



25th world gas conference
"Gas: Sustaining Future Global Growth"

East of Suez Premium Markets: Laying a Vision for the Future

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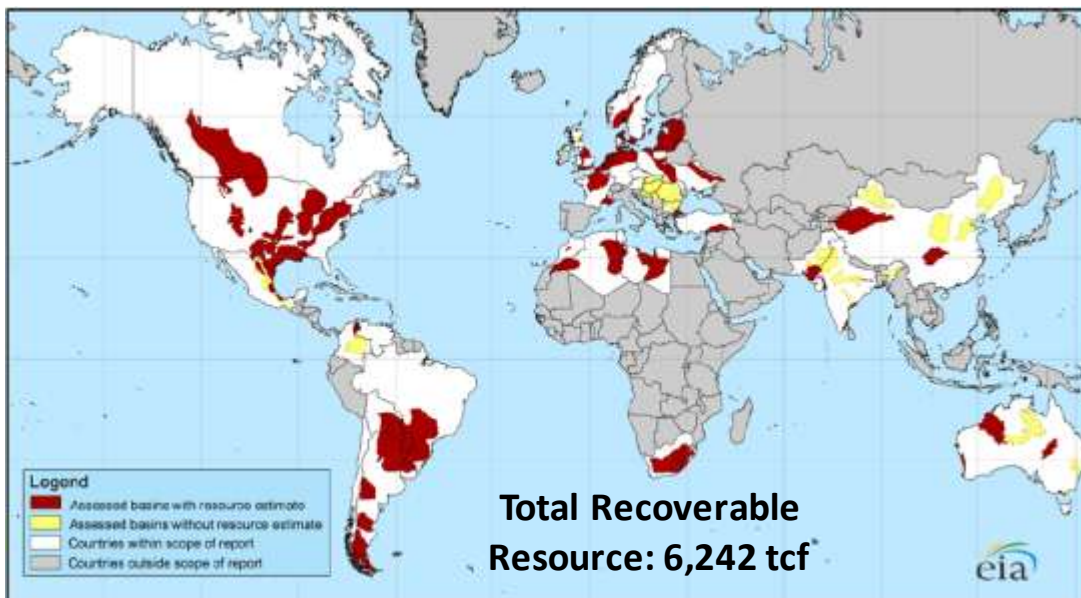


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UNCONVENTIONAL GAS BEYOND THE US

Non-Conventional Supply: Shale Gas Revolution Continues



Europe	Proven Natural Gas Reserves (tcf)	Technically Recoverable Shale Gas Resources (tcf)	
France	0.2	180	12
Germany	6.2	8	Already banned!
Netherlands	49	17	
Norway	72	83	
UK	9	20	
Denmark	2.1	23	
Sweden		41	
Poland	5.8	187	11
Turkey	0.2	15	
Ukraine	39	42	
Lithuania		4	
Others*	2.71	19	
Total		639	

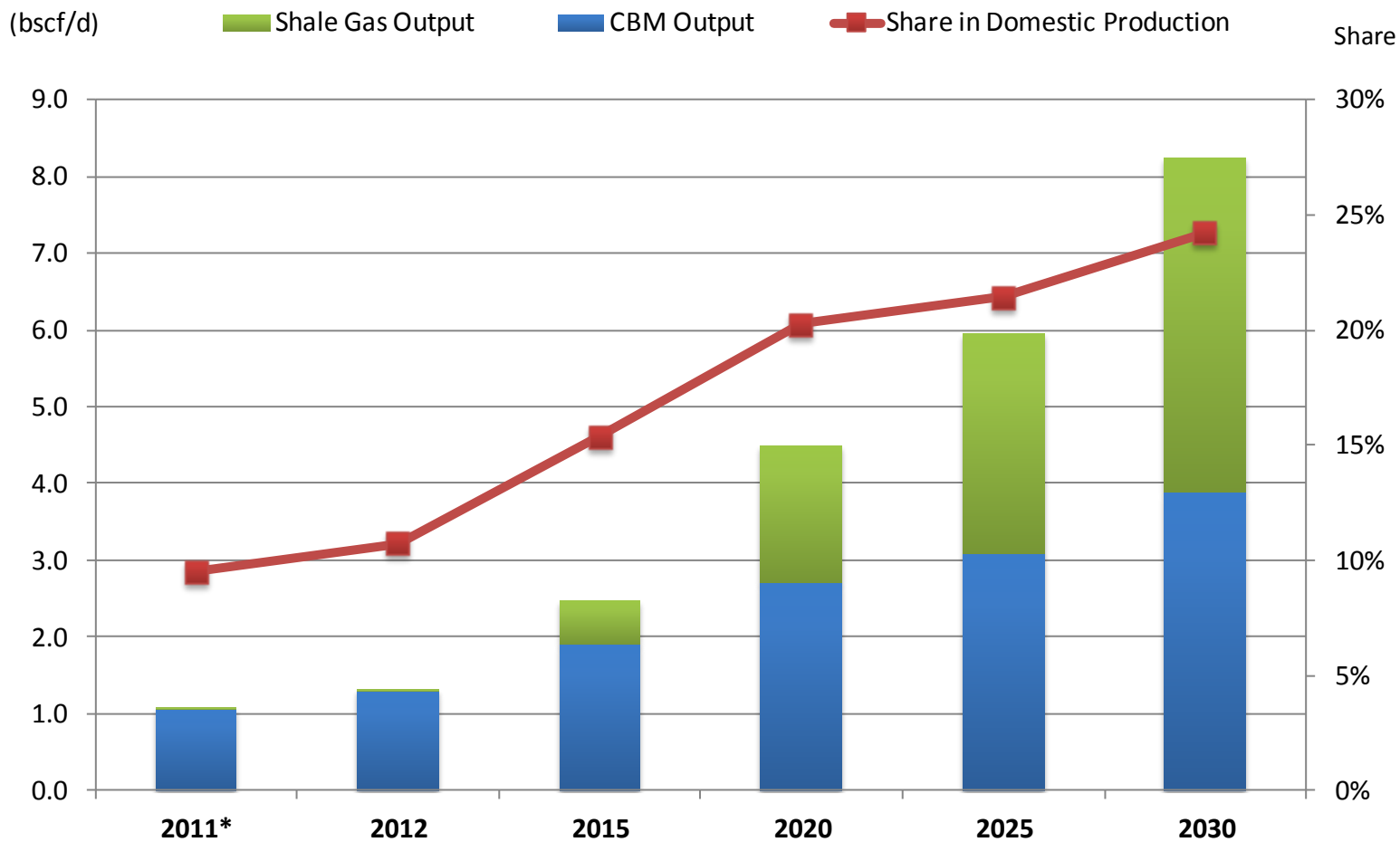
* Bulgaria, Hungary and Romania.

South America	Proven Natural Gas Reserves (tcf)	Technically Recoverable Shale Gas Resources (tcf)	
Venezuela	178.9	11	
Colombia	4	19	2
Argentina	13.4	774	
Brazil	12.9	226	10
Chile	3.5	64	
Uruguay		21	
Paraguay		62	
Bolivia	26.5	48	
Total		1,225	

Africa	Proven Natural Gas Reserves (tcf)	Technically Recoverable Shale Gas Resources (tcf)	
South Africa		485	4
Libya	54.7	290	8
Tunisia	2.3	18	9
Algeria	159	231	
Morocco	0.1	11	
Western Sahara		7	
Mauritania	1	0	
Total		1,042	

Asia (incl. AU)	Proven Natural Gas Reserves (tcf)	Technically Recoverable Shale Gas Resources (tcf)	
China	107	1,275	1
India	37.9	63	
Pakistan	29.7	51	
Australia	110	396	6
Total		1,785	
North America			5
USA	272.5	482	7
Canada	62	388	
Mexico	12	681	3
Total		1,551	

Outlook for China's Unconventional Gas Products

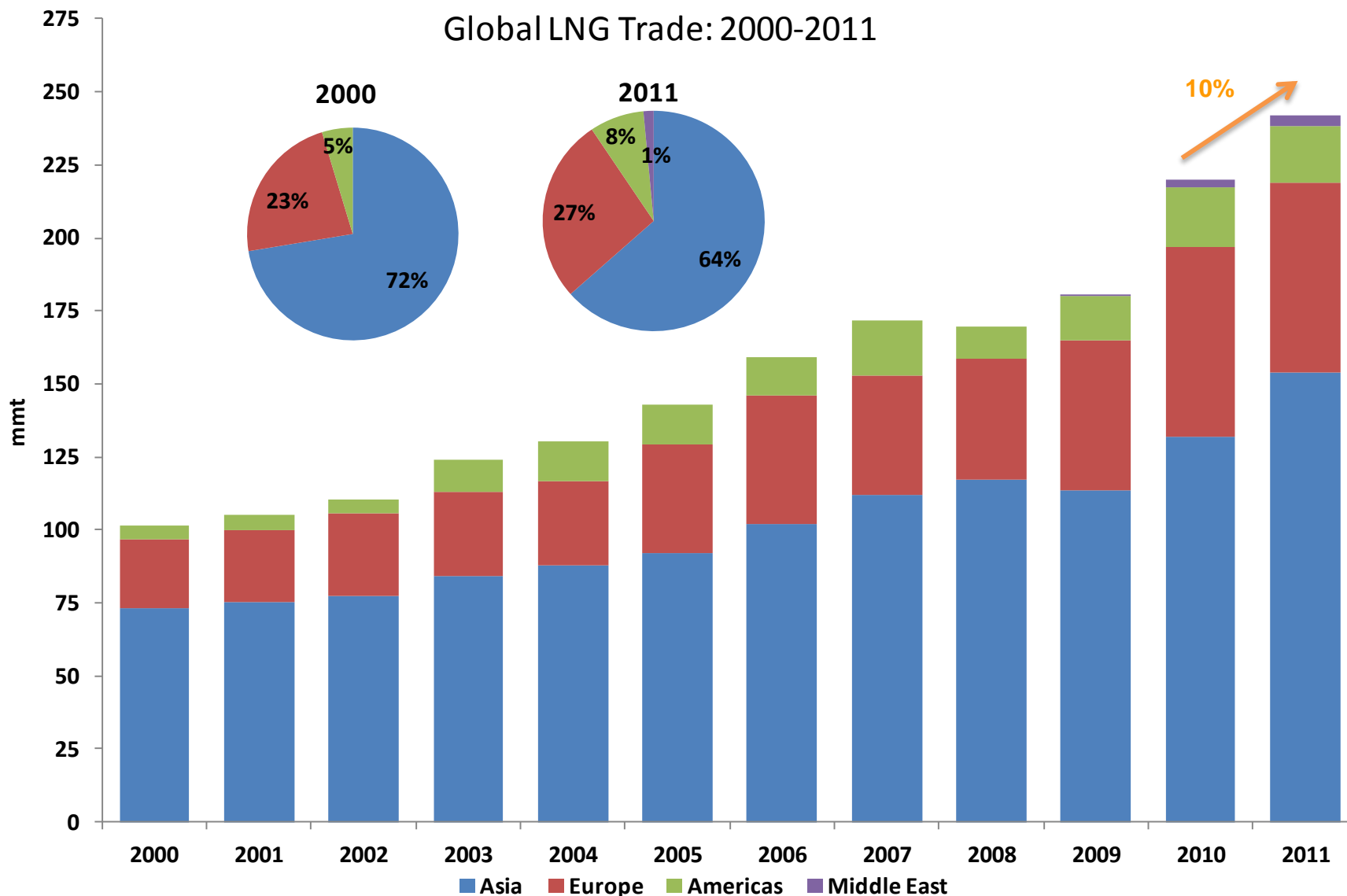


*2011 data are preliminary.

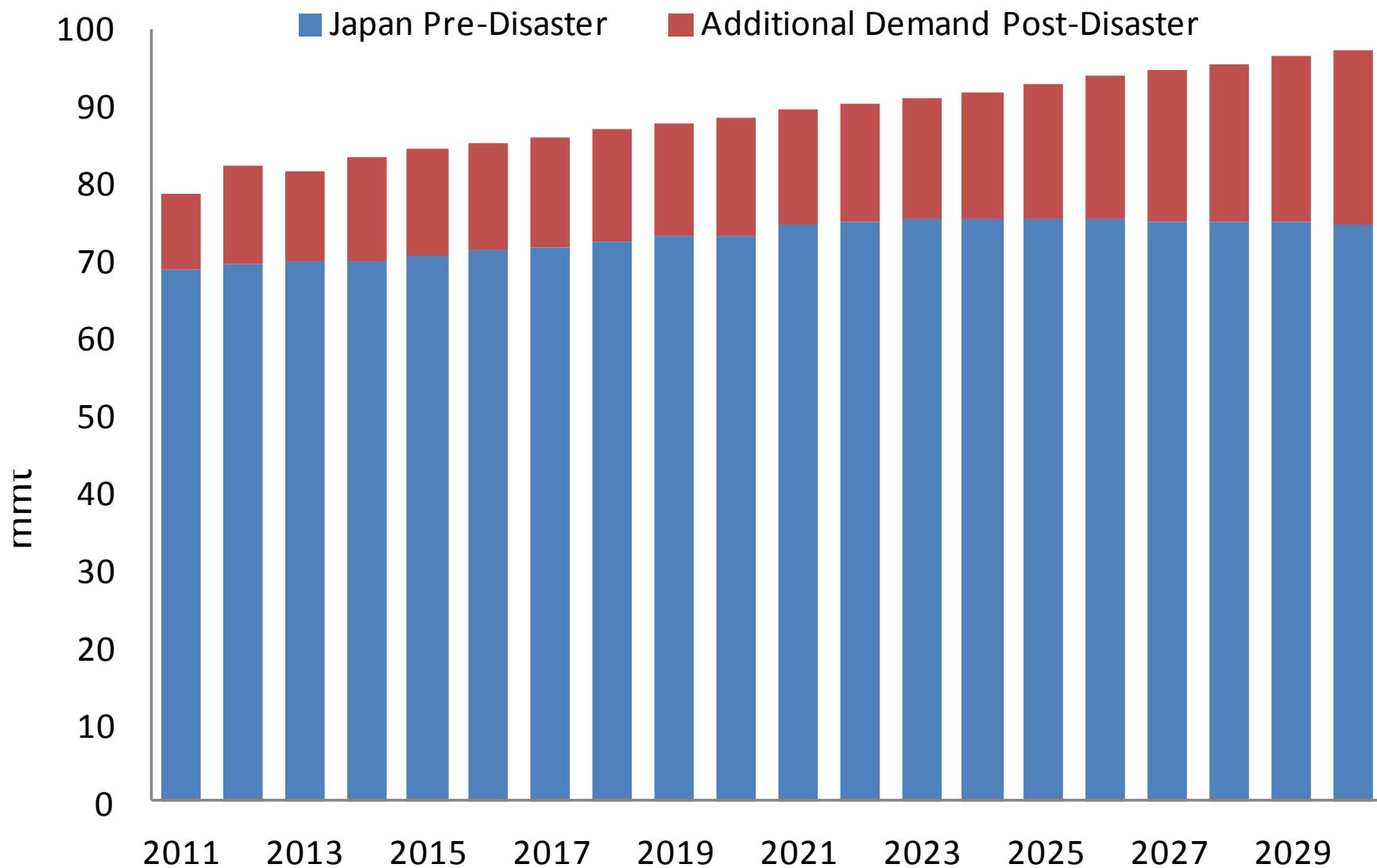
ASIAN LNG IMPORTS: FOCUS ON POST-JAPAN DISASTER

Global LNG Trade: Asia is Still King

Global LNG Trade: 2000-2011

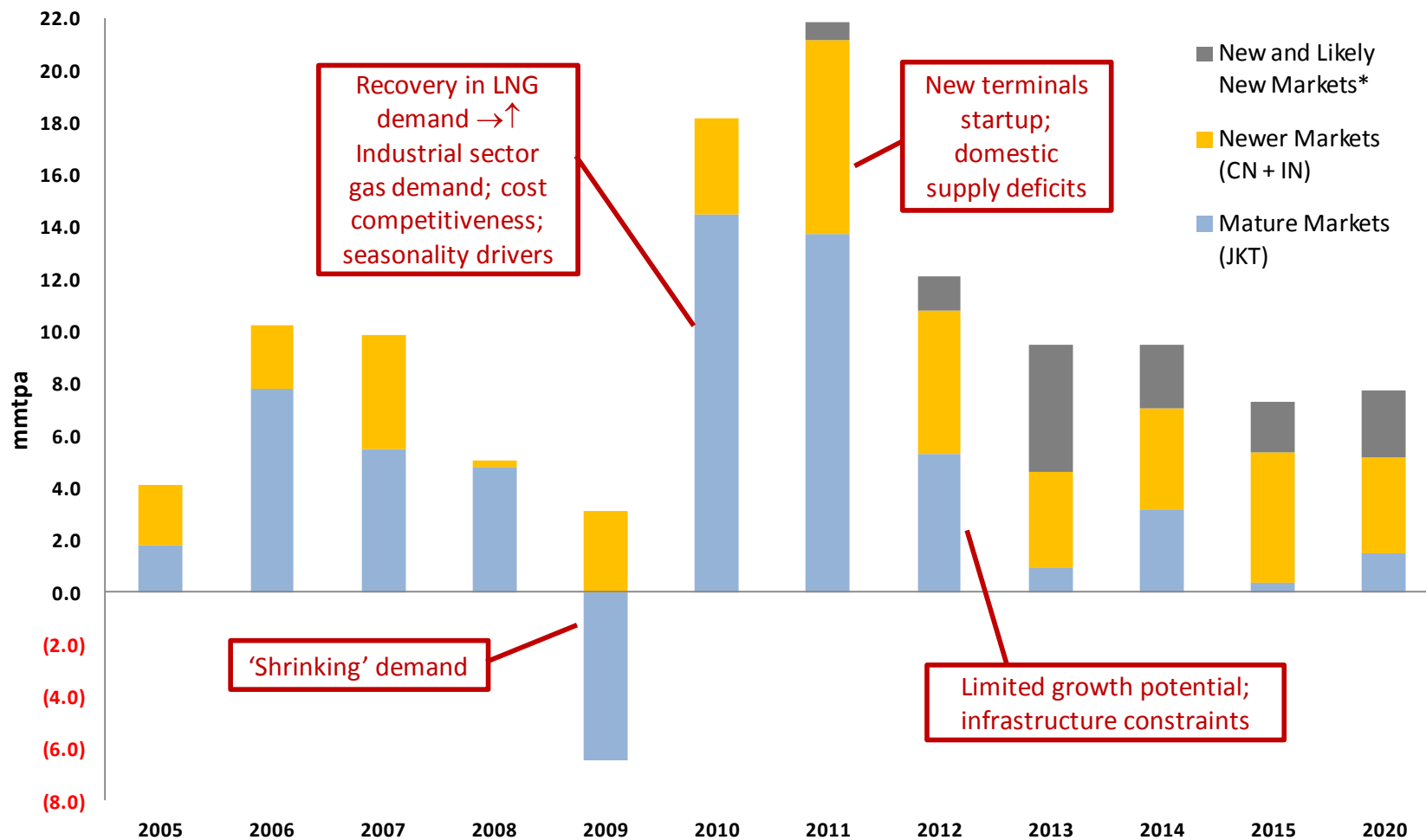


Post Japan Disaster Additional LNG Requirements (mmtpa)



Longer-Term Outlook: Who Leads the Growth

Asia Pacific LNG Imports by Country (Year-on-Year Change)



* Includes Indonesia, Malaysia, Singapore, and Thailand.

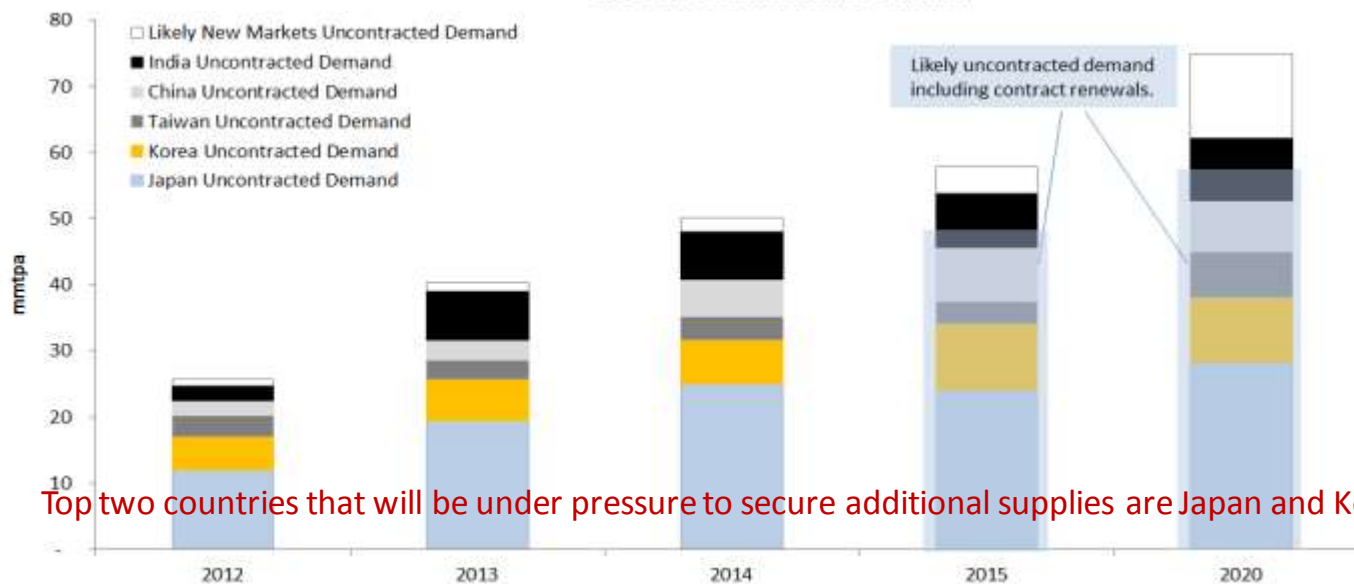
Asia Overview: Imports and Uncontracted Demand

Asia Pacific LNG Base Case Import Forecasts Scenarios (mmtpa)										
Year	Japan	South Korea	Taiwan	India	China	Likely New Markets*	Total Asia			
							Mature Markets	Emerging Markets	Other Potential Markets**	Total Asia Pacific Potential
2009	64.6	25.8	8.6	9.1	5.5	0.0	99.0	14.6	0.0	113.6
2010	70.1	32.6	10.8	8.9	9.4	0.0	113.5	18.3	0.0	131.8
2011	78.5	36.7	12.0	13.5	12.2	0.7	127.2	26.4	0.0	153.6
2012	82.2	38.0	12.3	14.8	16.4	2.0	132.5	33.2	0.0	165.7
2015	84.3	39.5	13.1	18.3	25.5	11.3	136.9	55.1	0.0	192.0
2020	88.5	43.5	14.6	24.5	40.5	22.6	146.6	87.6	7.7	241.9

*Includes Indonesia, Malaysia, Singapore, and Thailand (started importing LNG in 2011).

** Other Potential Markets include New Zealand, Pakistan, Vietnam, Bangladesh, and Philippines.

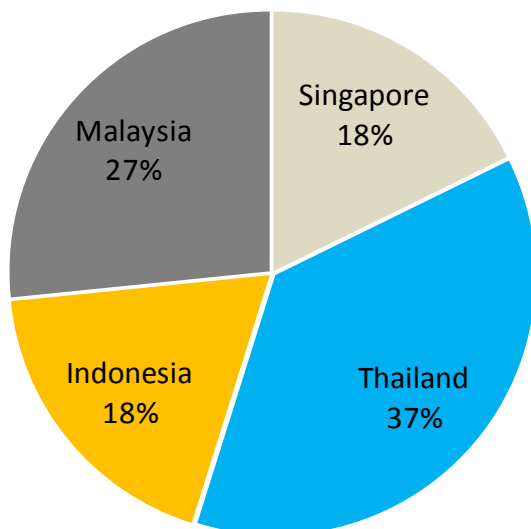
LNG Uncontracted Demand



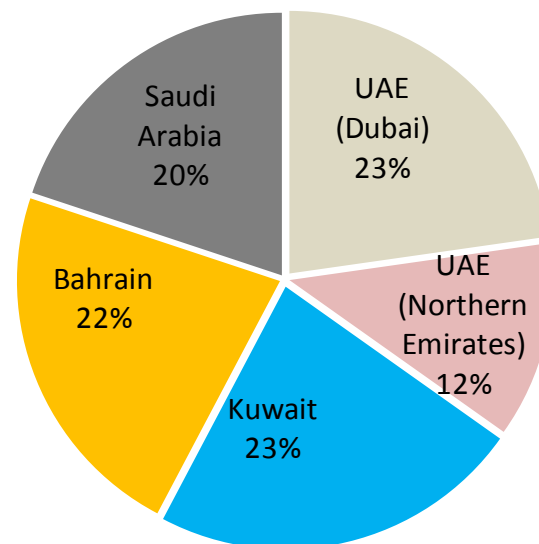
Top two countries that will be under pressure to secure additional supplies are Japan and Korea.

Other Markets to Keep an Eye on...

Southeast Asia LNG Import Forecast (2020)
23 mmtpa



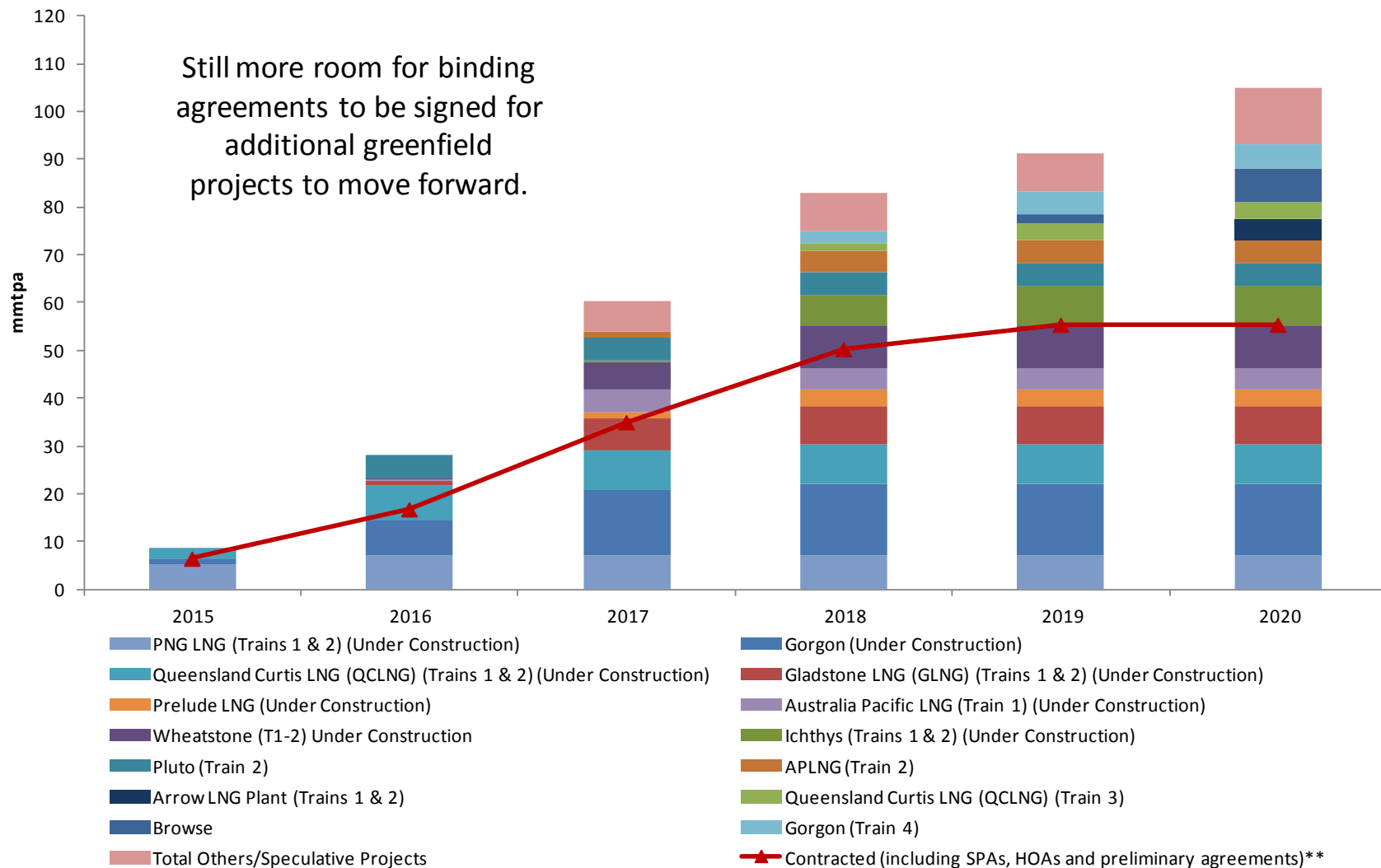
Middle East LNG Import Forecast (2020)
14 mmtpa



- Southeast Asia is an increasingly exciting market that complements the growth from existing LNG market players.
- Total imports from the above four countries alone are expected to represent over 9% of existing LNG importer's requirements by 2020.
- Another quiet but emerging player is the Middle East—the domestic market is growing fast and is expected to have an influence not only on Middle East LNG exports, but also imports for the region.

WHERE ARE THE SUPPLIES?

Massive Wave of Planned Australasia Projects*



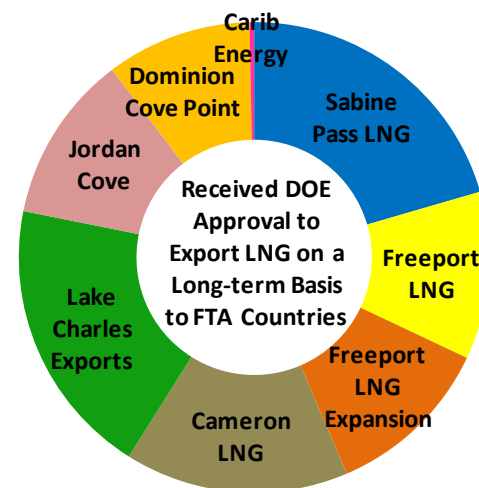
* Indicative commissioning dates and non-exhaustive list.

** Excludes LNG from Asian buyers' equity stake in LNG projects.

New Supply Source: US LNG Exports



Planned Export Terminals



- **FGE forecasts that close to 35 mmtpa could be exported before the end of the decade.**
- US LNG exports will come into the market over next 3-5 years. However, the size and direction of exports will depend on:
 - Consumer comfort levels.
 - Continued confidence in smooth growth of US shale production.
 - Free Trade Agreements:
 - LNG exports are limited to countries with existing US FTAs.
 - Exports to other countries awaiting DOE approval.

▪ Countries with existing US FTAs:

- | | |
|------------------|---------------------------|
| Australia | Bahrain |
| Canada | Chile |
| Costa Rica | Dominican Republic |
| El Salvador | Guatemala |
| Honduras | Israel |
| Jordan | Mexico |
| Morocco | Nicaragua |
| Oman | |
| Peru | |
| Singapore | South Korea |

- Countries pending congressional approvals for FTAs: Panama and Colombia.

Country indicates LNG-importing countries

Status of US LNG Export Projects

Regulatory Process	Sabine Pass LNG	Freeport LNG	Cameron LNG	Lake Charles Exports	Jordan Cove**	Corpus Christi LNG	Dominion Cove Point	Freeport LNG Expansion ¹	Gulf Coast LNG**	Oregon LNG ²	Southern LNG Company (Elba Island)
FERC Application	✓	Initiated FERC Pre-Filing	Initiated FERC Pre-Filing	Initiated FERC Pre-Filing	Initiated FERC Pre-Filing	Initiated FERC Pre-Filing	✗	✗	✗	✗	✗
FERC Approval	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
DOE Authorization to Export LNG to FTA Countries*	✓ (16)	✓ (9)	✓ (12)	✓ (15)	✓ (9)	✗	✓ (7.82)	✓ (9)	Under DOE Review (21.4)	Under DOE Review (9.6)	Under DOE Review (4)
DOE Authorization to Export LNG to non-FTA Countries*	✓ (16)	Under DOE Review (9)	Under DOE Review (12.0)	Under DOE Review (15)	Under DOE Review (6)	✗	Under DOE Review (7.82)	Under DOE Review (9)	Under DOE Review (21.4)	✗	✗
Deals Announced	✓	✗	✓	✗	✗	✗	✓	✗	✗	✗	✗

* Total export volumes submitted to DOE, mmtpa.

** Construction of new liquefaction facilities.

¹ Freeport (FLEX) submitted a new application to export an additional 1.4 bcf/d of LNG from new trains to be located at the Freeport LNG Terminal.

Freeport (FLEX) submitted pre-filing with FERC for 13.2 mmtpa but has received export permission from the DOE to export a total of 18 mmtpa (including expansion) to FTA countries.

² Oregon LNG mentioned in its May 2012 Project Update that it intends to complete pre-filing request with FERC by end May.

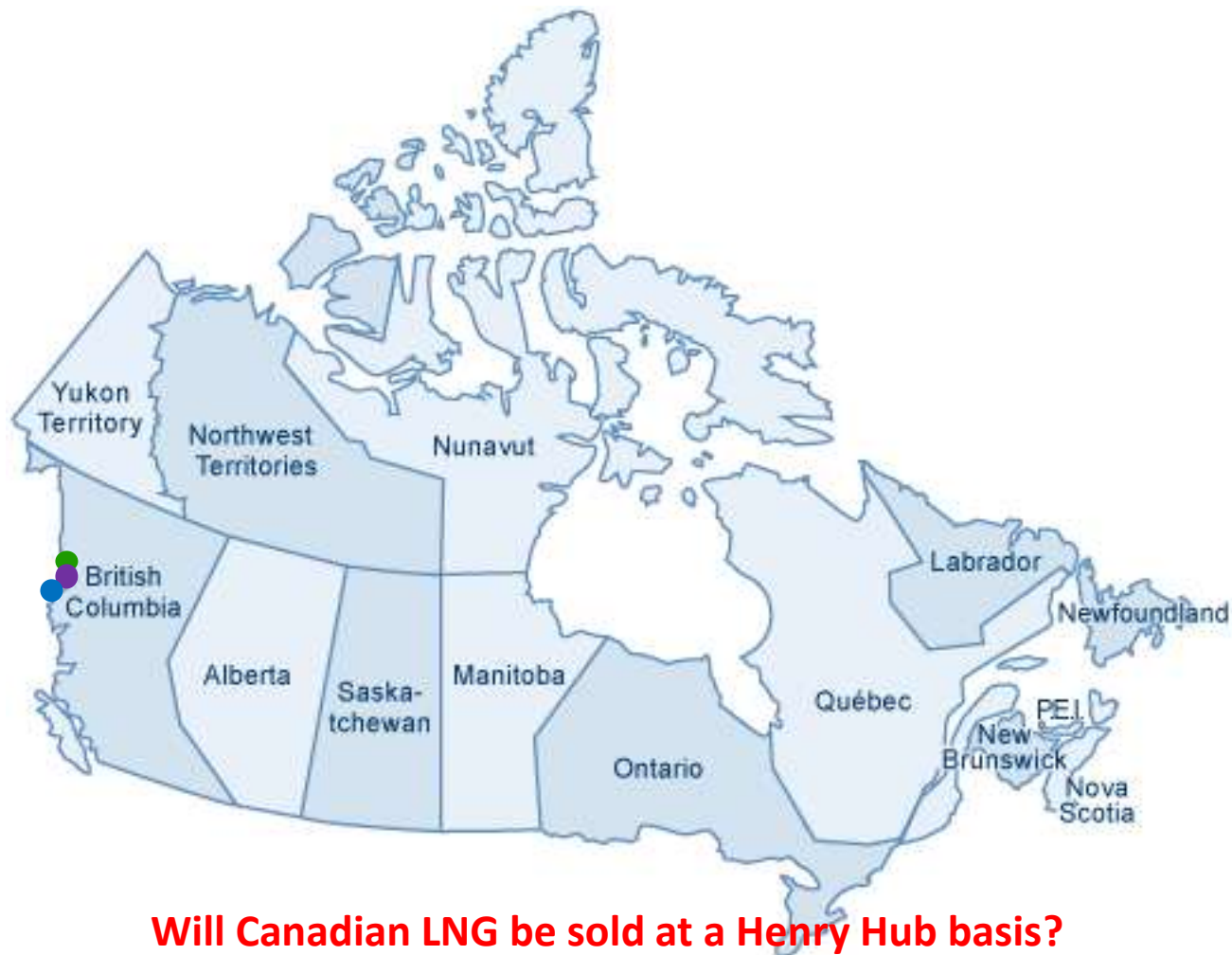
Offtake Deals Announced:

- Sabine Pass LNG has four SPAs (BG: 5.5 mmtpa; Gas Natural Fenosa: 3.5 mmtpa; GAIL: 3.5 mmtpa; and KOGAS: 3.5 mmtpa).
- Cameron LNG signed commercial development agreements with Mitsubishi, Mitsui, and GDF Suez (4 mmtpa each) to fund all development expenses as well as the offtake of each train output of the project.
- Sumitomo and Tokyo Gas agreed to buy 2.3 mmtpa over 20 years from the Dominion Cove Point project.

The Canadian Prospects

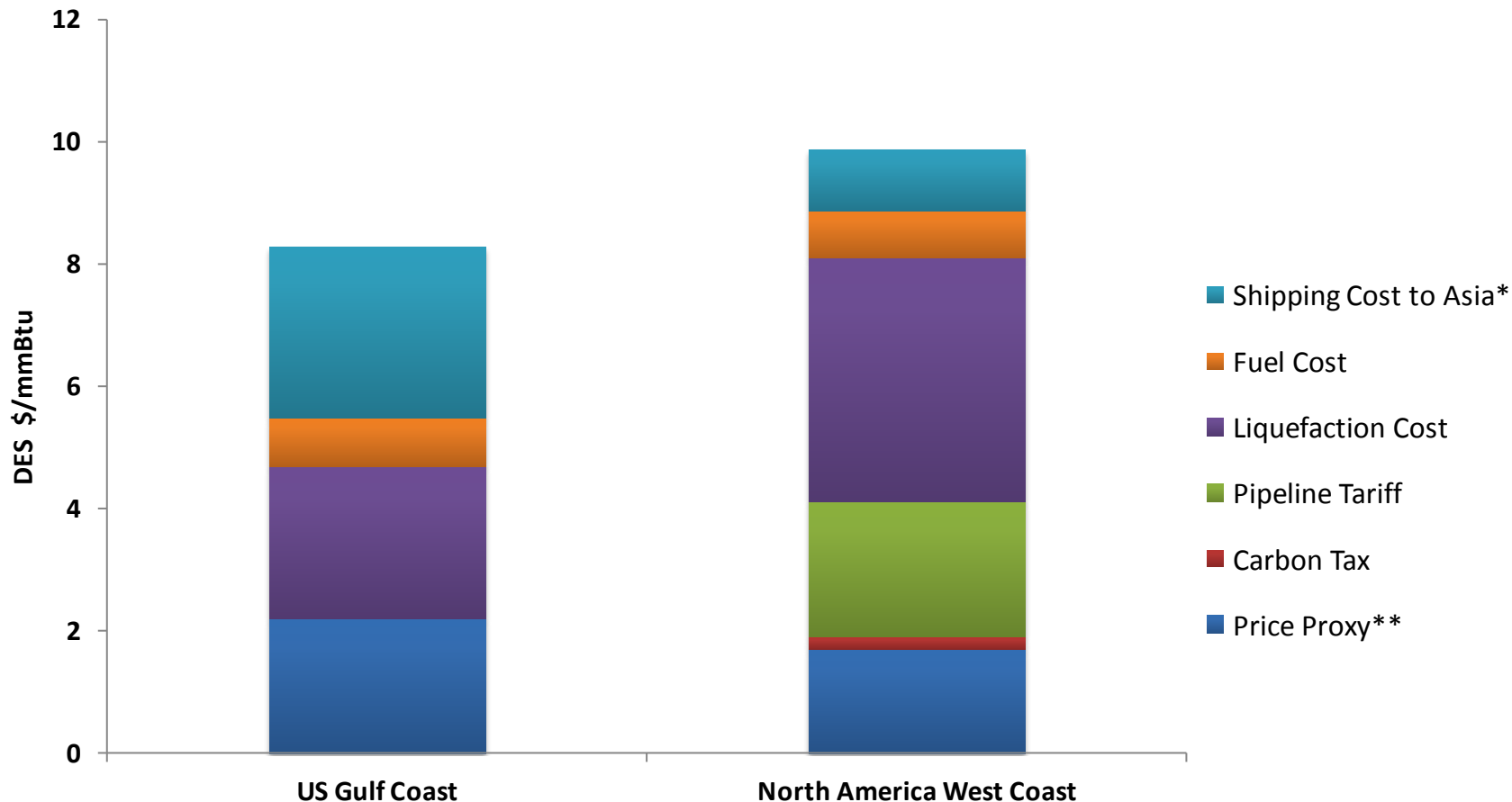
Export Projects Identified:

- Kitimat LNG (10 mmtpa)—Apache, EOG Resources, and Encana Corp.
- BC LNG (1.8 mmtpa)—Douglas Channel LNG
- LNG Canada (12 mmtpa)—Shell, Mitsubishi, KOGAS, and PetroChina
- Other projects can also be expected either through Western Canada or down to the US via Oregon LNG or Jordan Cove



**Will Canadian LNG be sold at a Henry Hub basis?
The answer is a firm no.**

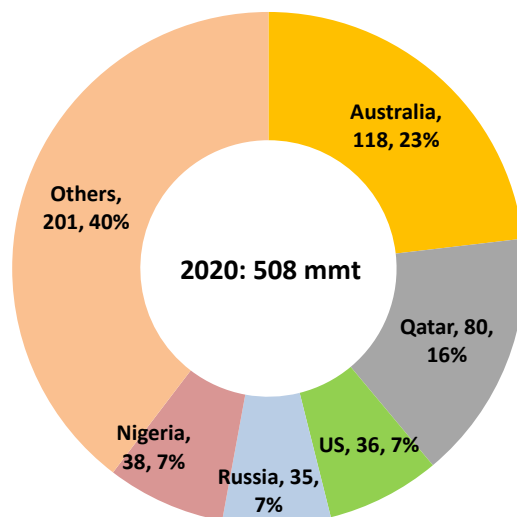
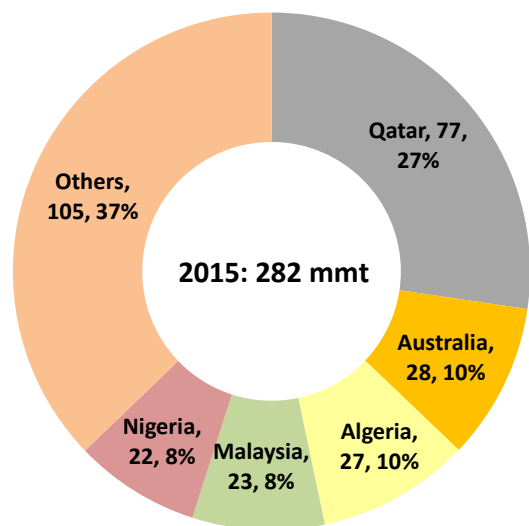
North America Projects: Cost Comparison USGC vs NAWC



Who can pay such prices: Asia!

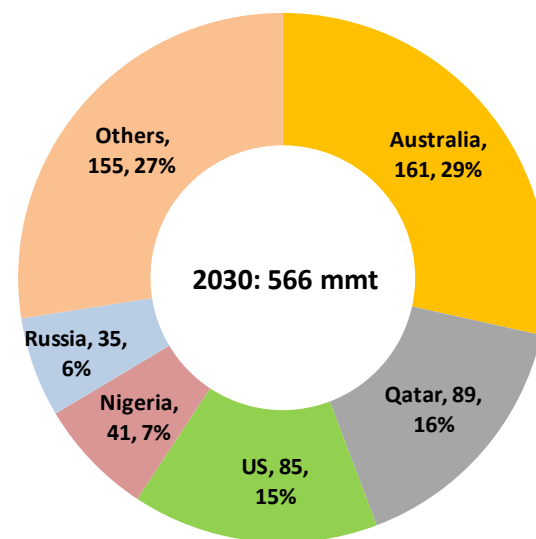
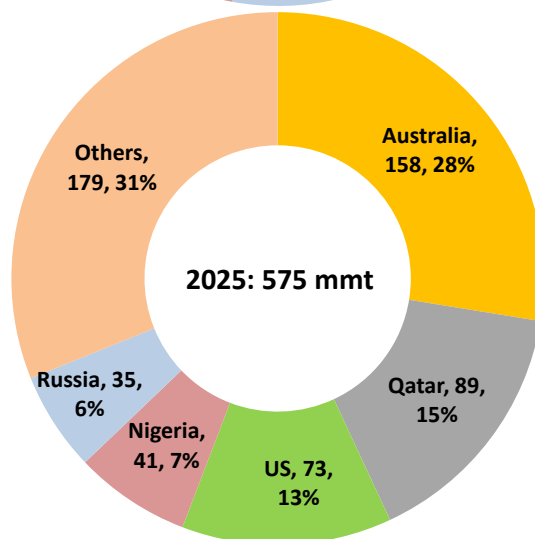
* Assumed shipping to Japan as base
 **Price proxy (FGE 2012 price projections)
 US Gulf Coast Price Proxy - Henry Hub
 North America West Coast - AECO C

Changing of the Guard...



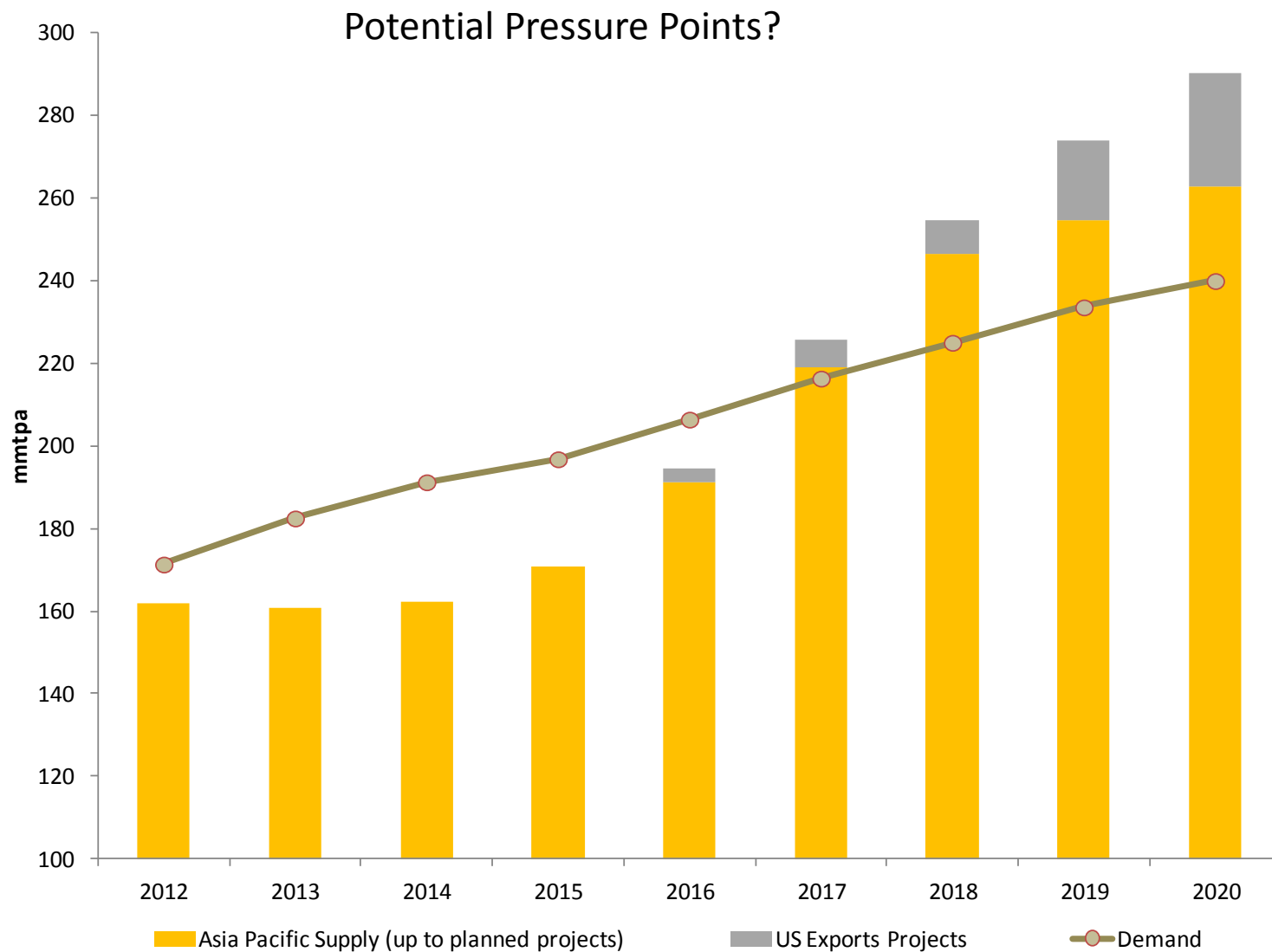
Australian LNG exports expected to dominate global LNG trade come 2018, surpassing Qatar.

US and Russia may push "older" LNG suppliers Malaysia and Algeria off the top 5 LNG exporter table by 2020.



Note: Potential exports from projects up to "speculative" status included

Softer Market Expected to Emerge Later this Decade



OUTLOOK FOR LNG PRICES

Latest Trends in Asian LNG Contract Negotiations

What was on the table – besides price?

SPAs less standard =

More flexibility on both sides =

More negotiation space apart from slopes and constants



Japan Disaster: Impact on Asian LNG Price Discussions

- Slopes ~15ish negotiated/concluded

- 'S'-curves ✕

Pre-Disaster

Post-Disaster


- Slopes discussed 
- 'S'-curves – with high kinks

2009


2010

2011

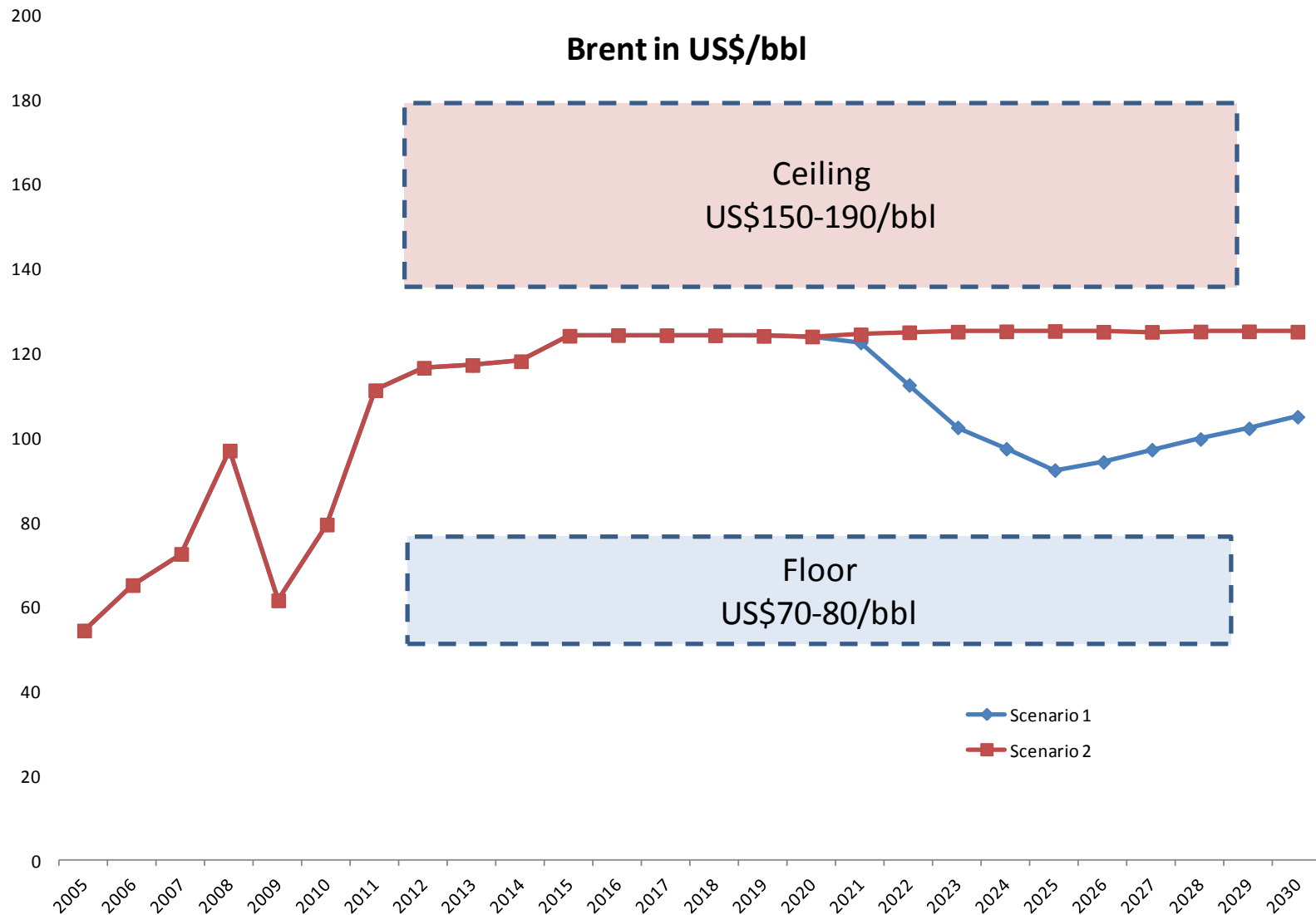
H1 2010

- Slopes negotiated 
- 'S'-curves (unconventional) ✓

H2 2010

- Slopes weakened further 
- 'S'-curves (unconventional) ✓

Longer-Term Oil Market: A Range to Consider



FGE Asian Contract Price Definition

Long-term Asian LNG price at time X: the agreed price at time X for a long-term contract (contract duration of **10 years** or more) from a project sanctioned (FID taken) or under construction with first delivery scheduled in approximately **4 years**.

i.e., delivered price in 2011 reflects price negotiations from 2007.

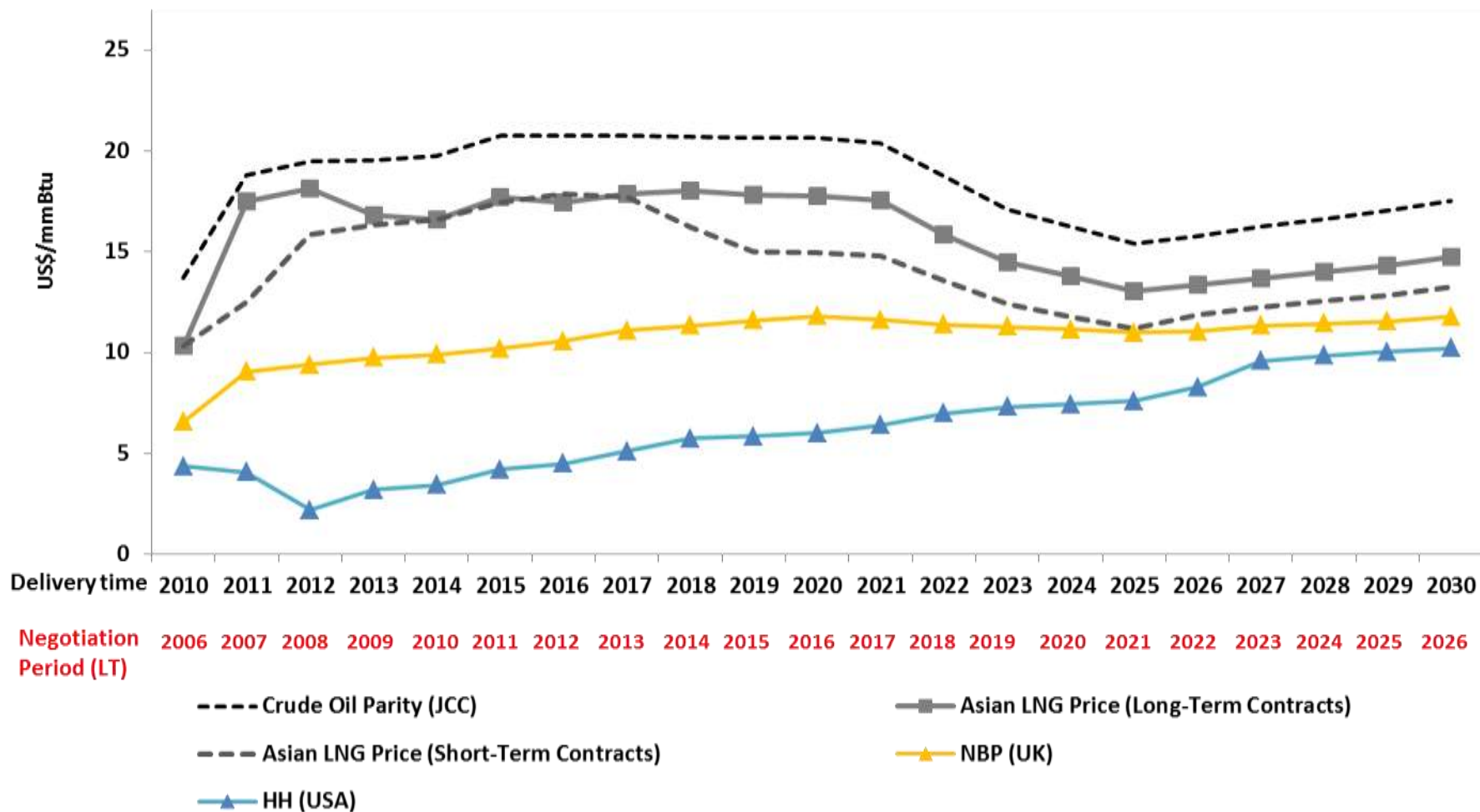
Note: For the purposes of the following projections, we assume a 20-year contract duration.

Short-term Asian LNG price at time X: the agreed price at time X for a short-term contract (contract duration of **2 years or less**) from an existing project or one under construction with first delivery scheduled in approximately **1 year**.

i.e., delivered price in 2011 reflects price negotiations from 2010.

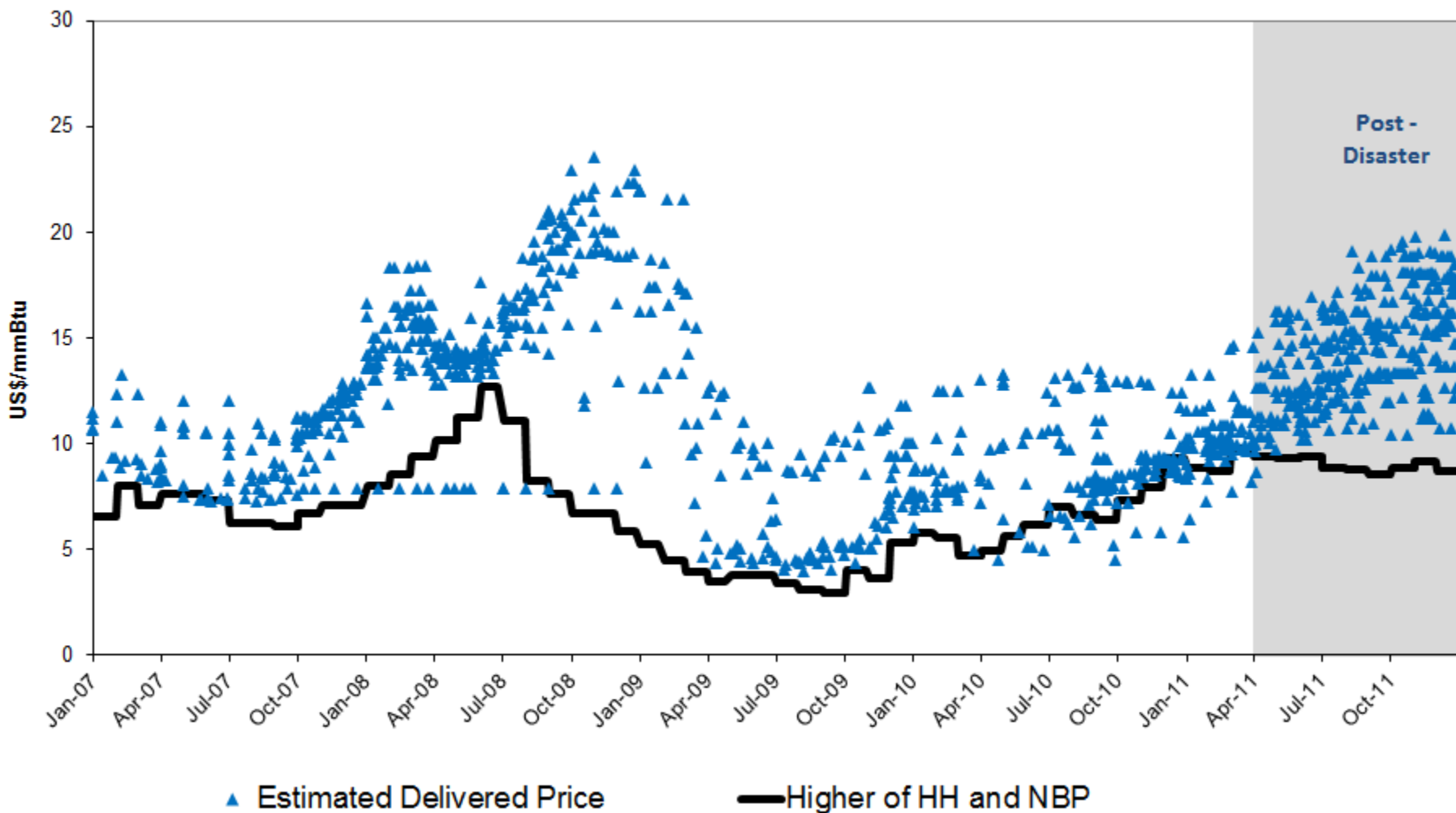
Note: For the purposes of the following projections, we assume a 2-year contract duration.

Scenario 1: Projected Price of New Asian LNG Contracts vs HH, NBP, and JCC (US\$2011)



What Drives the Asian Spot/Short-Term Price?

Delivered Spot/Short-Term Prices to Asia and HH/NBP Prices*



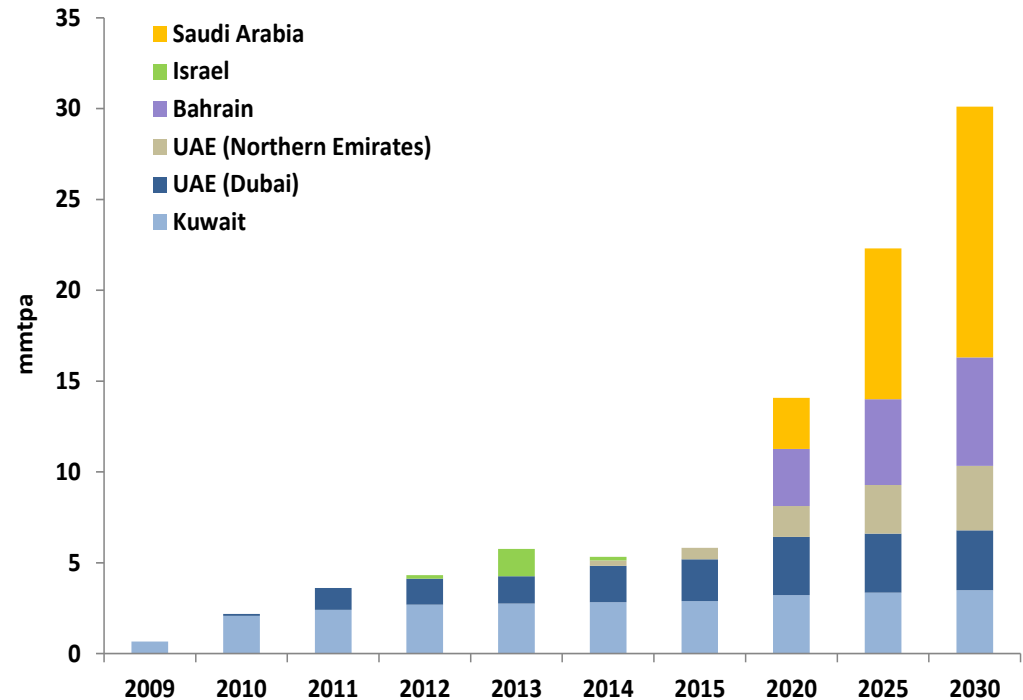
* Prices are indicative and non-exhaustive.

MIDDLE EAST: AN EXCITING MARKET TO WATCH

Middle East: From Exporter to Importer

- Despite the region's massive petroleum reserves, gas production in almost all Middle East countries are struggling to keep abreast with demand, especially for the industrial and power sectors.
- Middle Eastern energy market dynamics shifted dramatically from 2009 (since the start of LNG imports) with the commencement of Kuwaiti LNG imports. Kuwait's status as an LNG importer illustrates the Middle East's strong dependence on natural gas and the rapidly increasing gap between supply and demand.

Middle East LNG Imports



- This is evidenced by the fact that other countries like the UAE, and possibly Bahrain, will use LNG to augment domestic gas supply in the coming years.

Challenges in Middle East Gas Projects

High costs are still an important challenging issue in upstream and downstream gas projects.

Upstream Projects

- Massive Increase in Drilling Costs (compared to 2003)
- Massive Cost Increase in Equipment

Pipelines

- 80-100% Increase in Construction Costs for Gas Pipelines (Offshore and Onshore Pipelines)

Gas Processing Plants

- 200-400% Increase (compared to 2003) in Construction Costs for New Gas Processing Plants

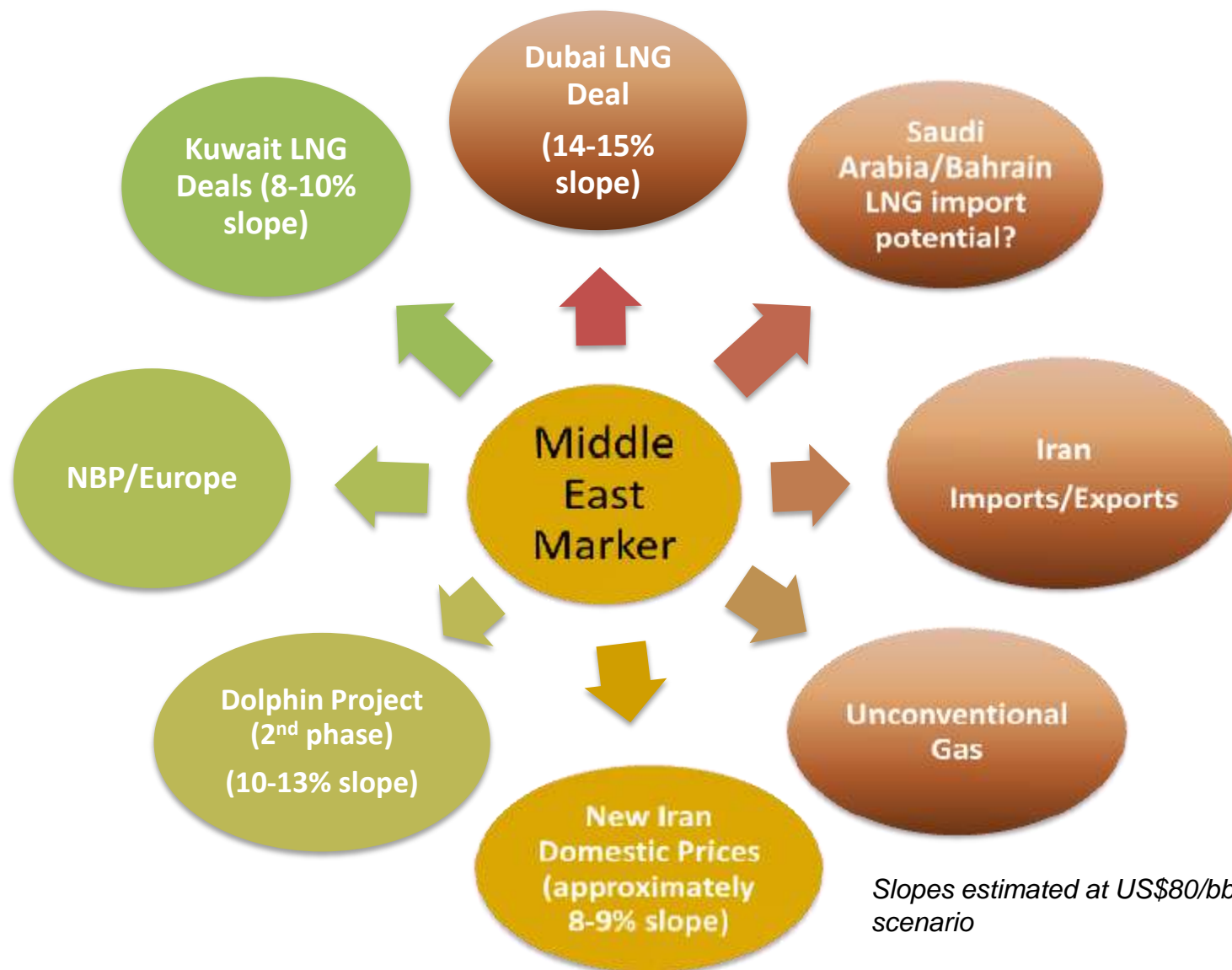


More Expensive Gas Prices in Middle East Import Projects



More Pressure on Governments to Set Higher Prices for Their Domestic Consumers

Regional Gas Prices to Increase



Slopes estimated at US\$80/bbl oil price scenario