

# MEDIUM-TERM OIL & GAS MARKETS 2011

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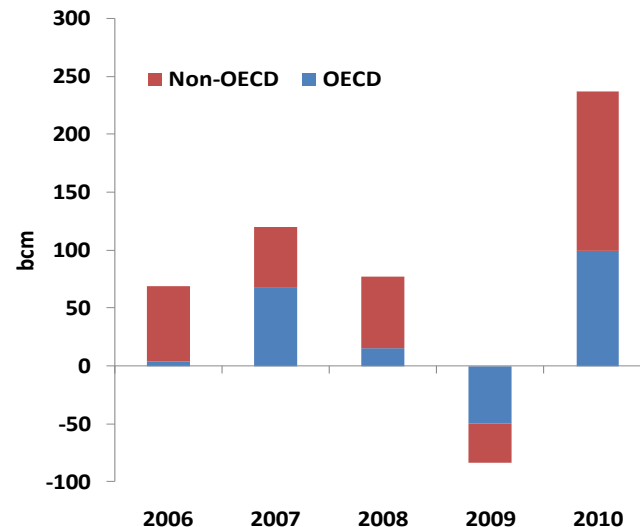
International  
Energy Agency

# Review of the Year 2010

## ■ World gas demand recovered by 7.4% in 2010

- An increase by around 230 bcm
  - ◆ OECD recovered by 5.9%
  - ◆ Non-OECD rose by 8.9%
- This overshadows the 2.5% drop in 2009

Yearly demand changes 2006-10



## ■ Abundant supply was there to meet demand

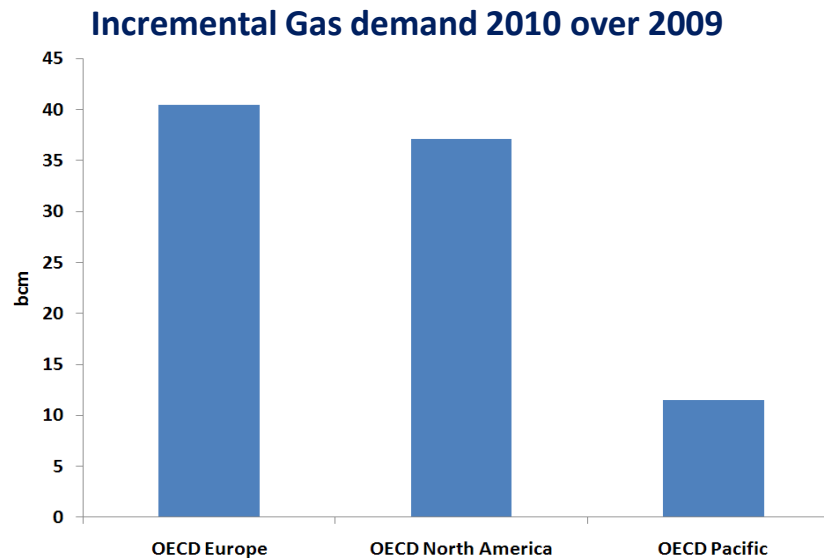
- Production increased in all regions
- North American unconventional gas production continues to impact the world
- LNG trade increased by 60 bcm to reach 300 bcm

## ■ Part of the excess of supply was absorbed by resurgent demand

- Global gas markets tightened in 2010

# But the recovery in the OECD is partially an illusion

*As it is mostly driven by exceptional weather*



Demand in 2010      568 bcm      841 bcm      185 bcm

- **OECD gas demand has recovered to levels 3% above 2008**
  - OECD Europe gas demand reached record levels - 568 bcm (40 bcm above 2009)
  - Growth in North America also driven by low gas prices
- **But demand was actually driven by very cold weather in Europe and OECD Pacific and a hot summer in OECD Pacific**

# China – higher than all OECD countries except the US

- **China's gas demand was above any European or Asian gas market in 2010, reaching 106 bcm**
  - Gas demand increased by 22% in 2010, could reach 130 bcm in 2011
  - According to the first drafts of the next 5-year plan, Chinese gas demand could reach 260 bcm by 2015
  
- **China has been investing to secure new supplies**
  - Investments in domestic gas production (incl. shale gas/CBM)
  - LNG imports reached 13 bcm in 2010 (+67%)
  - The Turkmenistan-China pipeline started in December 2009 (4 bcm in 2010)
  - Myanmar-China pipeline is under construction (12 bcm, to start in 2013)
  - New LNG long-term contracts (Australia, Qatar, PNG)
  
- **Influence on global markets**
  - Coal price setter – second coal importer and they became net importer only in 2009!
  - Competes for LNG, and has won Turkmen supplies

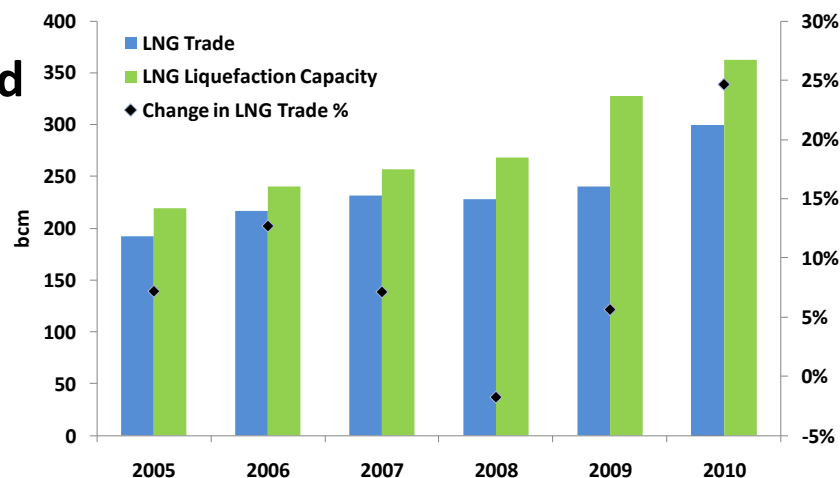
# LNG markets see unprecedented growth

## ■ LNG trade increased by 25% in 2010, reaching 300 bcm

- LNG trade now represents 9% of global gas demand

## ■ LNG expansion was supported by a wave of new LNG plants

- 100 bcm of additional capacity since 2009
- Including 63 bcm in Qatar



## ■ Imports increased in all countries, but in the United States and India

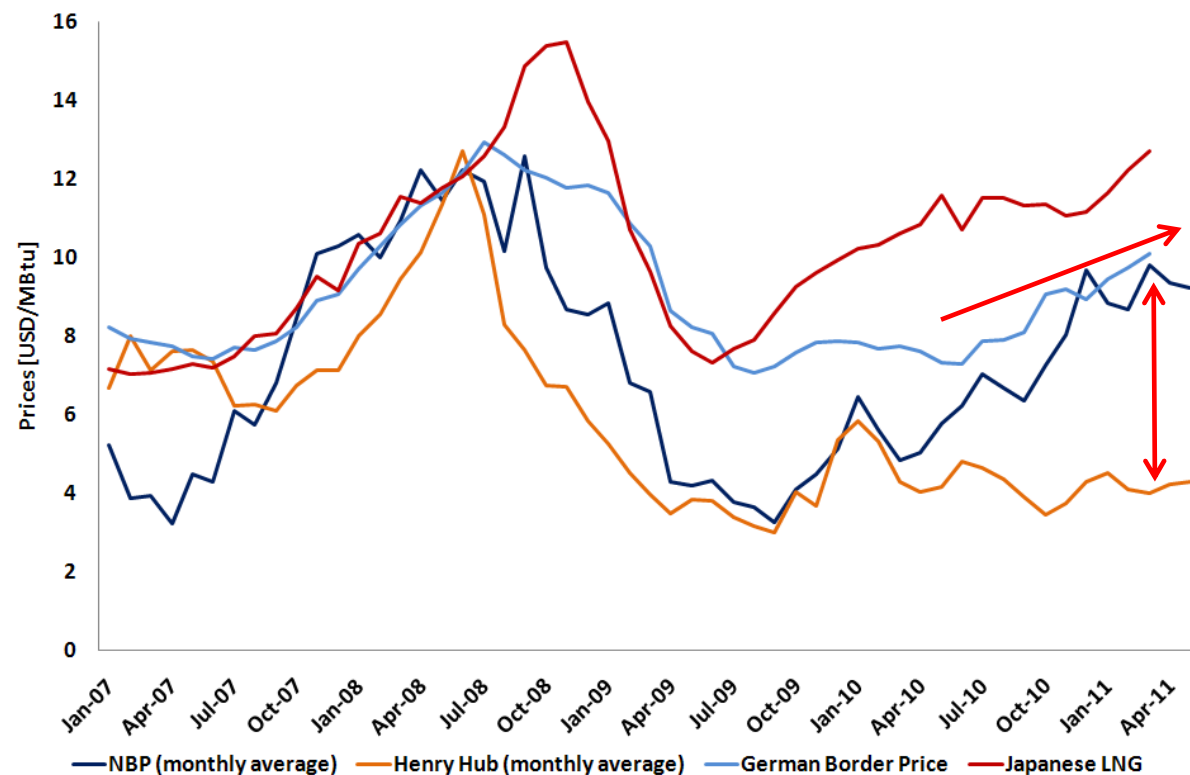
- Historical Asian and European markets recovered
- European LNG imports increased by 40%
- New markets are emerging in Latin America and the Middle East
- While China is growing

# Gas prices converge at a regional level

## *Wide disparities between regional prices*

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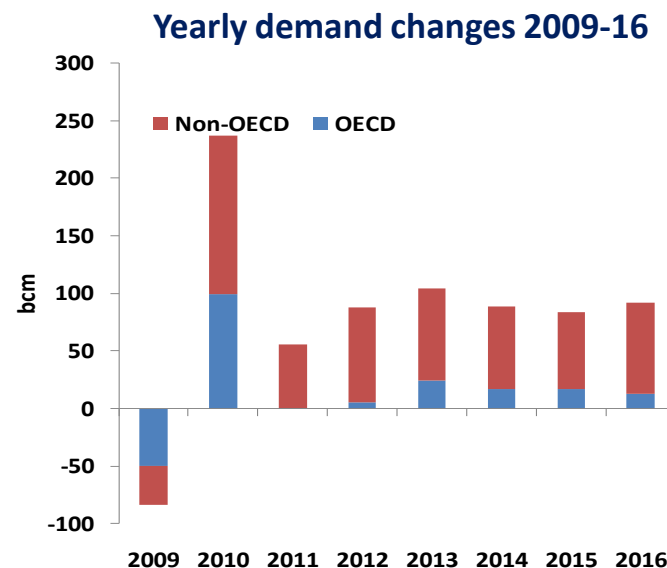


- Most prices are on an upward trend, except in North America
- European contract and spot prices have been converging since mid 2010, NBP prices have doubled over one year
- Japanese prices still strongly follow oil prices
- The US remains disconnected from other markets

# Medium-Term Forecasts

## ■ World gas demand is expected to rise to 3800 bcm by 2016

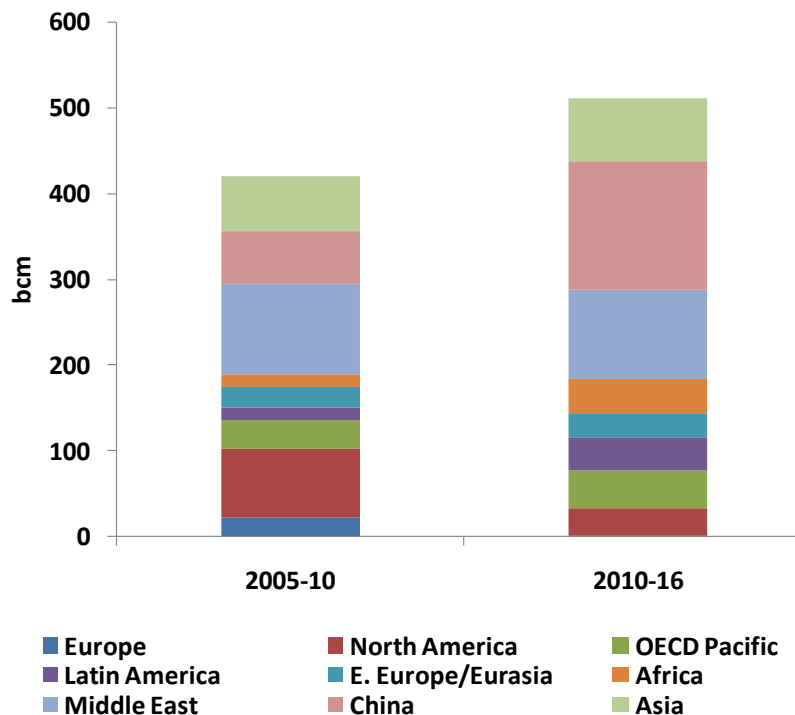
- Demand growth will slow down compared to 2010
- The 510 bcm demand increase over 2010 will happen mostly in the non-OECD region



## ■ 90% of the incremental supply is projected to come from the non-OECD region

- Half of additional supply will come from the Middle East and FSU
- LNG trade is set to expand markedly , especially after 2015
- OECD supply is contrasted, with a sharp drop in Europe compensated by North American unconventional gas and Australian supplies

# Gas demand is projected to grow by 2.4%/y over 2010-16

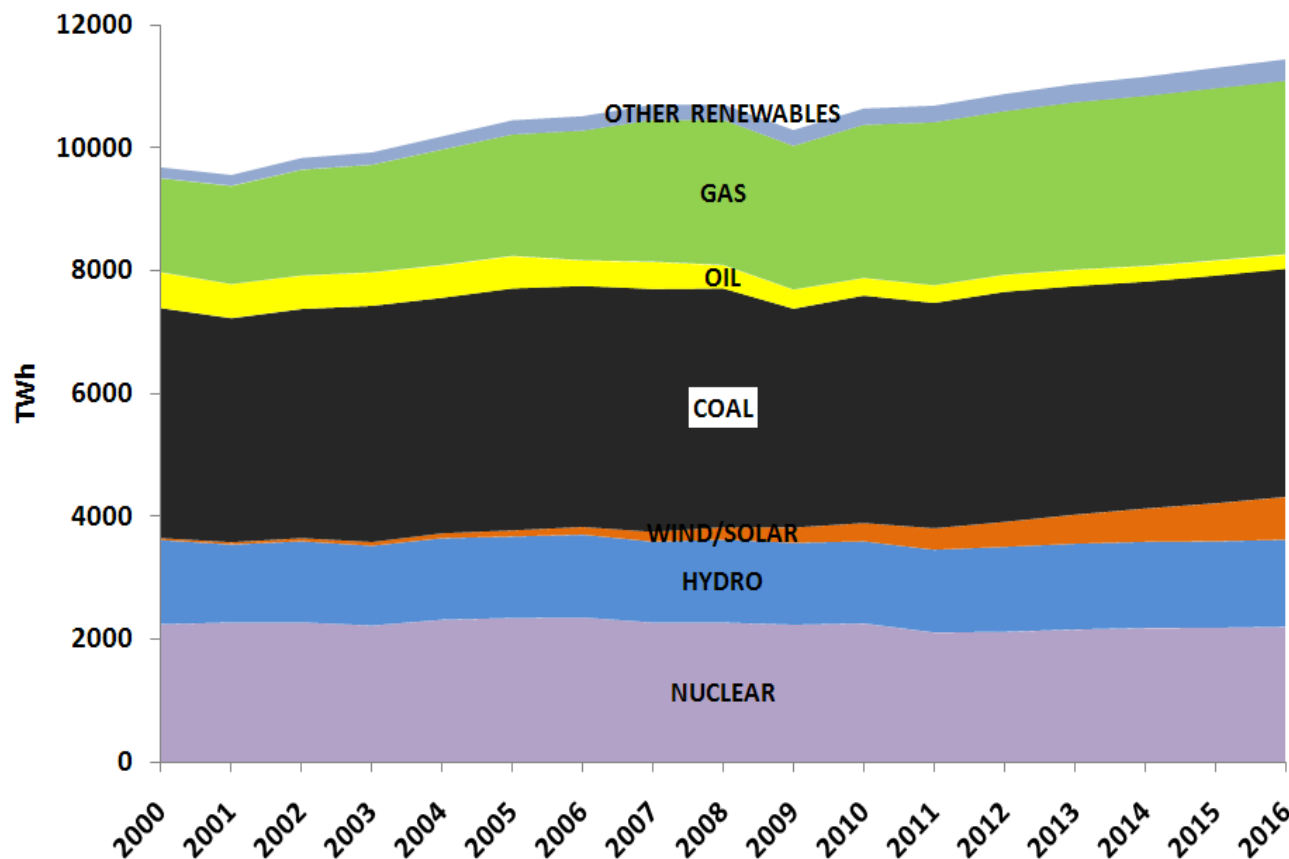


- **Most of the additional volumes come from non-OECD countries**
  - Higher incremental volumes occur in China and the Middle East
  - China is the fastest growing market
  - Strong relative increases in Africa, Latin America and Asia
- **OECD demand only increases by 80 bcm**
  - In North America and Pacific

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# OECD: Power generation is the main gas demand growth driver

*But constrained by strongly growing renewables and coal*



# Uncertainty over the future of nuclear

## ■ Global nuclear generation is 2600 TWh

850,000 wind mills



65 times electricity generated by all  
current solar panels



When replaced by CCGTs, the combined production of Norway,  
UK, the Netherlands, Australia, Qatar and Algeria



# Gas demand implications of lower nuclear in Japan and Germany

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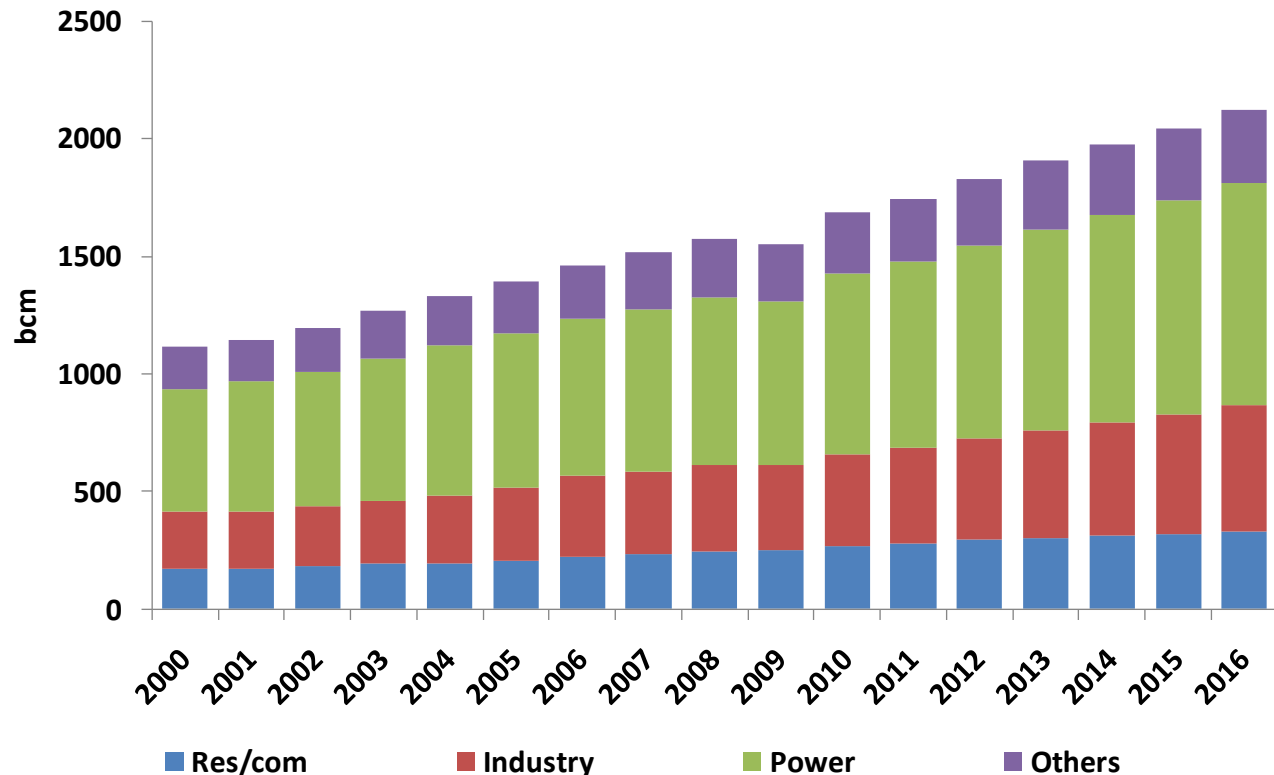
## ■ Japan

- Medium term loss of 20 GW nuclear, but lower power demand
- Higher gas load factor, around 11 bcm/y for 2011

## ■ Germany:

- 7 GW immediately decommissioned, +15 GW by 2022
- Renewable growth till 2022 can only replace nuclear,
- CO<sub>2</sub> cuts delivered by coal to gas switch, around 17 bcm, on EU level

# Non-OECD: demand is growing in all sectors, but power dominates

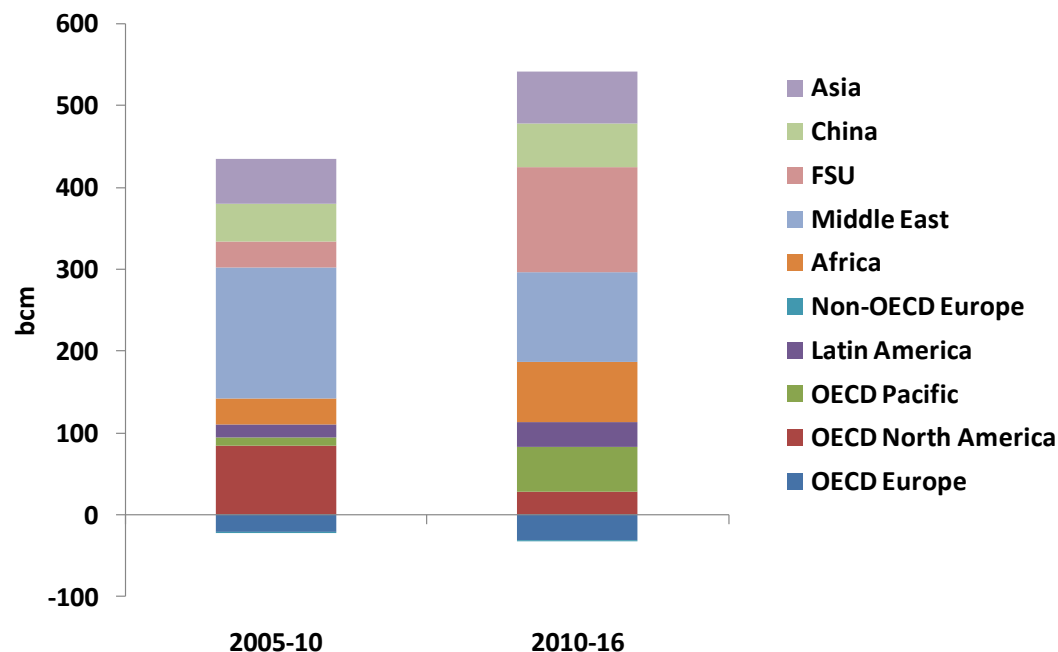


## ■ Non-OECD gas demand increases at 3.9%/y over the 2010-16 period

- In terms of relative growth, industry grows faster (5.6%/y)
- But power generation dominates and reaches over 940 bcm (45% of total demand)
- Residential gas demand has a limited share but increases fast in countries such as China

# Middle East and FSU are set to be the largest contributors to supply

*But other regions are contributing as well*

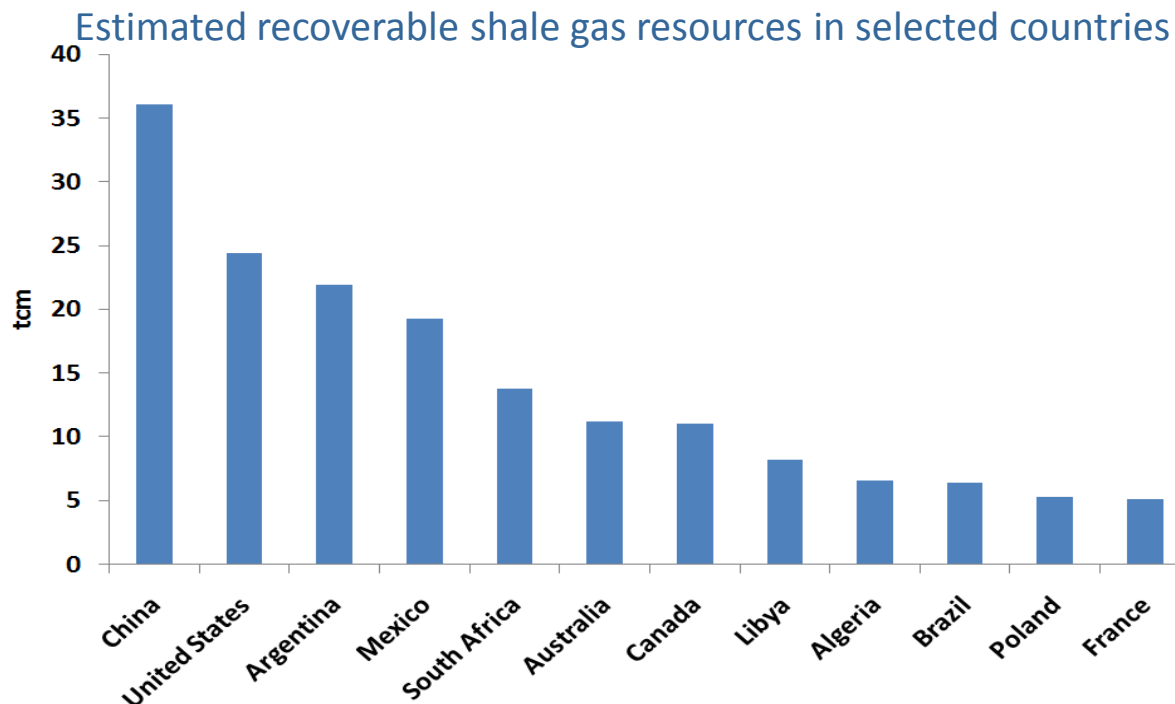


- Middle East production increases more moderately
  - Big increase driven by Qatari LNG is mostly completed
- FSU is growing fast (or recovering, in the case of Russia and Turkmenistan)
- China, Australia emerge as significant producers
- European domestic production continues to decline

# Unconventional gas will continue to affect markets

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Source: EIA.

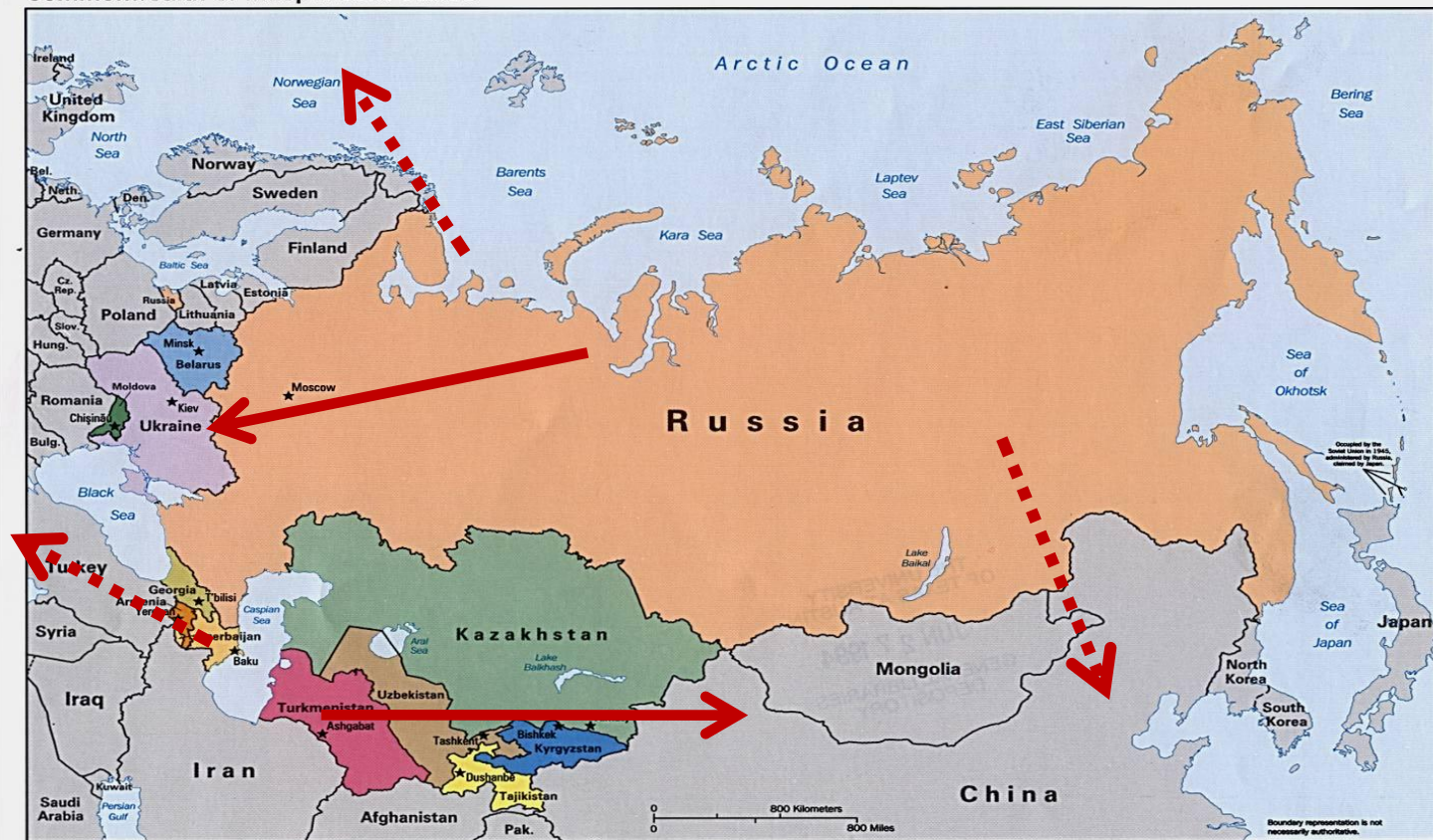
- There are over 400 tcm of estimated recoverable unconventional gas resources, half of them are shale
- North American LNG imports at technical minimum, several LNG export projects under consideration
- Repetition of the US success depends on geology, regulation, infrastructure and service background

# Russia and the Caspian: Yamal dominates

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Commonwealth of Independent States

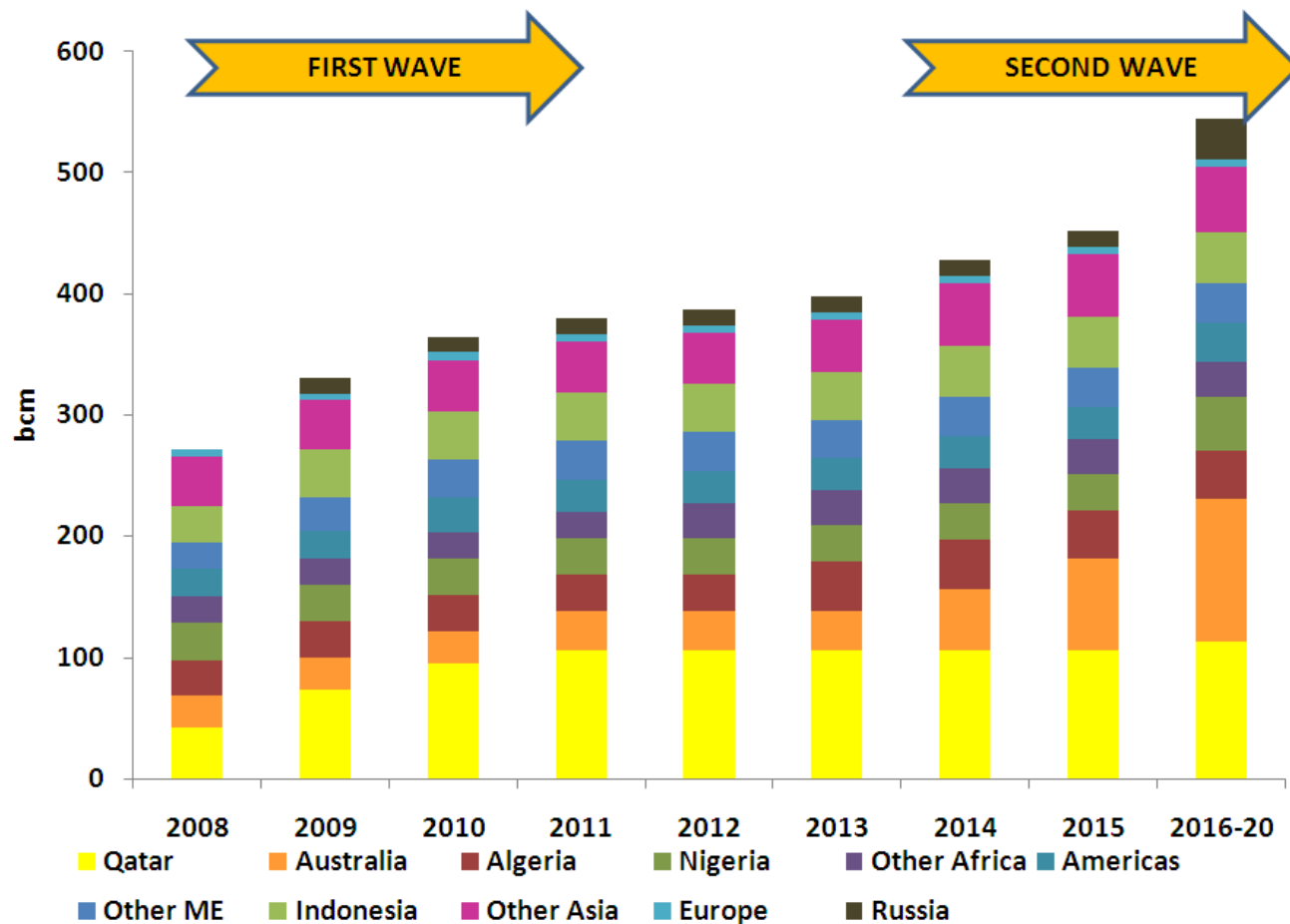


- Yamal: 11.7 tcm reserves with potential to produce 350 bcm/y
- Stockman and Far East/East Siberian projects for Chinese/LNG export await FID
- Turkmenistan is increasing exports to China (40 bcm, possibly 60 bcm)
- FID on Shah Deniz-II can be taken in 2011 if transport and marketing issues are resolved

# Future LNG Production Capacity

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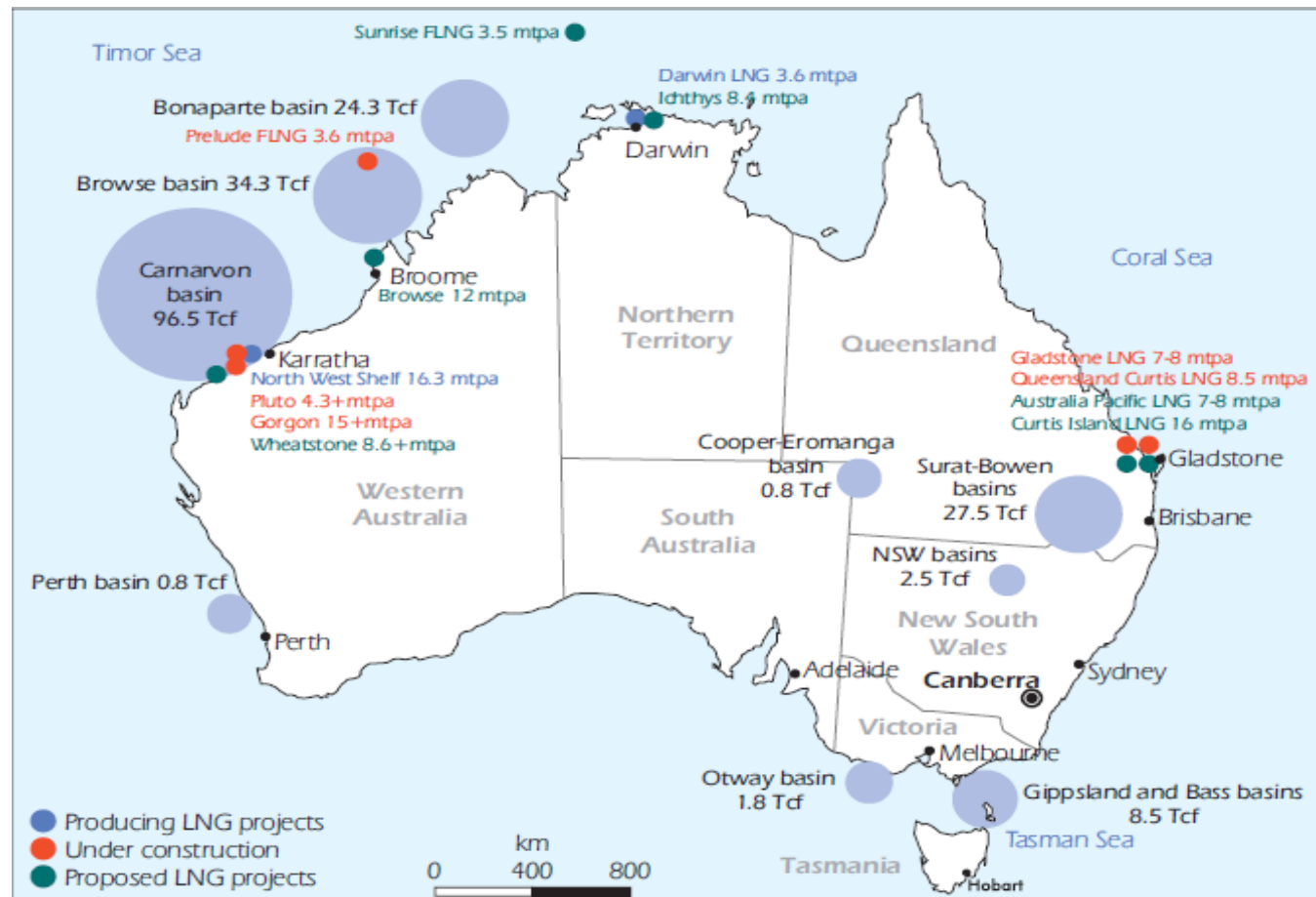


- Four LNG projects FID since 2010 (3 in Australia, 1 in Indonesia)
- Second LNG Wave is coming with capacity increase by 85 bcm after 2H 2011 to 2017, mostly from the Pacific
- Global LNG production capacity reaching 540 bcm by 2020

# Australia: A New Qatar

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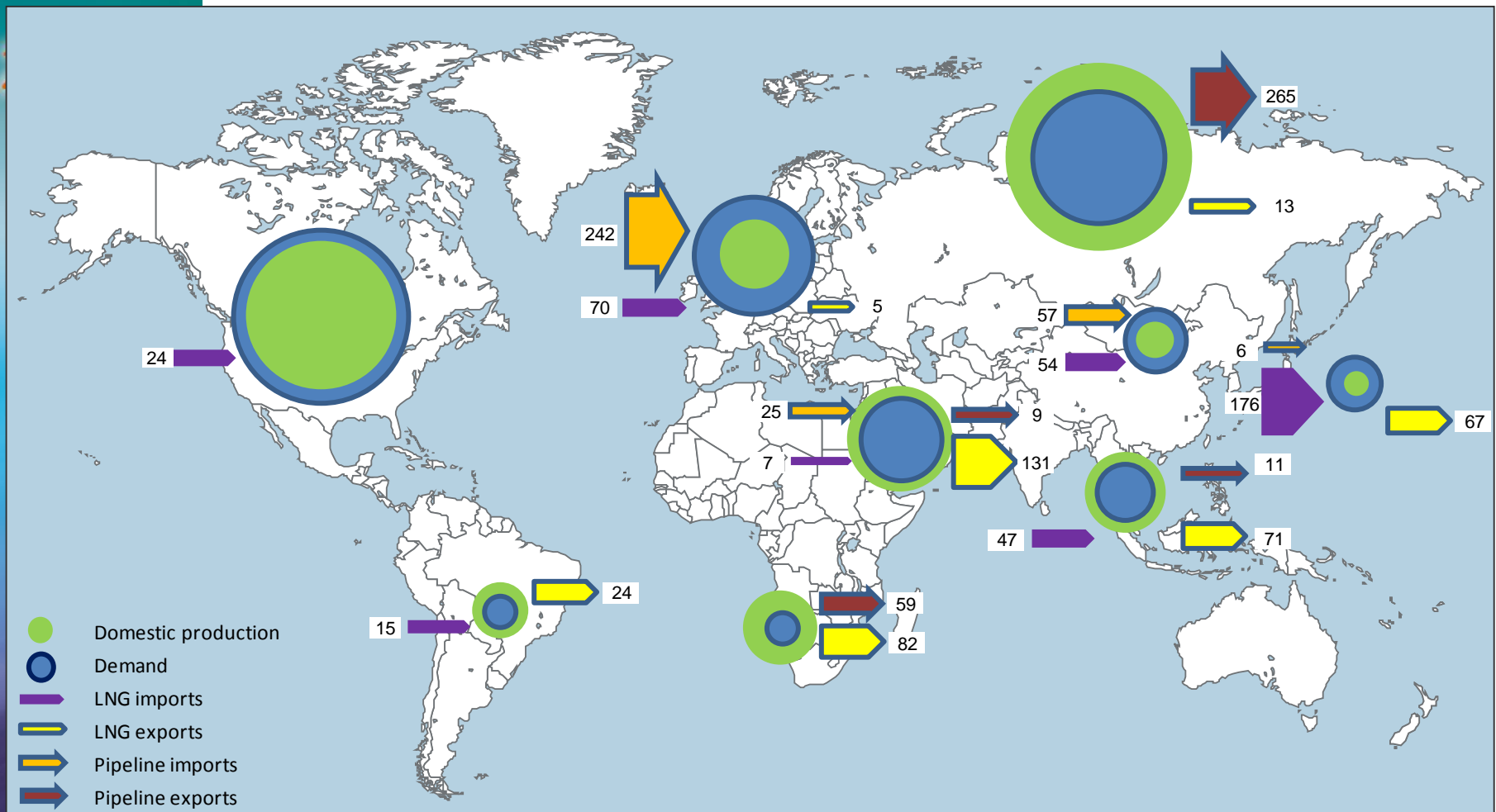
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This map is for illustrative purposes and is without prejudice to the status of or sovereignty over any territory covered by this map.

- By 2016, Australian production capacity reach 76 bcm/y while potential projects contributing to another 72 bcm+ post 2016
- Capital intensive, pioneering technologies including CBM and FLNG

# World Regional Trade in 2016



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**Thank you for your attention**