions.

O**oil**

Generic term designating crude oil, condensates and NGL.

oil and gas

Generic term which includes all hydrocarbons (e.g., crude oil, condensates, NGL, bitumen and natural gas).

oil sands

sandstones containing natural bitumen.

olefins

Group of products (gas) obtained after cracking of petroleum streams. Olefins are ethylene, propylene and butadiene. These products are used in the production of large plastics (polyethylene, polypropylene, PVC, etc.), in the production of elastomers (polybutadiene, etc.) or in the production of large chemical intermediates.

OPEC

Organization of the Petroleum Exporting Countries.

operated oil & gas facilities

Facilities operated by the Group for the Upstream hydrocarbons activities as well as the activities of the Refining & Chemicals and Marketing & Services segments. They do not include power generation facilities based on renewable sources or natural gas such as combined-cycle natural gas power plants.

operated production

Total quantity of oil and gas produced on fields operated by the Group.

operating cash flow before working capital changes

Cash flow from operating activities before changes in working capital at replacement cost.

operating cash flow before working capital changes without financial charges (DACF)

Cash flow from operating activities before changes in working capital at replacement cost, without financial charges.

operator

Partner of an oil and gas joint-venture in charge of carrying out the operations on a specific area on behalf of the partners within a joint-venture. A refinery is also said to be operated by a specific partner when the operations are carried out by the partner on behalf of the joint-venture that owns the refinery.

organic investments

Net investments, excluding acquisitions, divestments and other operations with non-controlling interests.

P**permit**

Area contractually granted to an oil and gas company (or a consortium) by the host country for a defined period to carry out exploration work or to exploit a field.

petcoke (or petroleum coke)

Residual product remaining after the improvement of very heavy petroleum cuts. This solid black product consists mainly of carbon and can be used as fuel.

polymers

Molecule composed of monomers bonded together by covalent bonds, such as polyolefins obtained from olefins or starch and proteins produced naturally.

pre-dividend organic cash breakeven

Brent price for which the operating cash flow before working capital changes covers the organic investments.

price effect

The impact of changing hydrocarbon prices on entitlement volumes from production sharing contracts and on economic limit dates.

production costs

Costs related to the production of hydrocarbons in accordance with FASB ASC 932-360-25-15.

production plateau

Expected average stabilized level of production for a field following the production build-up.

production sharing contract/agreement (PSC/PSA)

Exploration and production contract under which a host country or, more frequently, its national company, transfers to an oil and gas company (the contractor) or a consortium (the contractor group) the right to explore a geographic area and develop the fields discovered. The contractor (or contractor group) undertakes the execution and financing, at its own risk, of all operations. In return, it is entitled to a portion of the production, called cost oil/gas, to recover its expenditures and investments. The remaining production, called profit oil/gas, is then shared between the contractor (contractor group), and the national company and/or host country.

project

As used in this document, “project” may encompass different meanings, such as properties, agreements, investments, developments, phases, activities or components, each of which may also informally be described as a “project”. Such use is for convenience only and is not intended as a precise description of the term “project” as it relates to any specific governmental law or regulation.

proved permit

Permit for which there are proved reserves.

proved reserves (1P reserves)

Proved oil and gas reserves are those quantities of oil and gas, which, by analysis of geoscience and engineering data, can be estimated with a reasonable certainty to be economically producible from a given date forward, from known reservoirs, and under existing economic conditions, operating methods, and government regulations, prior to the time at which contracts providing the right to operate expire, unless evidence indicates that renewal is reasonably certain, regardless of whether deterministic or probabilistic methods are used for the estimation.

proved developed reserves

Proved developed oil and gas reserves are proved reserves that can be expected to be recovered (i) through existing wells with existing equipment and operating methods or in which the cost of the required equipment is relatively minor compared to the cost of a new well; and (ii) through installed extraction equipment and infrastructure operational at the time of the reserves estimate if the extraction is by means not involving a well.

proved undeveloped reserves

Proved undeveloped oil and gas reserves are proved reserves that are expected to be recovered with new investments (new wells on undrilled acreage, or from existing wells where a relatively major expenditure is required for recompletion, surface facilities).

[REDACTED SECTION: CERTAIN TEXT HAS BEEN REDACTED.]

R**refining**

The various processes used to produce petroleum products from crude oil (e.g., distillation, reforming, desulphurization, cracking).

renewable energies

An energy source the inventories of which can be renewed or are inexhaustible, such as solar, wind, hydraulic, biomass and geothermal energy.

reserve life

Synthetic indicator calculated from data published under ASC 932. Ratio of the proved reserves at the end of the period to the production of the past year.

reserves

Estimated remaining quantities of oil and gas and related substances expected to be economically producible, as of a given date, by application of development projects to known accumulations.

reservoirs

Porous, permeable underground rock formation that contains oil or natural gas.

resource acquisitions

Acquisition of a participating interest in an oil and gas mining property by way of an assignment of rights and obligations in the corresponding permit or license and related contracts, with a view to producing the recoverable oil and gas.

return on average capital employed (ROACE)

Ratio of adjusted net operating income to average capital employed at replacement cost between the beginning and the end of the period.

return on equity (ROE)

Ratio of adjusted consolidated net income to average adjusted shareholders' equity (after distribution) between the beginning and the end of the period. Adjusted shareholders' equity for a given period is calculated after distribution of the dividend (subject to approval by the Shareholders' Meeting).

Risked service contract

Service contract where the contractor bears the investments and the risks. The contractor usually receives a portion of the production to cover the refund of the investments and the related interests, and a monetary remuneration linked to the performance of the field.

S**seismic**

Method of exploring the subsoil that entails methodically sending vibration or sound waves and recording their reflections to assess the type, size, shape and depth of subsurface layers.

shale gas

Natural gas in a source rock that has not migrated to a reservoir.

shale oil

Oil in a source rock that has not migrated to a reservoir.

shipping

Transport by sea. LNG is carried out on board LNG carriers (see definition).

sidetrack

Well drilled from a portion of an existing well (and not by starting from the surface). It is used to get around an obstruction in the original well or resume drilling in a new direction or to explore a nearby geological area.

silicon

The most abundant element in Earth's crust after oxygen. It does not exist in a free state but in the form of compounds such as silica, which has long been used as an essential element of glass. Polysilicon (or crystalline silicon), which is obtained by purifying silicon and consists of metal-like crystals, is used in the construction of photovoltaic solar panels, but other minerals or alloys may be used.

special items

Due to their unusual nature or particular significance, certain transactions qualifying as "special items" are excluded from the business segment figures. In general, special items relate to transactions that are significant, infrequent or unusual. In certain instances, transactions such as restructuring costs or asset disposals, which are not considered to be representative of the normal course of business, may qualify as special items although they may have occurred in prior years or are likely to recur in following years.

steam cracker

A petrochemical plant that turns naphtha and light hydrocarbons into ethylene, propylene, and other chemical raw materials.

T**technical costs**

Ratio (Production costs* + exploration expenses + DD&A*)/production of the year. *Excluding non-recurrent items.

thermochemical conversion

Conversion of carbonaceous resources (gas, coal, biomass, waste, CO₂) through thermal transformation (chemical reactions controlled by the combined action of temperature, pressure and often of a catalyst). Gasification is an example.

tight gas

Natural gas trapped in very low-permeable reservoir.

turnaround

Temporary shutdown of a facility for maintenance, overhaul and upgrading.

U**unconventional hydrocarbons**

Oil and gas that cannot be produced or extracted using conventional methods. These hydrocarbons generally include shale gas, coal bed methane, gas located in very low-permeable reservoirs, methane hydrates, extra heavy oil, bitumen and liquid or gaseous hydrocarbons generated during pyrolysis of oil shale.

unitization

Creation of a new joint venture and appointment of a single operator for the development and production as single unit of an oil or gas field involving several permits/licenses or countries.

unproved permit

Permit for which there are no proved reserves.

Upstream hydrocarbons activities

The Group Upstream hydrocarbons activities include the oil and gas exploration and production activities of the Exploration & Production and the Integrated Gas, Renewables & Power segments. They do not include power generation facilities based on renewable sources or natural gas such as combined-cycle natural gas power plants.

V**variable cost margin, Refining Europe**

This indicator represents the average margin on variable costs realized by TOTAL's European refining business. It is equal to the difference between the sales of refined products realized by TOTAL's European refining and the crude purchases as well as associated variable costs, divided by refinery throughput in tons.

The previous ERMI indicator was intended to represent the margin after variable costs for a hypothetical complex refinery located around Rotterdam in Northern Europe that processes a mix of crude oil and other inputs commonly supplied to this region to produce and market the main refined products at prevailing prices in this region.



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