

# Gas market

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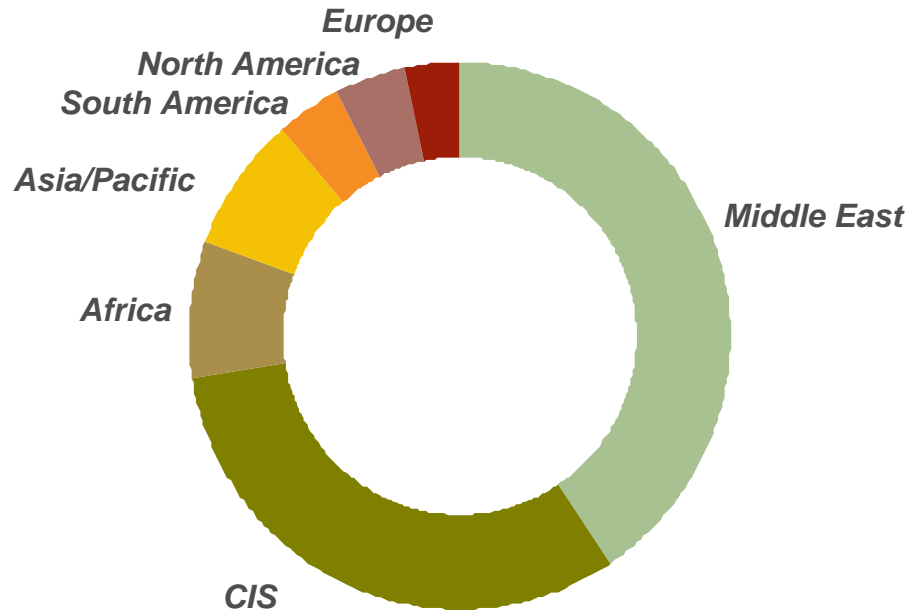
P. Sauquet

Paris – November 14-15, 2006



# Natural gas : 65-year global reserve life

End-2005 reserves ~ 180,000 Bcm



2005 consumption ~ 2,800 Bcm



► **Most gas reserves isolated from main markets**

- Nearly 2/3 of reserves concentrated in Russia, Iran and Qatar

► **Gas prospects in the Middle East more open to foreign investments than oil**

► **Strong growth of gas demand driven by power generation**

► **“Peak gas” not reached before 2040**

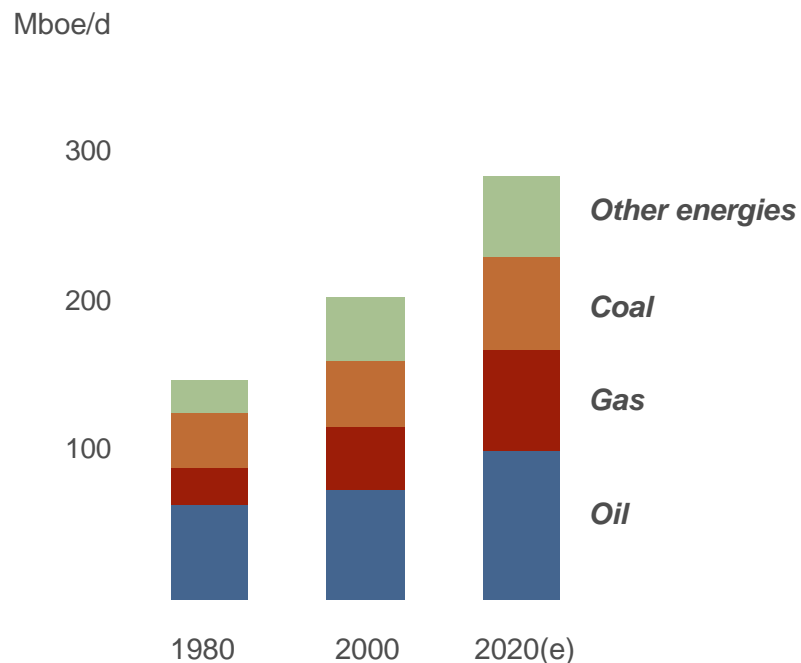
► **Gas market supply depends on investments in logistics**

source : Cedigaz, 1 Bcm/y = 100 Mcf/d

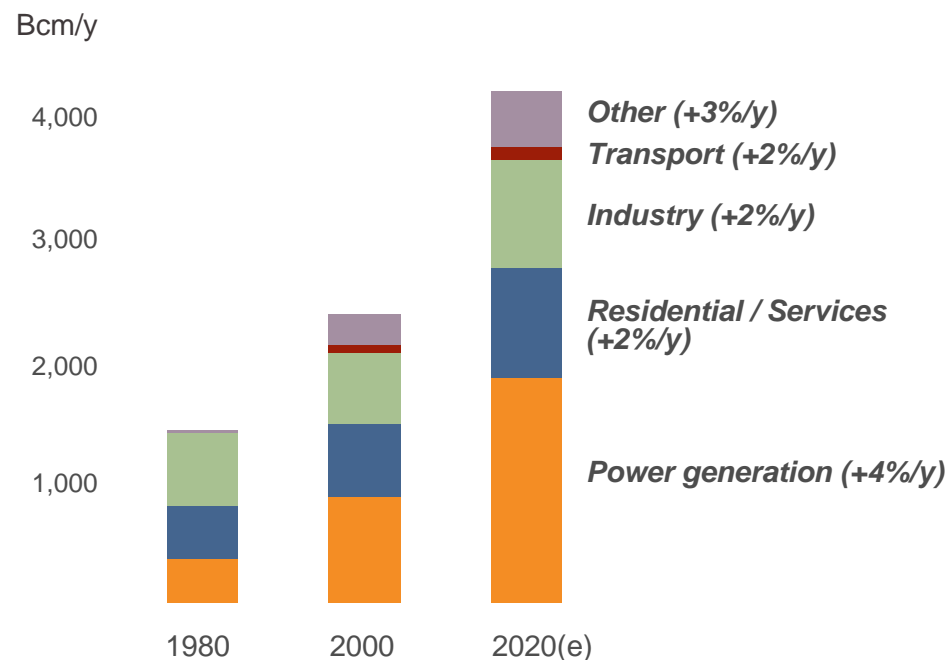


# Strong growth of gas demand

## Global energy demand



## Gas demand



### ► Main competitors to gas

- Coal (US, China...)
- Nuclear (France, US...)

### ► Gas demand growth > 2% per year on average until 2030

### ► Power generation : nearly half of the gas demand over the long term

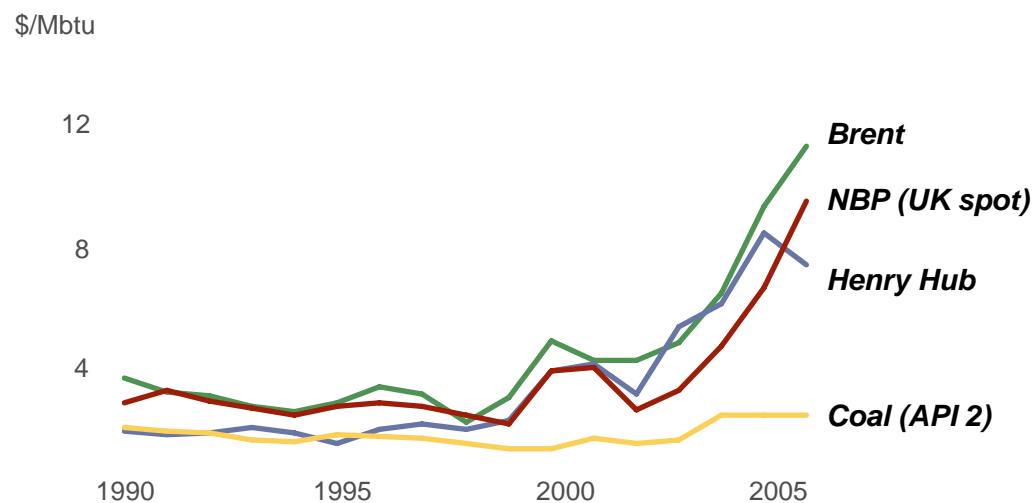
source : IEA, Total estimates



# Gas prices higher and more volatile...

- ▶ Average spot gas prices tripled since the last decade
- ▶ Strong competition among energy sources
- ▶ Increasing share of gas sold on a spot index
  - Approx. 100% in North America
  - Around 70% in the UK
  - Less than 10% in Continental Europe

Hydrocarbon prices 1990-2006\*



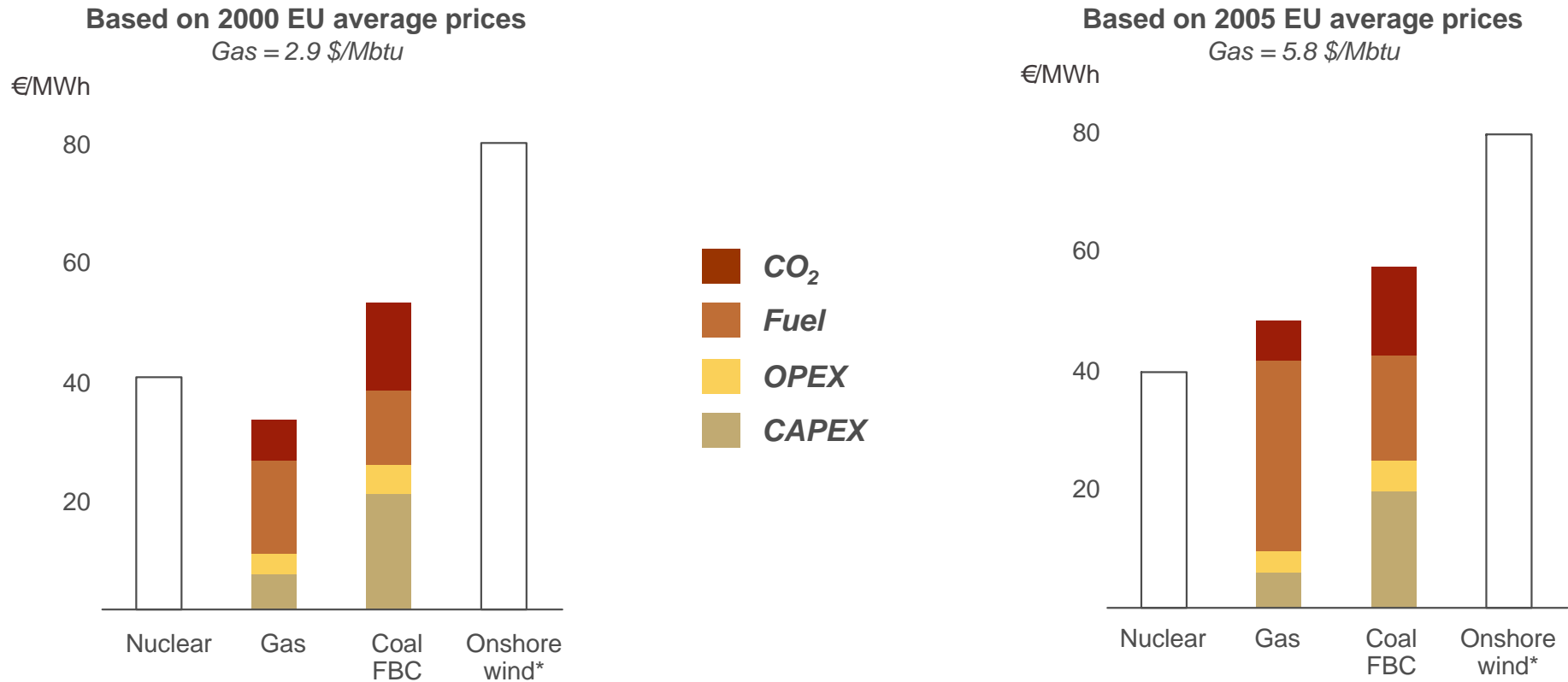
***Gas prices linked to oil prices over time***

***By comparison, coal prices remain remarkably stable***

\* first nine months average for 2006

# ... but gas remains one of the best alternatives for power generation

## Power generation costs



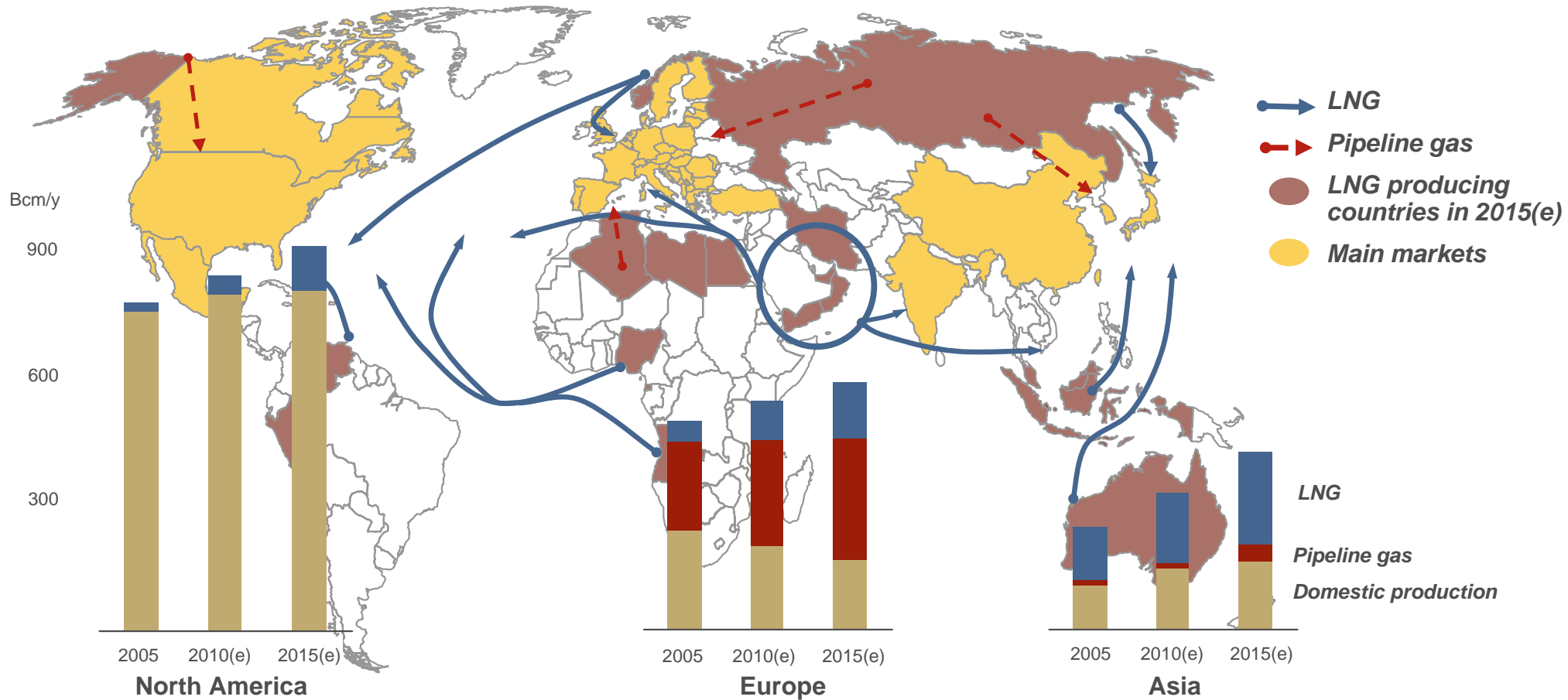
- Gas, the most competitive in a 2000 price environment

- In coal-fired power plants, CO<sub>2</sub> emissions cost comparable to the cost of coal
- Good environmental perception for gas (vs. coal)
- Good social acceptance of gas (vs. nuclear)

\* before subsidies



# Long-term gas growth requires investments in logistics



- Stagnant or declining production in Europe and North America

- New gas pipelines to feed Europe from Russia and North Africa

- New LNG projects in the Middle East, Asia, Africa and Russia

- Strong development of regas terminals

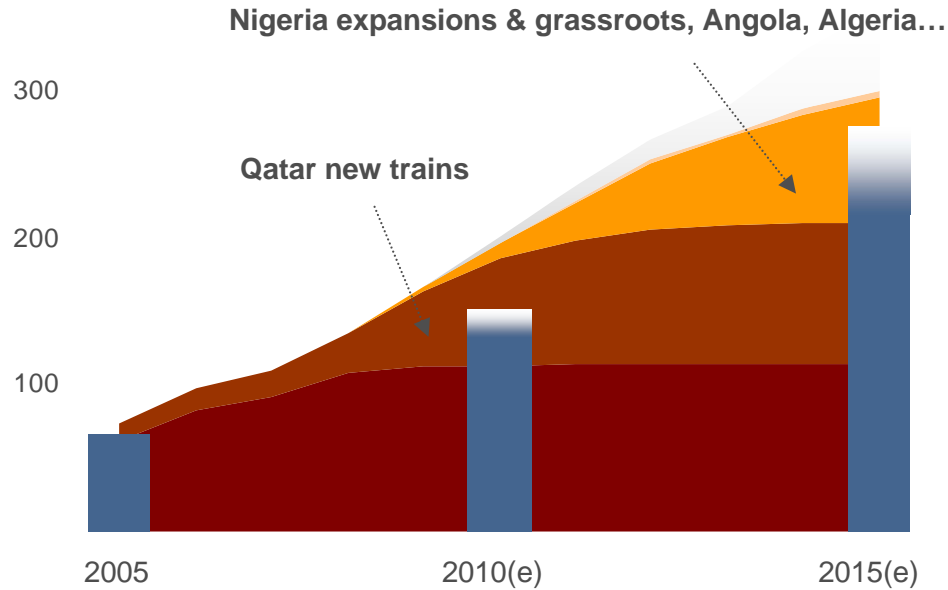
source : Total estimates



# LNG supply / demand balance through 2015

## Atlantic Basin

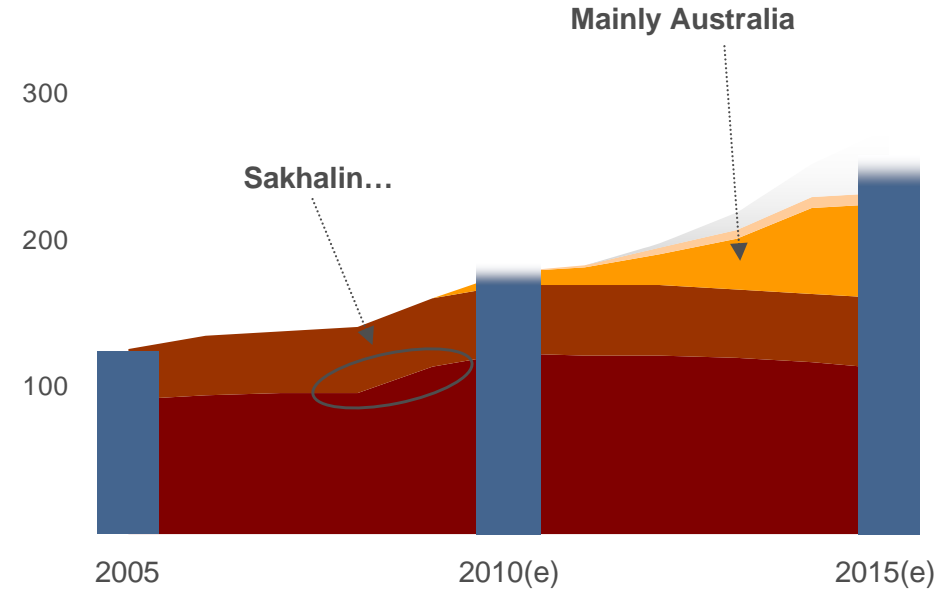
Bcm/y



■ Demand base case    ■ Regional existing + decided  
■ Demand high case    ■ Middle East existing + decided

## Asia/Pacific Basin

Bcm/y



■ Probable regional projects    ■ Notional projects  
■ Probable Middle East projects

▶ The Atlantic is attracting a lot of projects but some could be diverted

▶ Low supply for Asia/Pacific markets creating imbalances

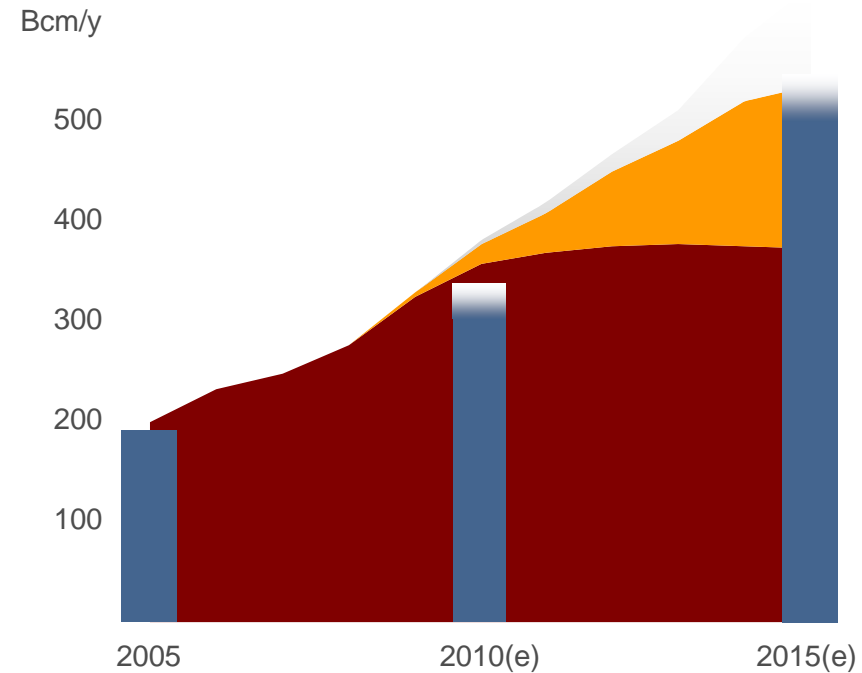
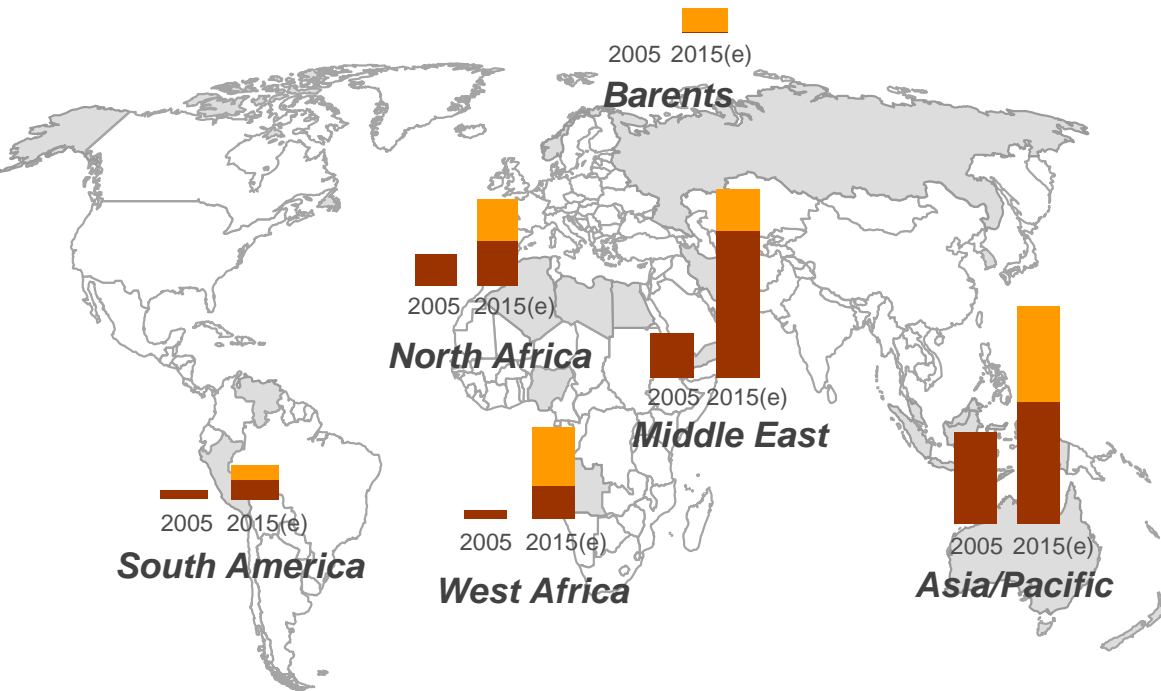
source : Total estimates



# Global LNG projects : emergence of the Middle East

Worldwide LNG production

Worldwide supply/demand balance



● LNG producing countries in 2015(e)

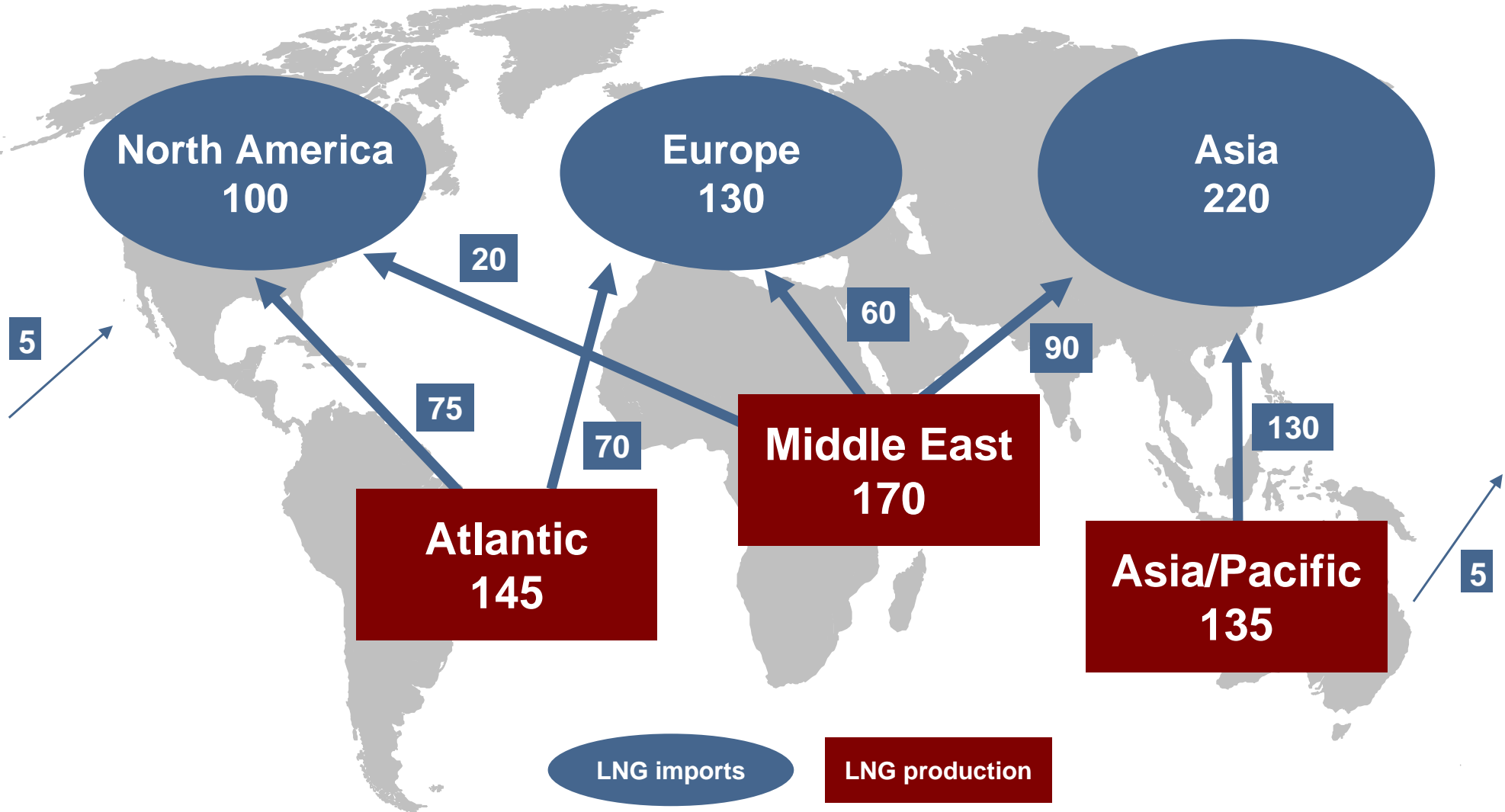
- Demand base case
- Demand high case
- Existing + decided projects
- Probable projects
- Notional projects

source : Total estimates



# Middle East LNG will progressively be arbitrating the market

Bcm, 2015



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