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# Prospect and Challenges in the World and Asian LNG Market

LNG Producer–Consumer Conference

September 10, 2013

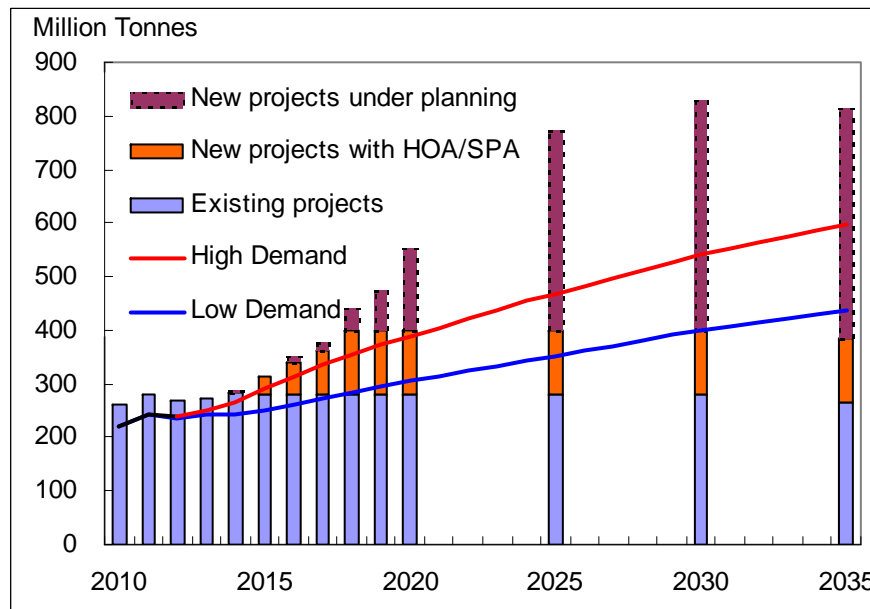
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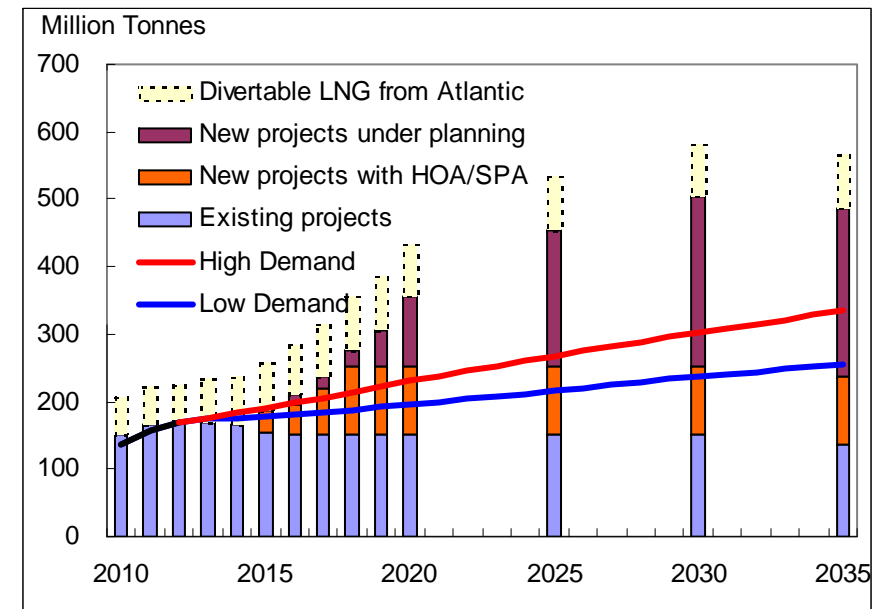
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# LNG Outlook

## World



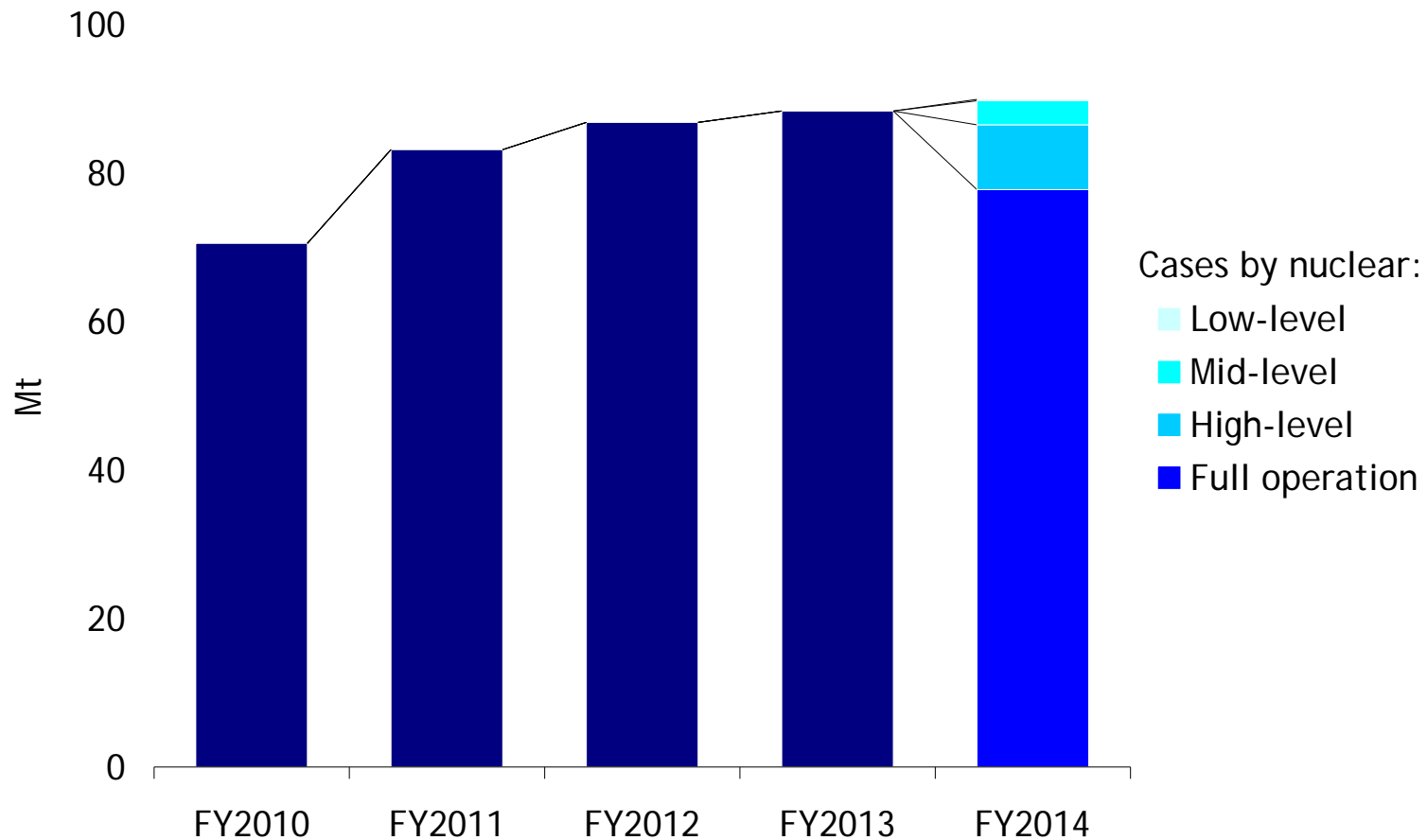
## Asia and Middle East



Source: IEEJ

- While world LNG demand will expand from 236 million tonnes in 2012 to 305-390 million tonnes in 2020, Asia's LNG demand will increase by 85-165 million tonnes to reach 195-230 million tonnes in 2020.
- Supply capacity will expand rapidly after 2015.
- Supply capacity will increase significantly by 2020, leading to fierce competition among LNG suppliers.

# Japan's LNG imports

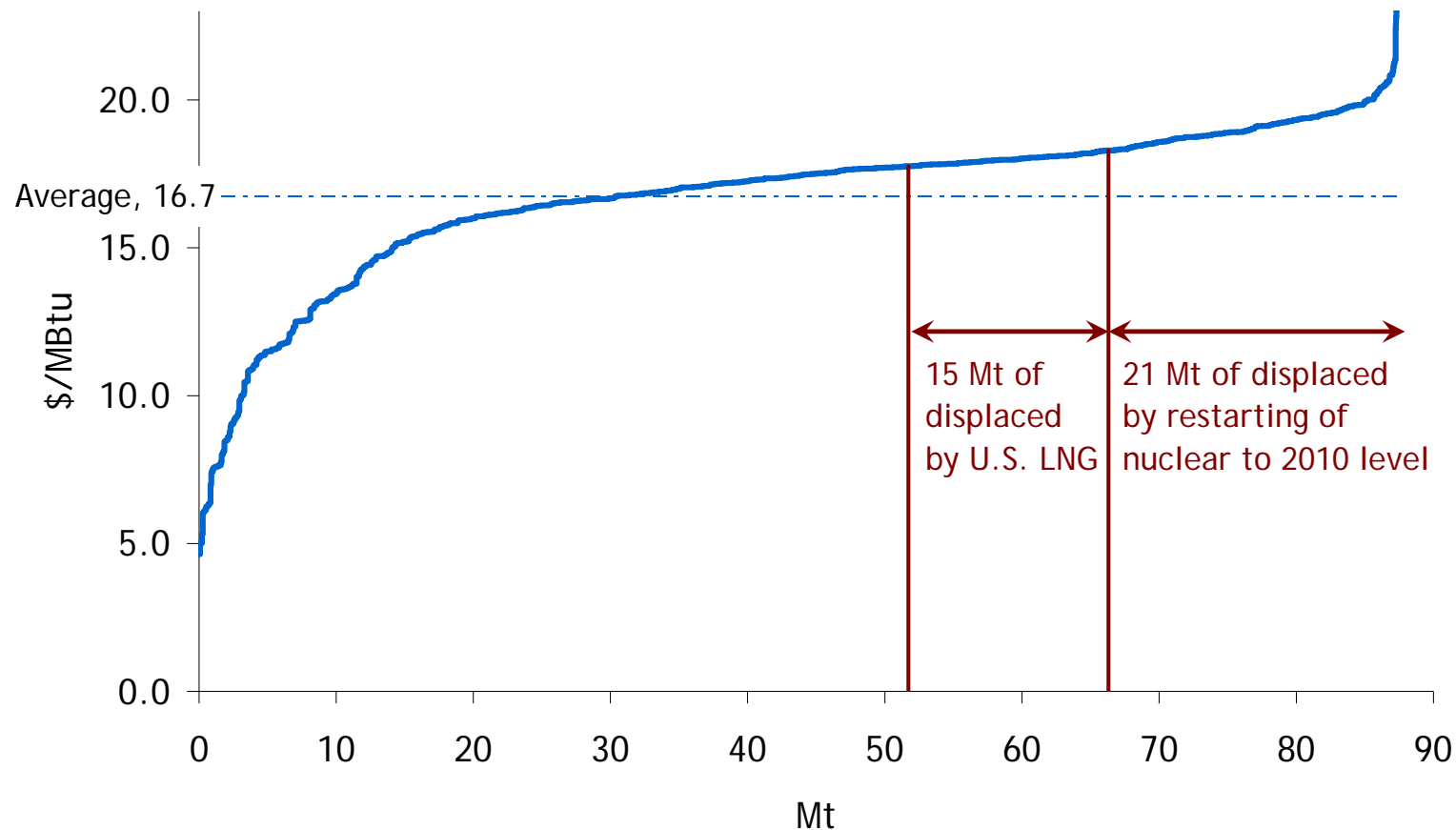


Source: Trade Statistics and IEEJ

- Japan's LNG imports increased by 25% between FY2010 and FY2012
- Nuclear restart could push down the imports by 10% in FY2014

Nuclear Low-, Mid- and High-level cases assume six at most, 16 and 28 reactors restart by the end of FY2014, respectively. Full operation case assumes full operation of the 28 reactors throughout FY2014.

# Japan's LNG import price curve in 2012



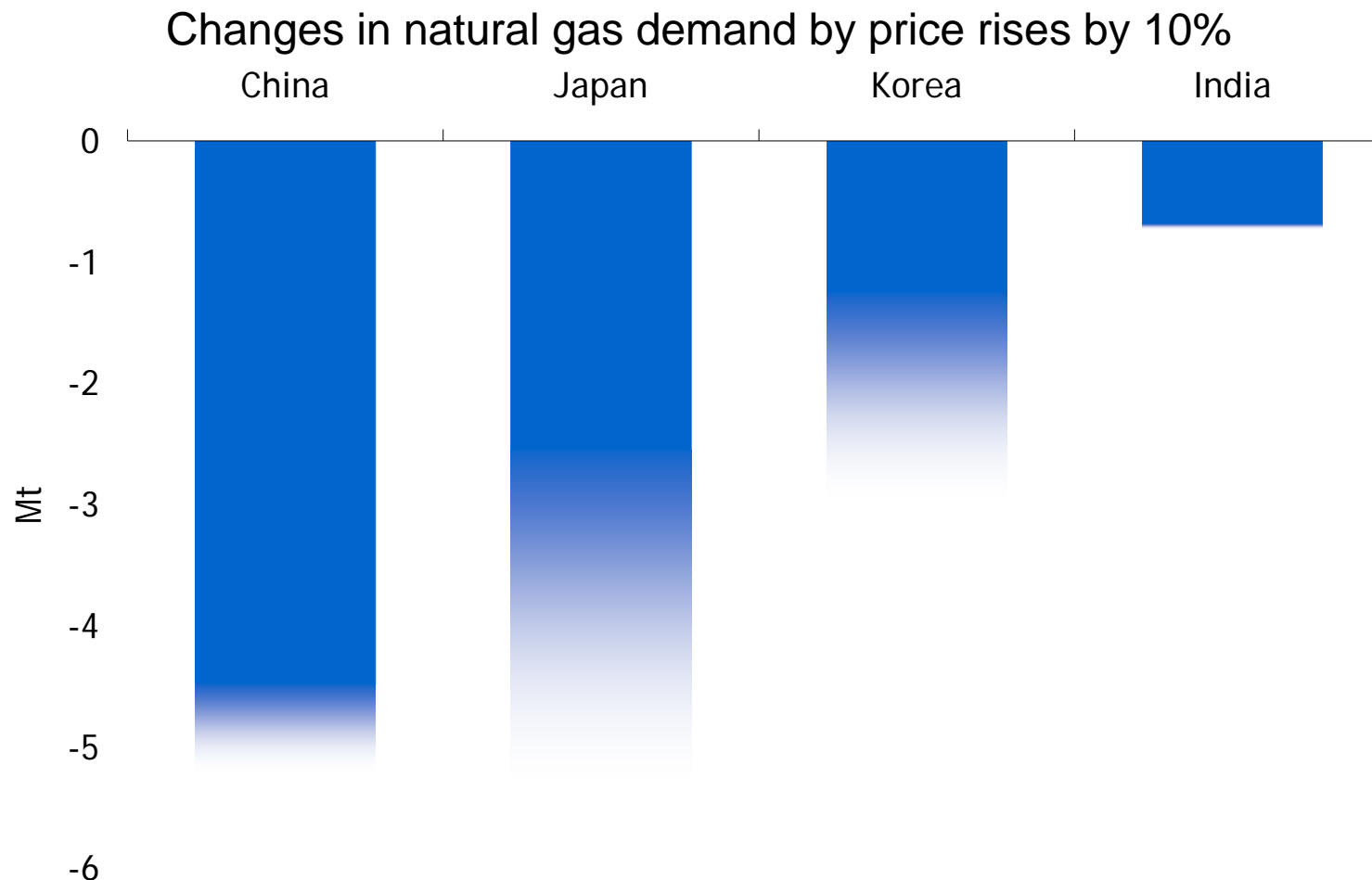
- LNG import prices vary from less than \$5/MBtu to around \$23/MBtu, quintuple.

Expensive LNG can be displaced by restarting nuclear power generation and U.S. LNG, which will be produced with Japanese companies' participation.

# Competition with other energy sources

- Rises in natural gas price result in decline of its demand.

The major four natural gas importers in Asia combined will reduce ultimately the demand by 9 Mt to 14 Mt if the price rises by 10%.



# Measures for Gas/LNG supply security

- Diversification of fuels for power generation
  - ✓ Restarting nuclear
  - ✓ Renewables
  - ✓ Coal
- Diversification of supply
  - ✓ North America
  - ✓ Russia
  - ✓ Africa
- Diversification of gas transportation mode
  - ✓ Introducing pipeline gas
- Efficient use of gas for power generation
  - ✓ MACC
  - ✓ Co-generation
- Joint efforts
  - ✓ Joint development
  - ✓ Joint procurement

# LNG Pricing Options for Asia

	Hub pricing		Spot LNG pricing	Adjustment within oil-linked pricing	Link with other fuels (Electricity, Coal)
	Henry Hub, NBP	Hubs in Asia			
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• Already available</li> <li>• Lower prices (for now)</li> </ul>	<ul style="list-style-type: none"> <li>• Possible to reflect regional market balance</li> </ul>	<ul style="list-style-type: none"> <li>• Already available</li> </ul>	<ul style="list-style-type: none"> <li>• Possibly the quickest solution</li> </ul>	<ul style="list-style-type: none"> <li>• Rational for power utilities</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>• Higher volatility</li> <li>• Asia market balance not reflected</li> </ul>	<ul style="list-style-type: none"> <li>• Not yet available</li> <li>• Higher volatility</li> </ul>	<ul style="list-style-type: none"> <li>• Higher volatility</li> <li>• Limited liquidity (so far)</li> </ul>	<ul style="list-style-type: none"> <li>• Gas market balance not reflected</li> </ul>	<ul style="list-style-type: none"> <li>• Irrational for gas utilities</li> <li>• Lack of power market liquidity</li> </ul>

- Rationality of oil-linked pricing being questioned
- Sustainable and rational pricing needs to emerge for mutual benefit between sellers and buyers

# Multilateral Joint Study Group on LNG

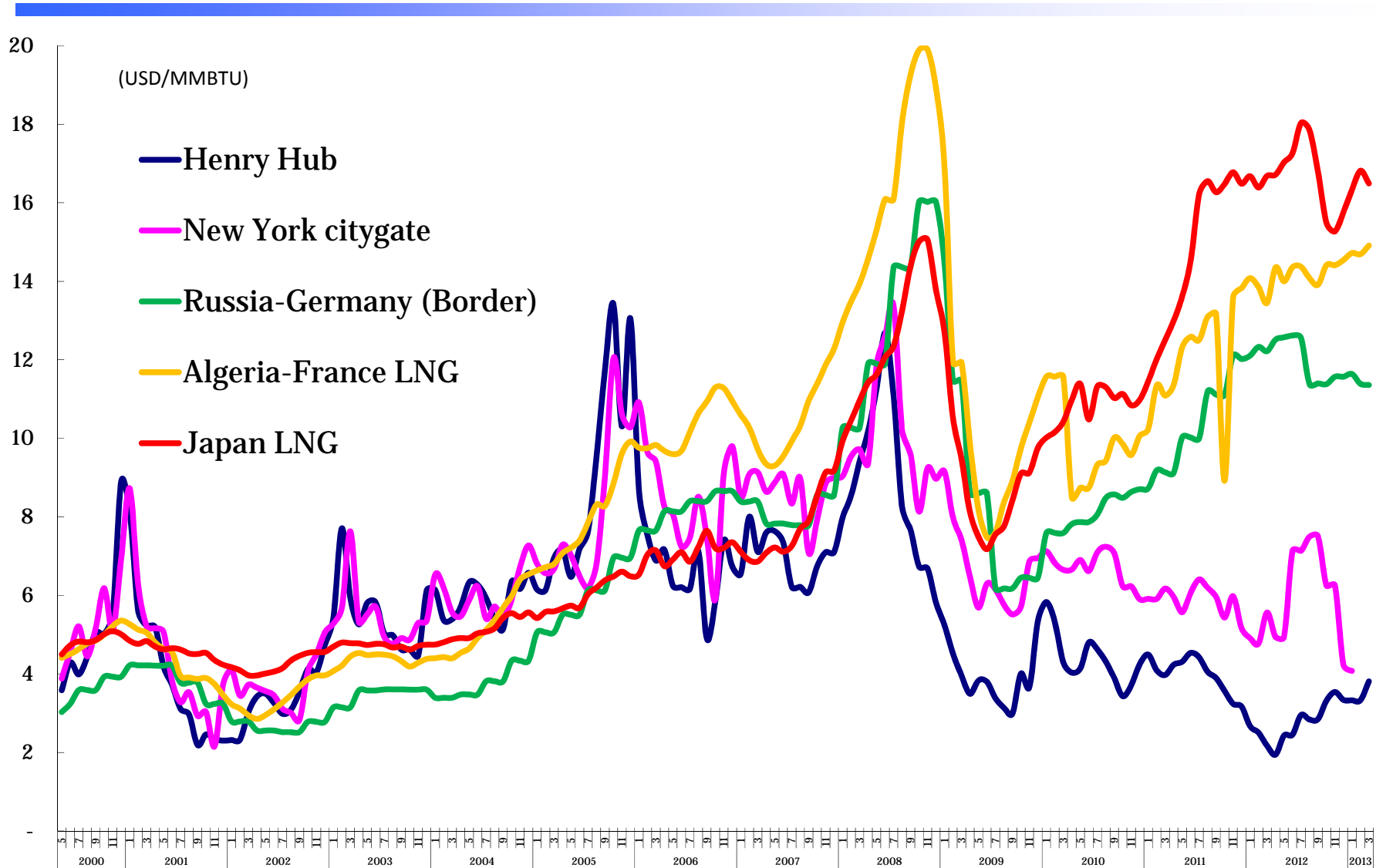
- For the sound development of LNG market, IEEJ proposes a Multilateral Joint Study Group on LNG that involves multiple research institutes.
- The outcome of the joint study group is expected to be reported at the 3rd LNG producer Consumer Conference.

## Outline of the Group

- Host: The Institute of Energy Economics, Japan (IEEJ)
- Members: Research institutes in Asia and Europe
- Observers: LNG related governments and international organizations
- Meetings:
  - ✓ 1st meeting: December 2013 in Tokyo
  - ✓ 2nd meeting: 2014 (before the 3rd LNG Producer–Consumer Conference)
- Issues to be addressed:
  - ✓ Natural gas and LNG supply–demand outlook
  - ✓ Pricing mechanism
  - ✓ LNG market transparency
  - ✓ Other measures



# World gas prices by region



Source: US EIA and IEA