GAS

Medium-Term Market Report 2012

International Energy Agency

Mid-Term perspectives for the gas markets

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Market Trends and Projections to 2017

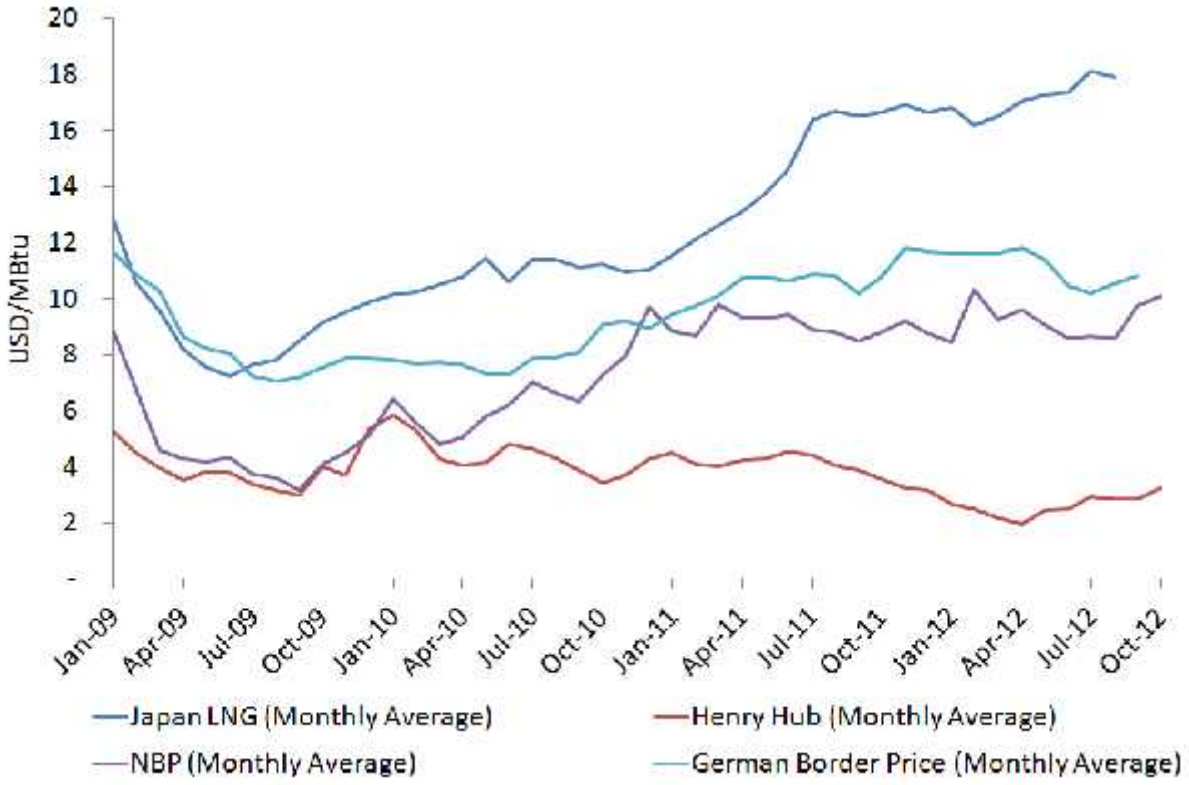
Setting the scene

What happened in 2011

- **World gas demand increased by a modest 2% in 2011**
  - **Lower than the 2.8%/y over the past decade**
  - **Gas demand increased in all regions … but OECD Europe**
  - **China was by far the fastest growing market with 21% in 2011**
- **Supply increased faster than demand**
  - **The increase was supported by the United States, Qatar and Russia**
  - **Production dropped in Europe and Africa**
- **But LNG markets were still tight in 2011**
  - **Notably due to the surge in Japanese LNG imports**

No convergence of global gas prices

Asian prices stand at a record



Source: ICE, EIA, IEA, German Customs, Japanese Customs.

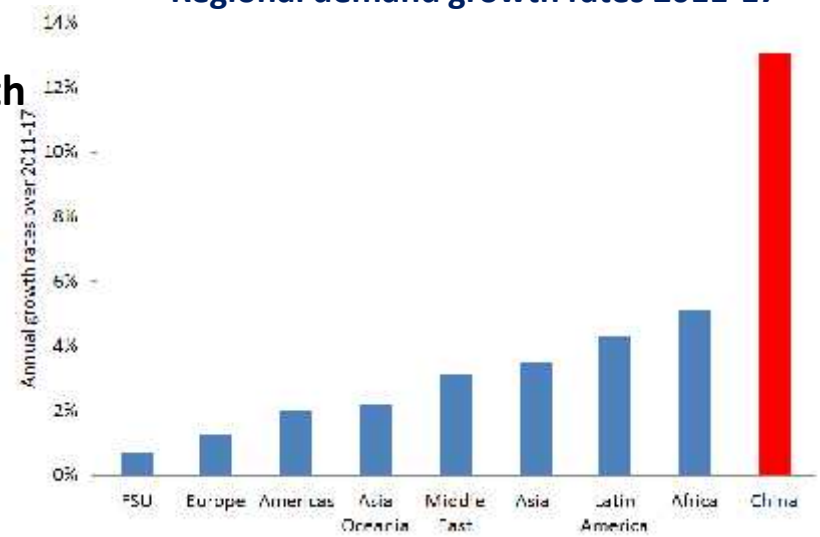
- **Regional gas prices are determined by their respective regional dynamics**
  - Asian prices follow oil prices moves; but Japan and other countries would like to buy at NBP or HH linked gas prices
  - North America is totally disconnected from other regions
  - European gas prices reflect a dual spot and oil indexation

Strong demand growth over 2011-17

But with wide regional disparities

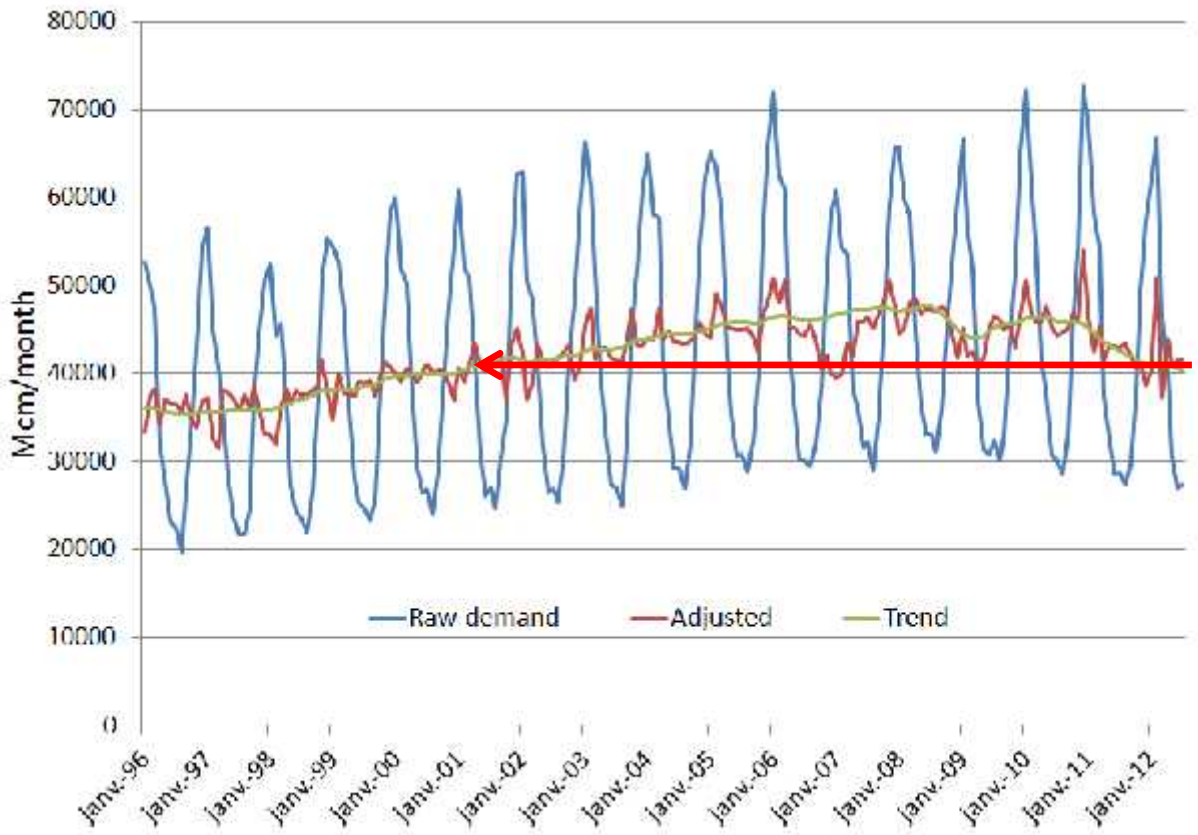
- **World gas demand is to rise to 576 bcm by 2017**
  - **World gas demand increase of 2.7%/y over 2011-17**
  - **It is in line with last decade's growth (2.8%/y)**
  - ***If there is no double-dip recession***

Regional demand growth rates 2011-17



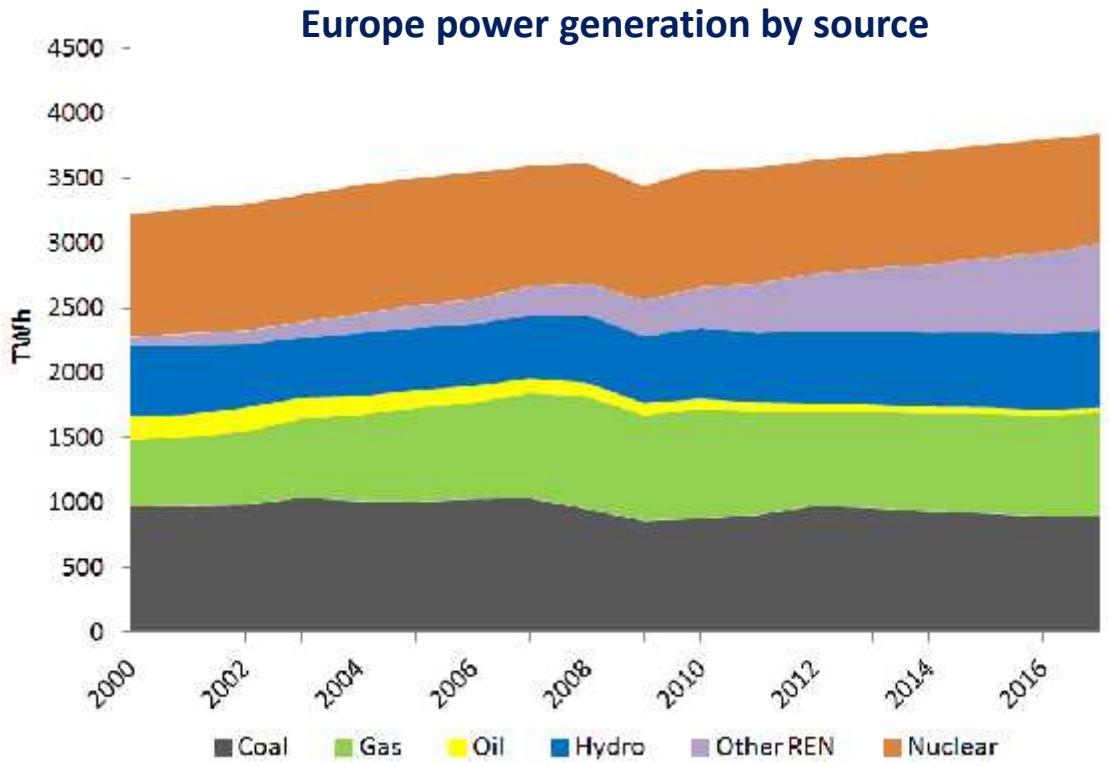
- **The fastest growing region will be by far China (+13%/y)**
- **Africa, the Middle East, Latin America and Asia have annual growth rates ranging from 3% to 5%**
  - **Slow growth in FSU**
- **Americas and Asia Oceania are the fastest growing OECD regions**
  - **Meanwhile, European gas demand growth is limited**

European gas demand lost … 10 years



- Although European gas demand recovered from the economic crisis starting end-2009 (mostly due to lower gas prices), this did not last
- Seasonally-adjusted gas demand has been declining since mid-2010, in response to increasing gas prices and weak economy

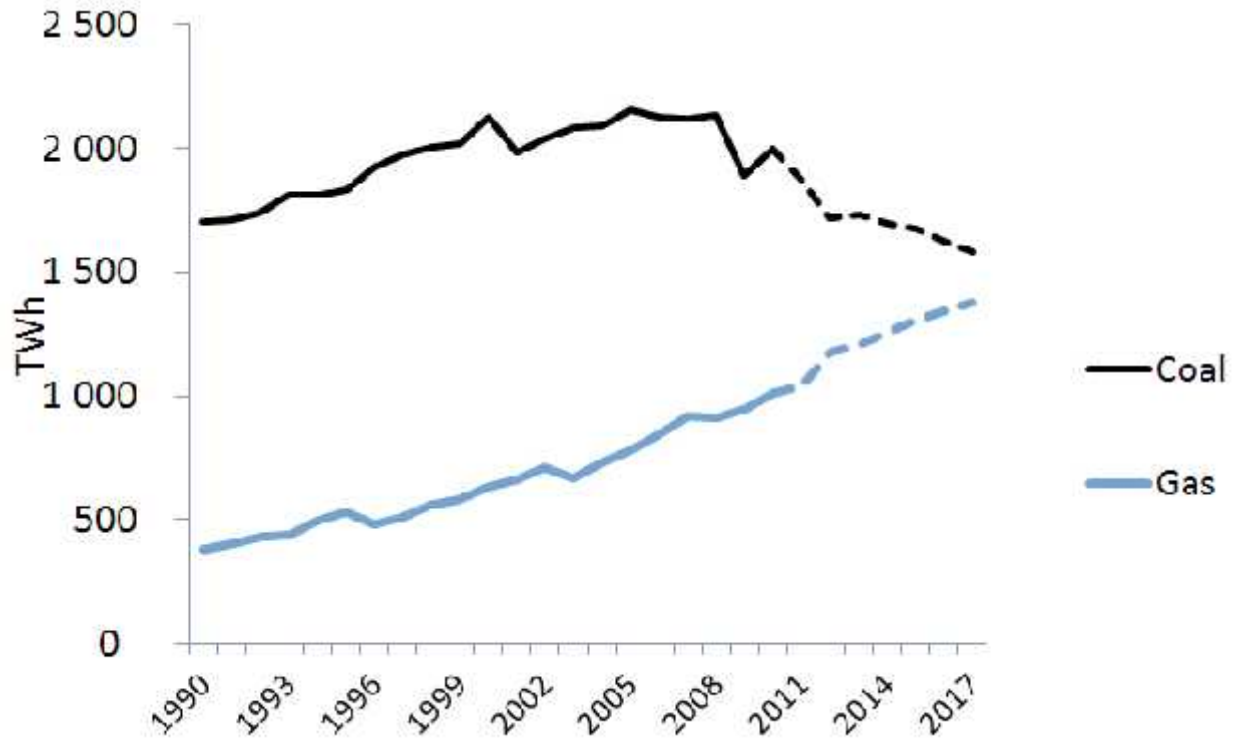
Any hope for gas-fired plants over the medium term?



- Power demand increases slowly due to low GDP growth
- Renewables generation (excl. hydro) more than doubles from 2010
- There is less room for combustible fuels
  - Gas has to compete against coal-fired plants
  - But is disadvantaged due to high gas prices (and no meaningful CO_2 price)
- Towards a Golden Age of Coal and a Dark Age of Gas?

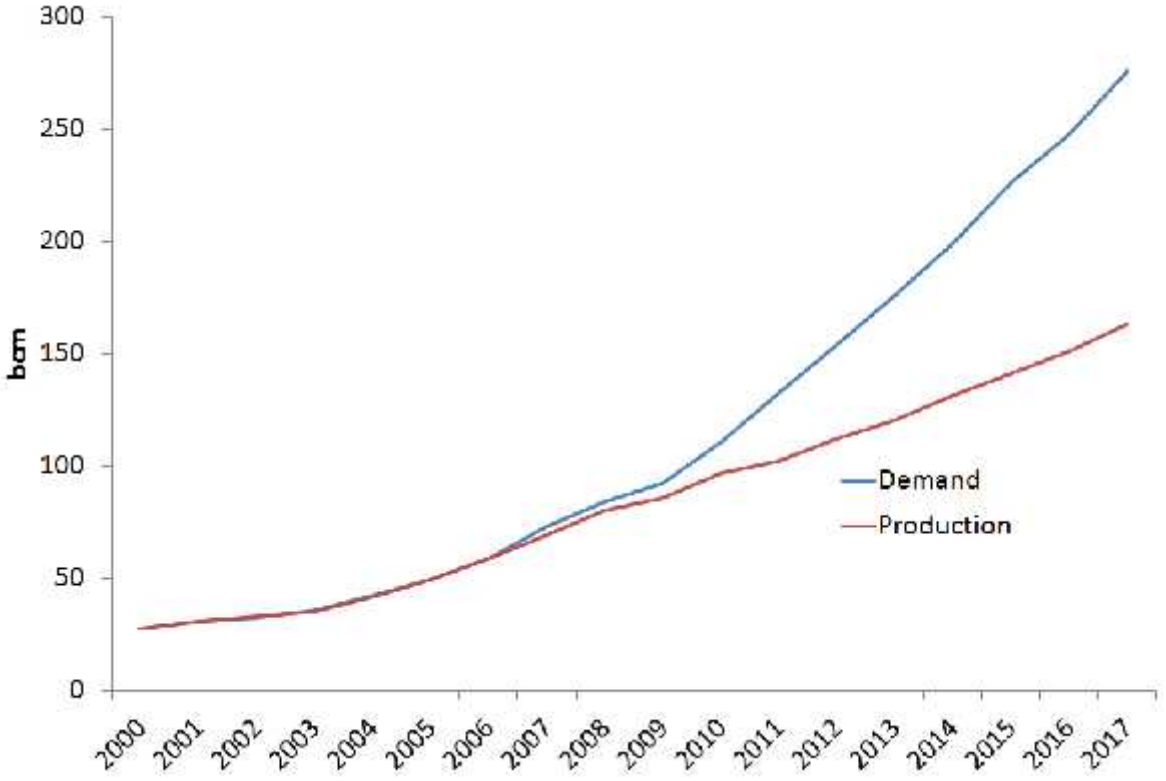
By contrast, we have coal to gas switching in the US power sector

Along with a significant reduction of CO_2 emissions



- Low gas prices are accelerating the penetration of gas in the power sector
- The increase has been even higher in early 2012
  - In 2011, coal generation was 70% higher than gas; over Jan-Aug 2012, it was only 16% higher
- Thanks for sending cheap coal to Europe!

China - A growing need for imports



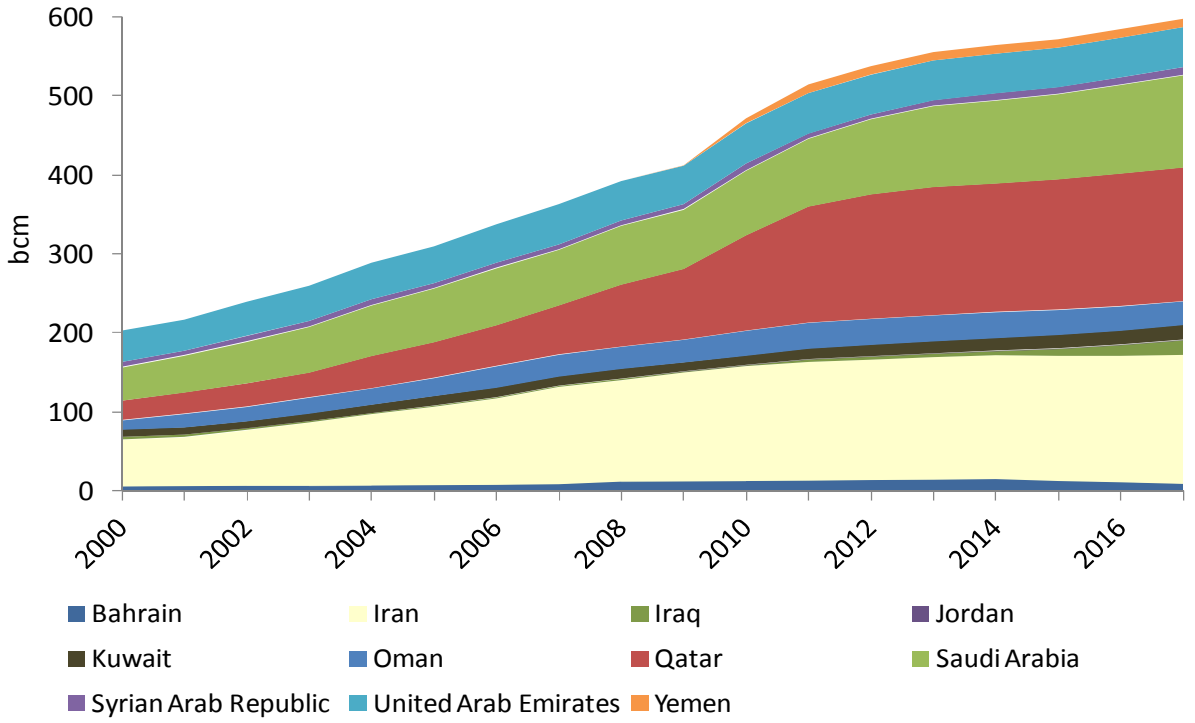
- Gas demand grows in all sectors, except fertiliser producers
  - New sectors emerge such as transport
- Imports to increase from ~30 bcm in 2011 to 113 bcm by 2017
- But there remains supply constraints limiting demand
- China needs to solve issues such as pricing and regulation

Russia and the Caspian

The interest is shifting to Asia

- Yamal started producing late 2012, could produce up to 115 bcm/y by 2017
- Turkmenistan is increasing exports to China
- Shah Deniz-II (hopefully) on track to produce in 2017-18
- Question marks on other Russian projects: Far East/East Siberian projects, LNG (Chayanda -> LNG)

Middle East production growth is slowing down

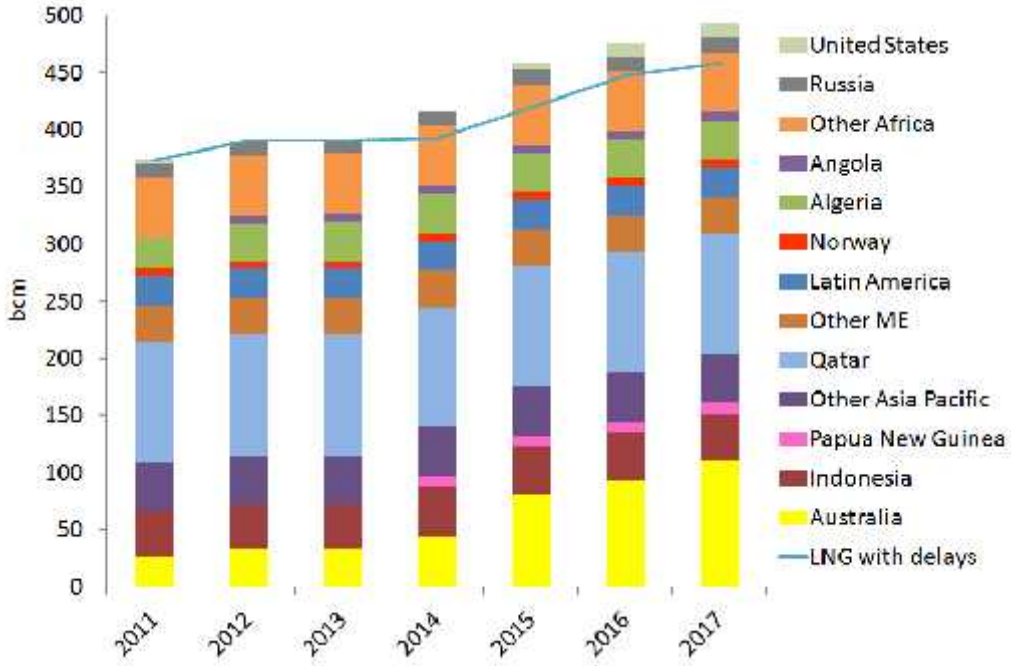


- Most countries are struggling to develop their gas fields due to difficult fields combined with low domestic gas prices
- Qatar is the exception
- Iraq is the wild card, but holds huge undeveloped resources and could easily use flared gas

LNG to put pressure on the prices?

Actually little new supply in sight up to 2015

LNG liquefaction capacity – committed projects (as of September 2012)



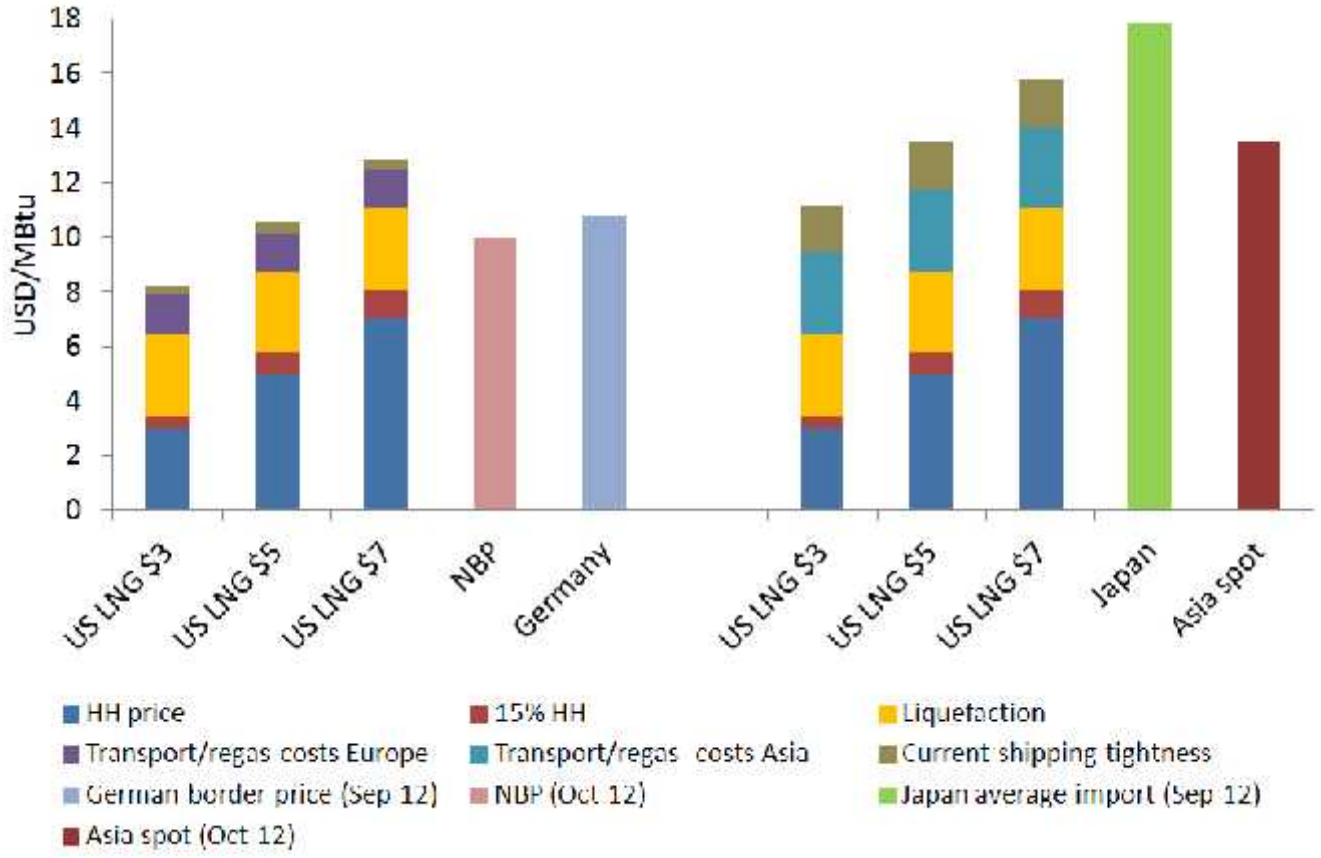
- **13 LNG projects amounting 121 bcm/y are currently under construction and expected to start by 2017**
- **By 2017, global LNG capacity is planned to reach around 490 bcm/y**
- **But there is much uncertainty on the impact of delays**
- **LNG capacity additions from 2012 until mid-2014 will be limited to 25 bcm/y**

To export or not to export?

Who wants to be in the US government's shoes?

- 19 applications to the Department of Energy for export approvals to FTA and non-FTA countries (285 bcm/y)
- LNG projects also need FERC's and other authorities' approval
- Only Sabine Pass got all the authorisations
- The US government dilemma
  - The shale gas revolution means there is plenty of gas available … at which cost?
  - Significant political debate on the effects for the US market
    - Domestic price increase versus…
    - New revenues from exports, job creations…
  - While the chemical industry, fertiliser producers is currently enjoying a "Renaissance"

Can the US change the pricing system?



- **Even based on spot indexation, US LNG (based on Cheniere's formulae) is not always competitive**
- **It is not only a question of HH price level, if indeed other North American LNG exporters opt for that formula**
- **But also in the case of HH+ indexation, a question of transport costs – currently quite high**

Want to know more?

- The Medium-Term Gas Market Report 2012 can be purchased online at:

  www.iea.org

- Thank you for your attention!
- Questions and comments:

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