



LNG Markets

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1. Statoil's LNG Portfolio

Statoil LNG Portfolio

Snøhvit plant

- Design capacity: 4.3 mtpa (5.7 bcmpa)
- Recoverable reserves ~ 200 bcm gas
- Statoil's share (incl. SDFI) 66.79%
- Subsea field development
- CO₂ storage beneath the seabed

Regas Capacity

- Cove Point (East Coast USA)

LNG sales contracts

- 2.4 bcma to Statoil Natural Gas (USA)
- 1.5 bcma to Iberdrola (Spain)
- 1 bcm to Petronas

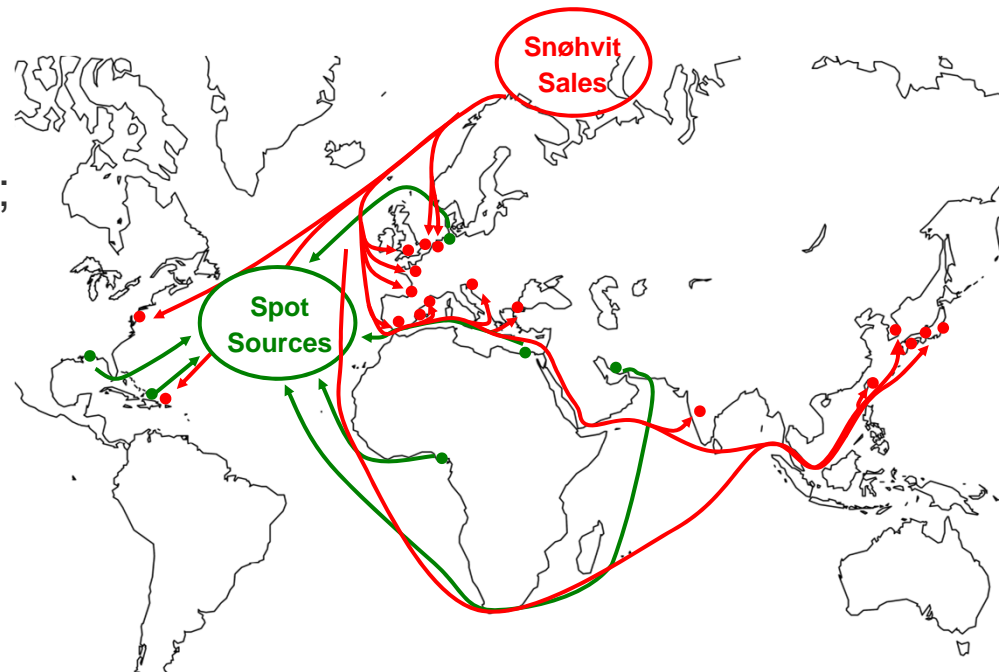
Shipping portfolio

- | | |
|---------------------|------------|
| • Arctic Princess | 145 000 m3 |
| • Arctic Discoverer | 142 000 m3 |
| • Arctic Voyager | 142 000 m3 |
| • Arctic Aurora | 155 000 m3 |



Snøhvit Portfolio Optimisation

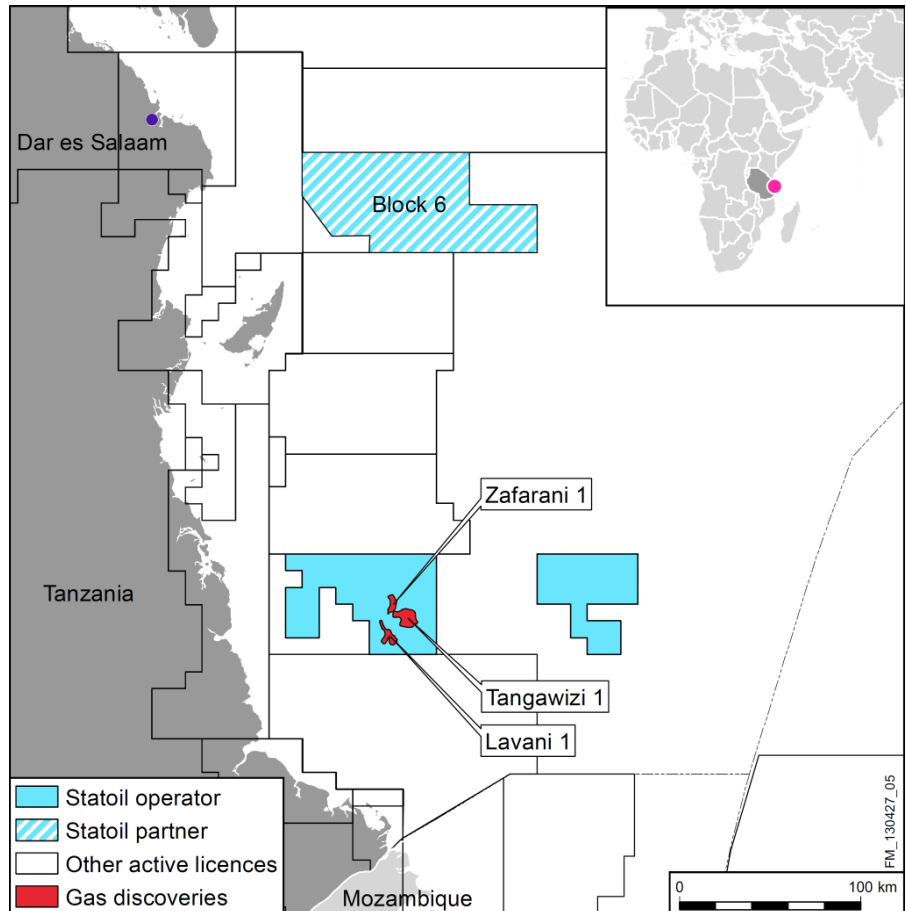
- Deliveries to 14 countries
- Operations in both arctic and tropical climate
 - Longest commercial LNG journey; 32 days to Tokyo Bay
 - 38 days to South Korea via Cape
 - Statoil's shortest journey; 4 days to Isle of Grain (UK)
- Swap LNG cargoes for European pipeline portfolio
- Supplied from 6 countries



Tanzania

Successful exploration

- Since February 2012, successfully completed five wells in 15 months
- Four discoveries: Zafarani-1, Lavani-1, Lavani-2 and Tangawizi-1
- Total in-place gas volumes: 400-500 bcm
- 5500 km² 3D seismic acquisition completed
- Maturing new prospects and will start a new drilling campaign fall 2013



LNG in the maritime industry



Viking Energy (Photo: Eidesvik)



Stril Pioneer (Photo: Harald Valderhaus)



Bit Viking (Photo: Tarbit Shipping AS)



Bergen Viking (Photo: Bergen Tankers)

Statoil is a heavy user of the maritime industry.

- 160 vessels of 20 different types operated globally
- Transporting 3000 shiploads of hydrocarbons annually

Statoil is committed to the development of sustainable energy systems and technology.

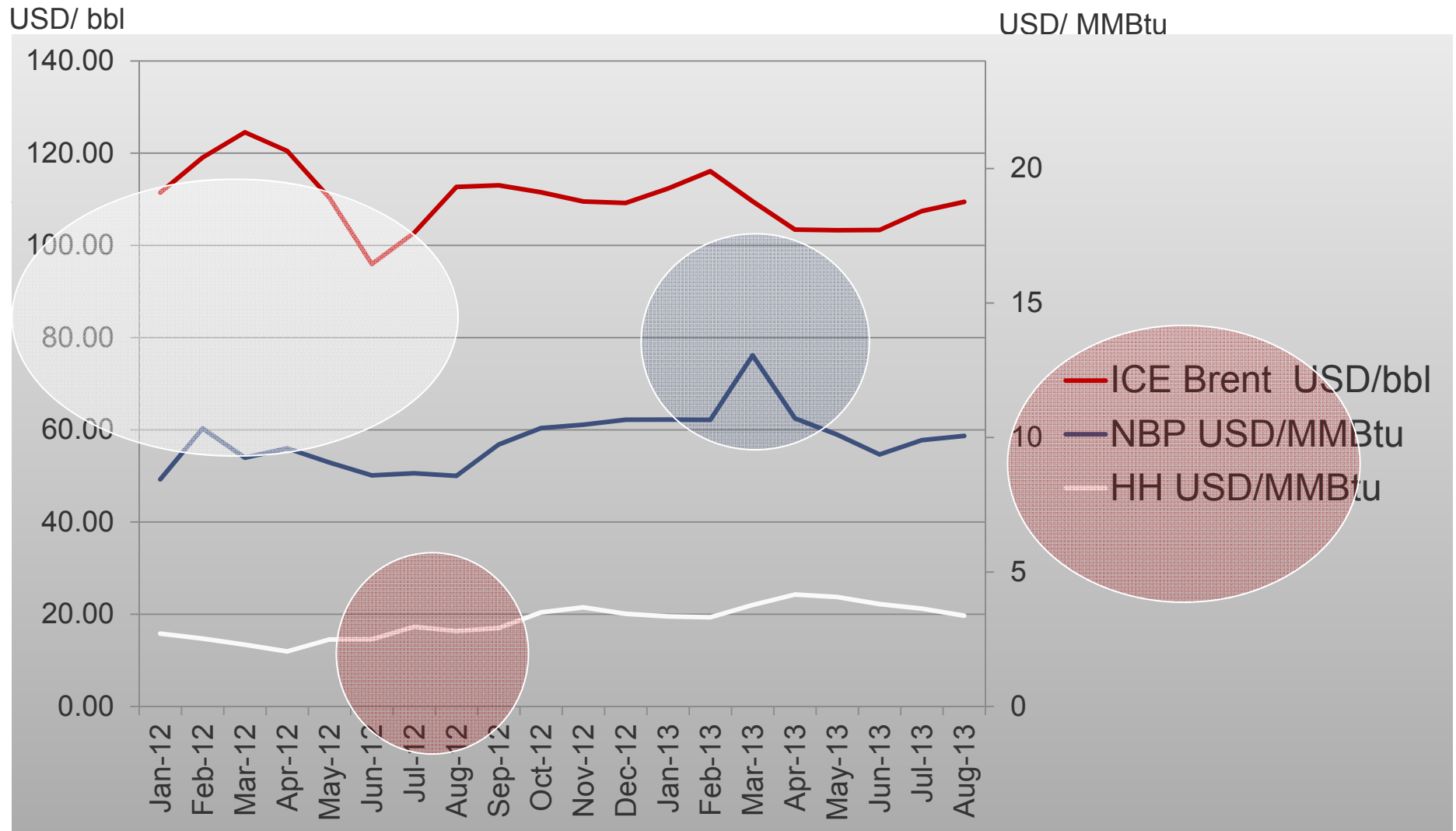
Statoil has been a pioneer in LNG-fuelled vessels.

2. Global LNG Supply and Demand Picture

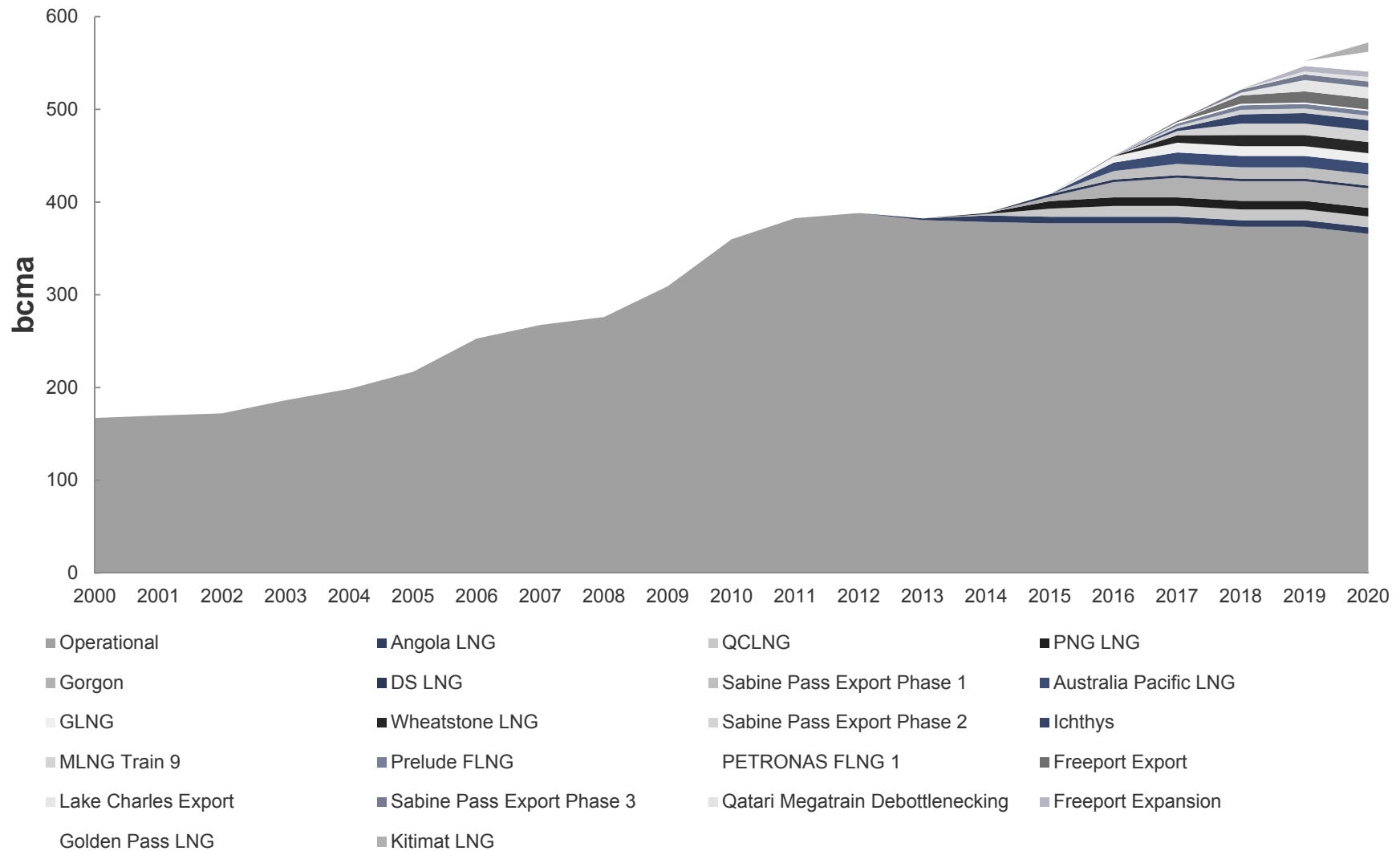


LNG Price Markers

monthly averages previous 20 months



Phasing in New LNG Capacity

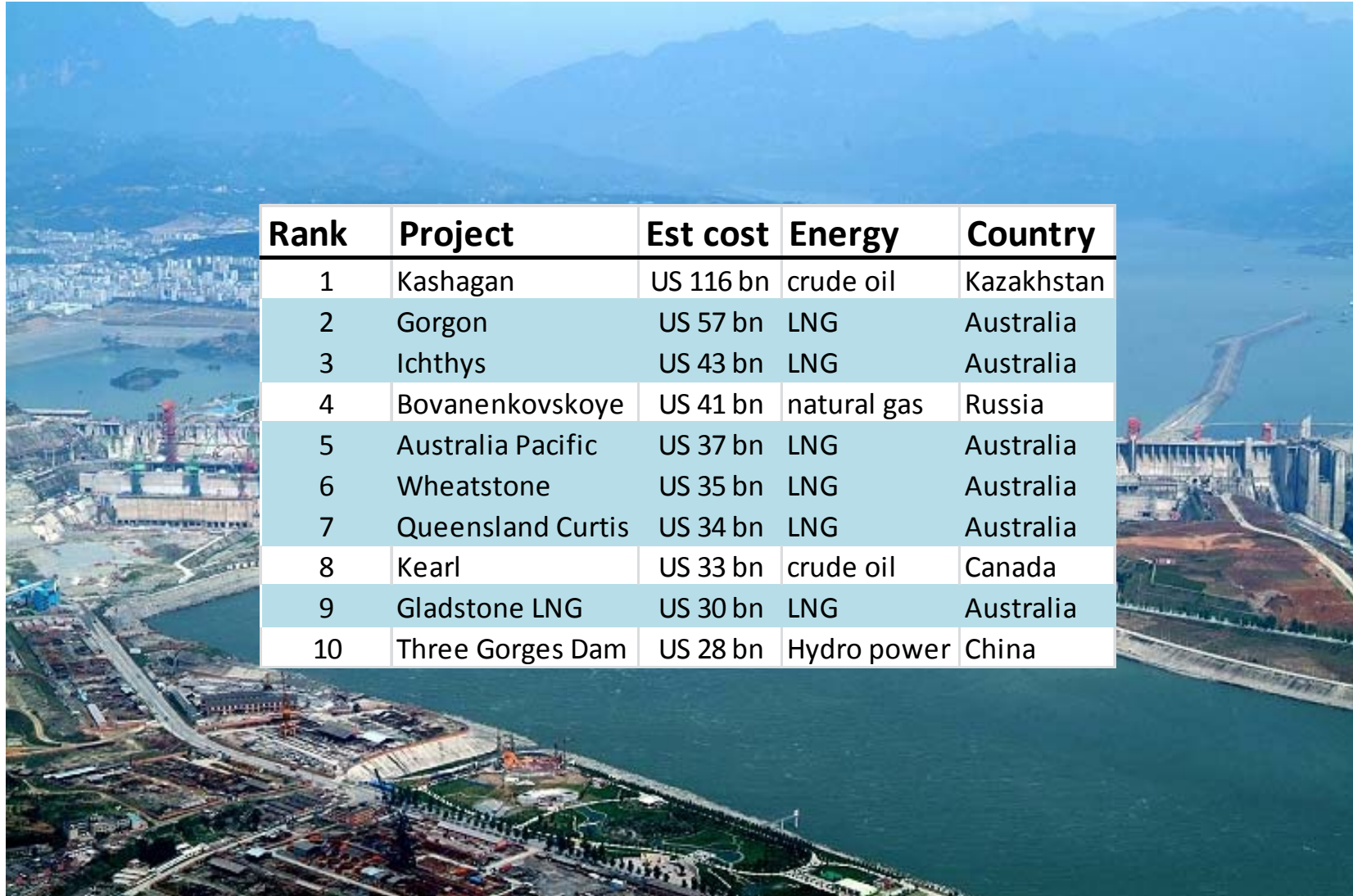


China: Three Gorges Dam



- 2.3 km long, 32 generators, 10% of China's power demand
- 22.5 GW capacity (~21.2 MMtpa LNG)
- Relocation of 1.3 million people; impacting 13 cities, 140 towns, 1352 villages, 657 factories & 30,000 hectares of cultivated land
- 14 year building period

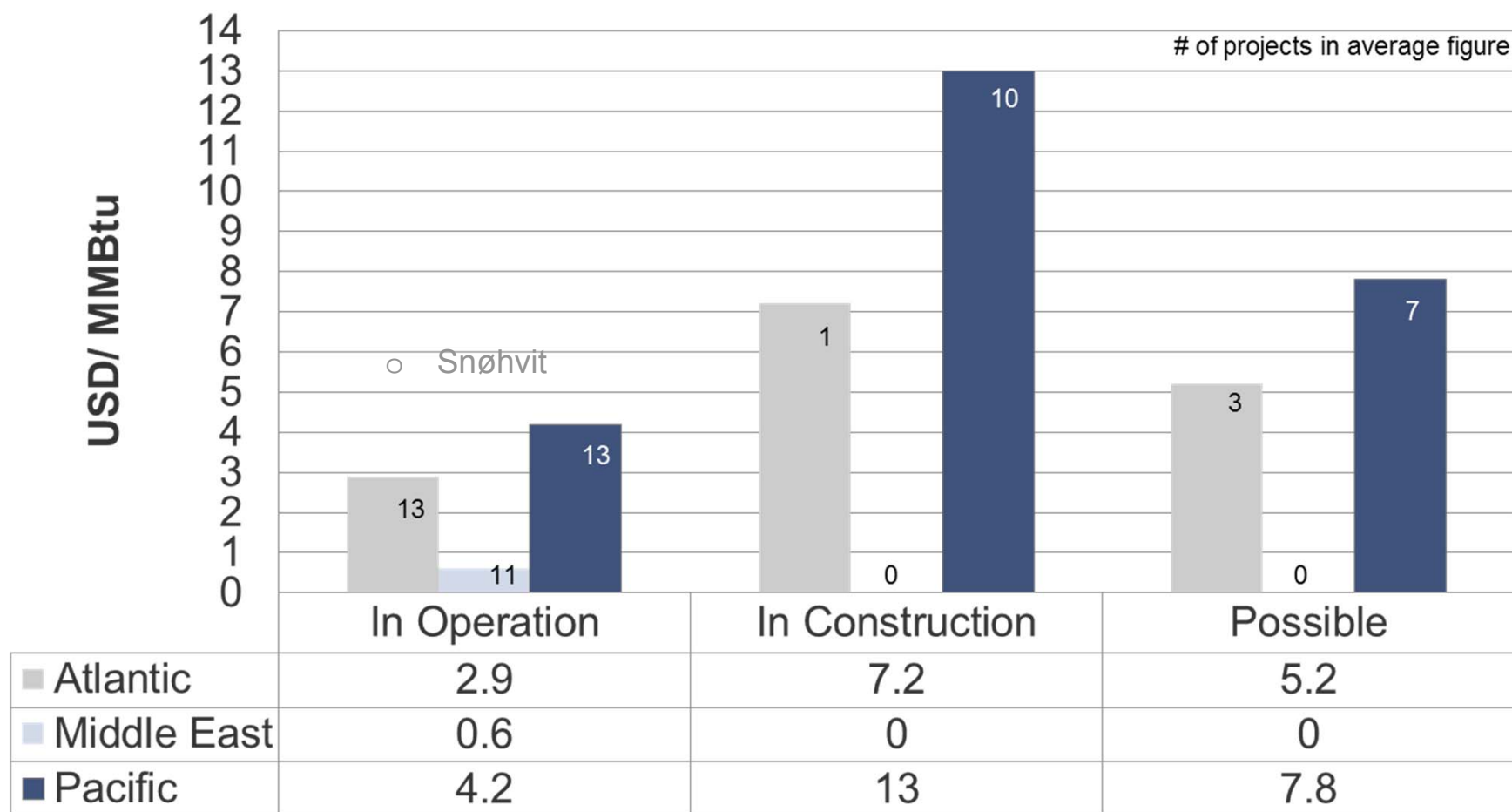
China: Three Gorges Dam



Rank	Project	Est cost	Energy	Country
1	Kashagan	US 116 bn	crude oil	Kazakhstan
2	Gorgon	US 57 bn	LNG	Australia
3	Ichthys	US 43 bn	LNG	Australia
4	Bovanenkovskoye	US 41 bn	natural gas	Russia
5	Australia Pacific	US 37 bn	LNG	Australia
6	Wheatstone	US 35 bn	LNG	Australia
7	Queensland Curtis	US 34 bn	LNG	Australia
8	Kearl	US 33 bn	crude oil	Canada
9	Gladstone LNG	US 30 bn	LNG	Australia
10	Three Gorges Dam	US 28 bn	Hydro power	China

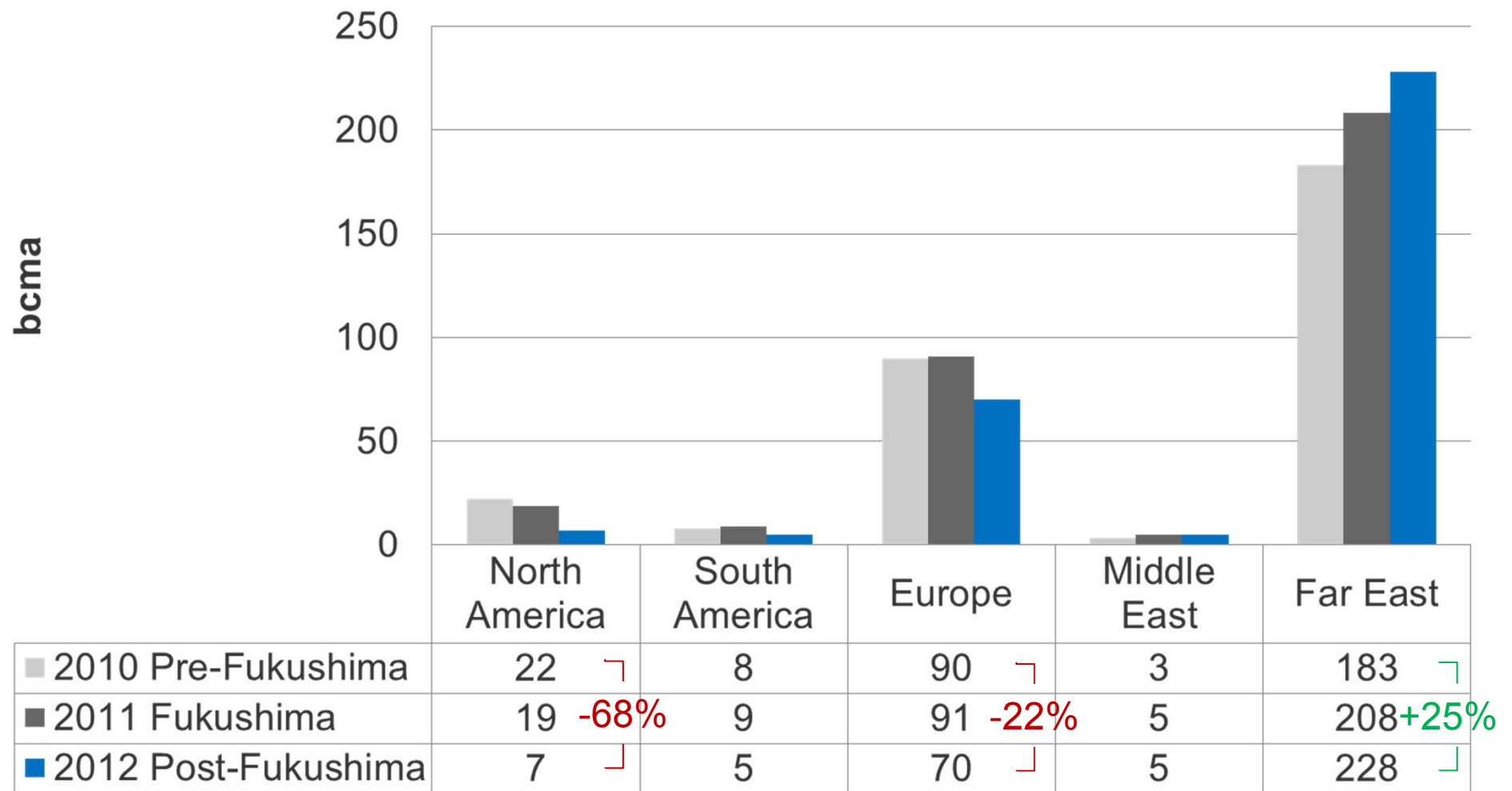
LNG Project Break-even Price

Regional averages, FOB Plant



LNG Trade Movements

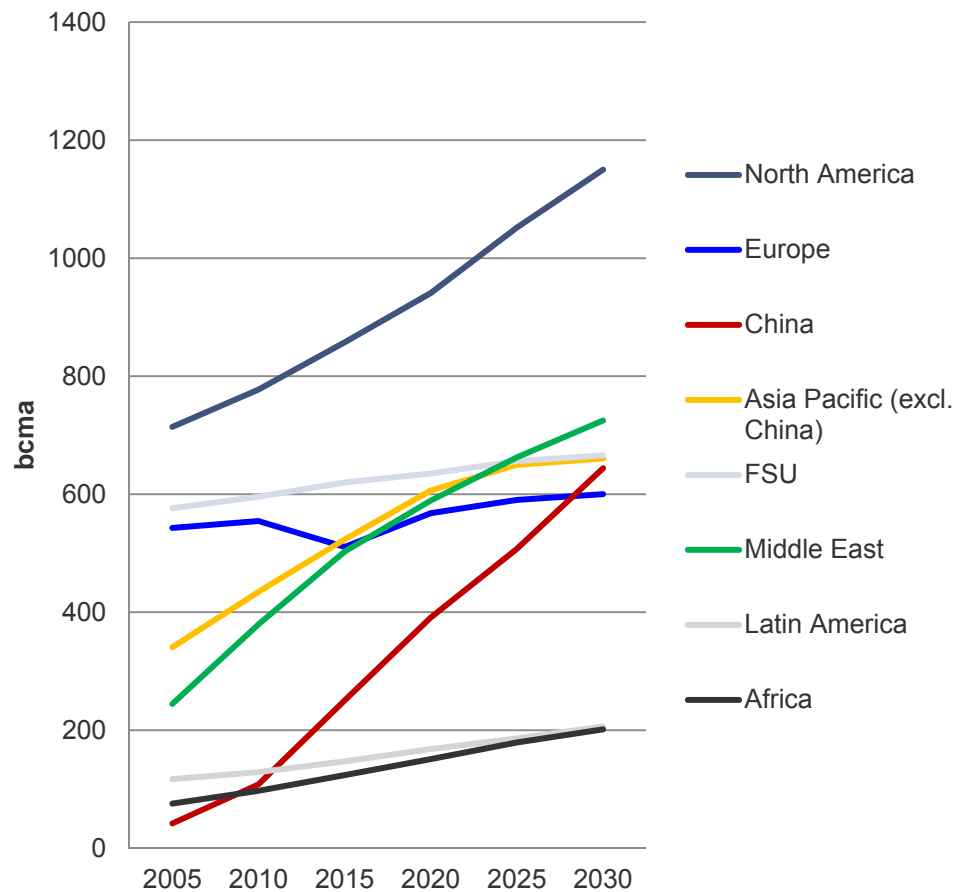
Post-Fukushima



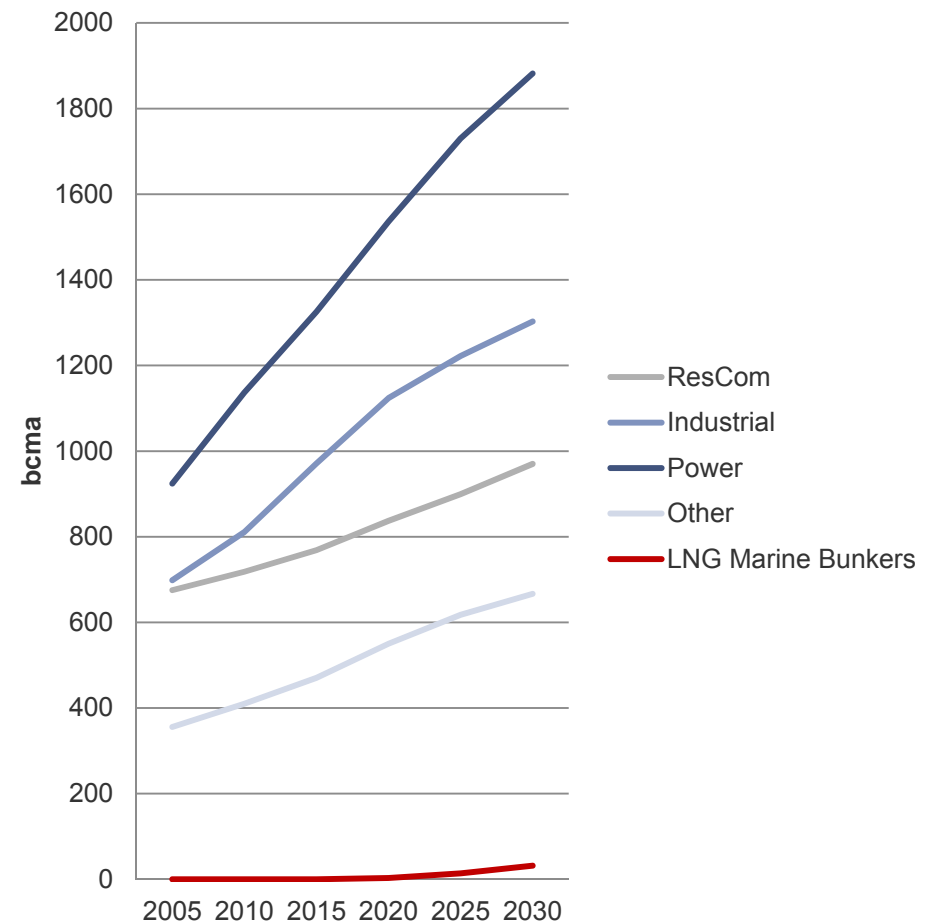
Demand for Natural Gas

(pipeline and LNG)

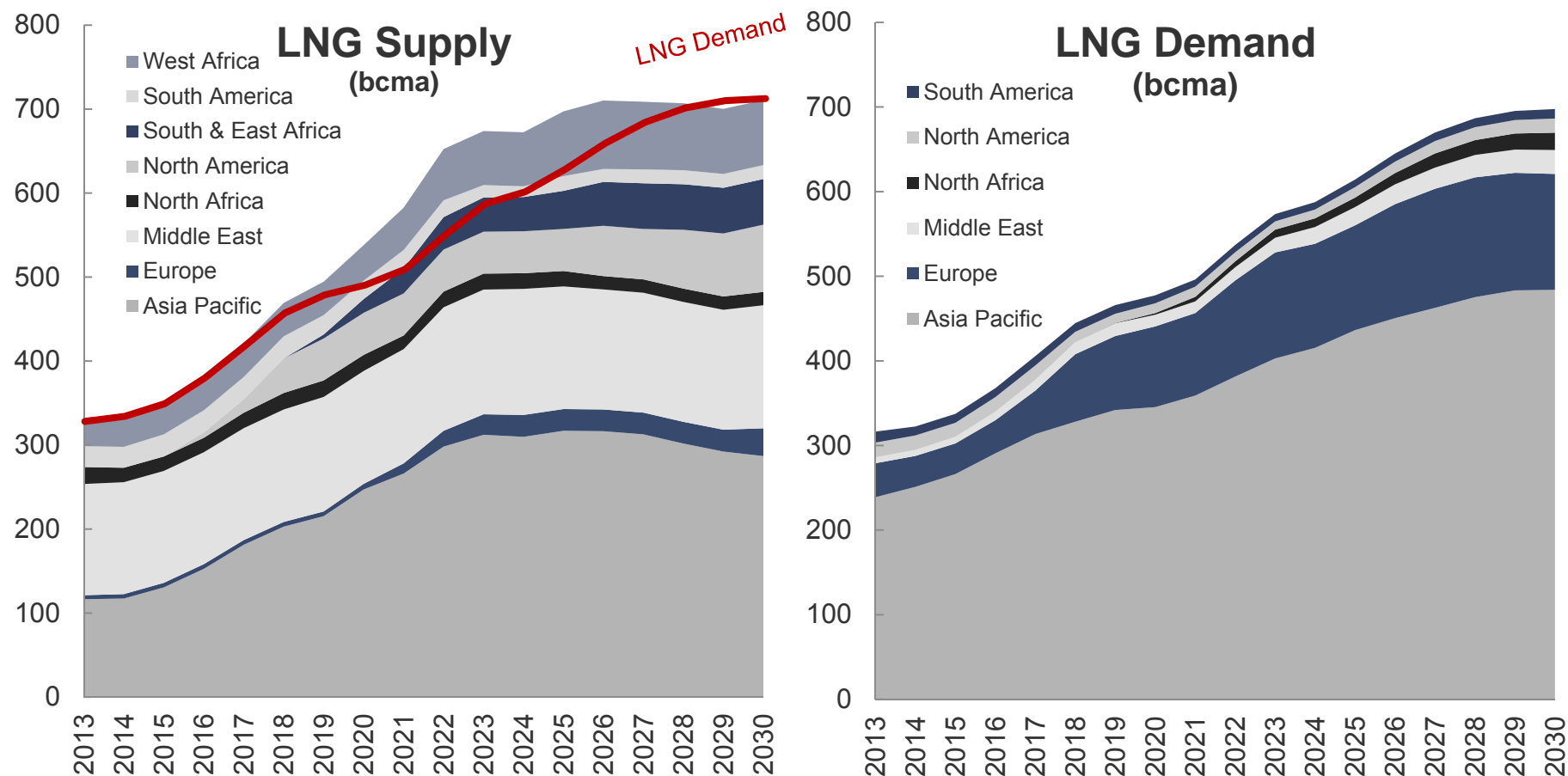
Gas Demand by Region



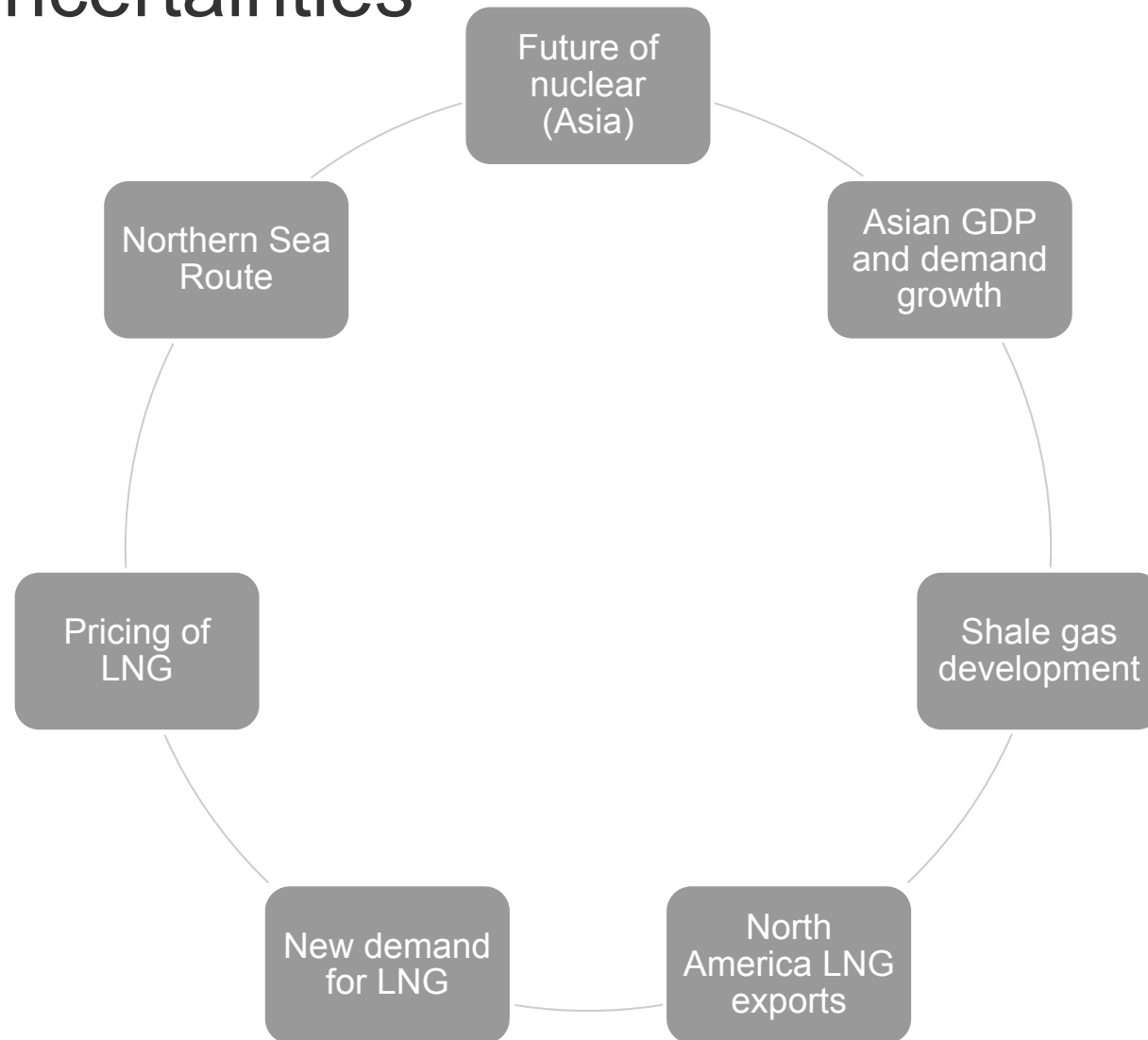
Gas Demand by Sector



Global LNG Market Balance Going Forward



Risks & Uncertainties



Thank you

US supportive of LNG, but approval process is arduous; government may change course

The road to permitting LNG exports

Department of Energy

Export to **FTA** countries:

Little wait for approval, usually “rubber stamped”

Export to **non-FTA** countries:

Longer review time, approval considered in “national interest”




















Federal Energy Regulatory Commission

- 1) Pre-filing review
- 2) Application review
- 3) Post-application authorization
- 4) Authorization to begin operation

Policy steps to future LNG export permitting

- DoE approval for LNG export to non-FTA countries is considered according to:
 - Domestic need for gas / U.S. supply security
 - Impact on job creation & GDP
 - Impact on domestic natural gas prices
 - Balance of trade issues
- Two studies commissioned by DoE to evaluate impact of exports per above criteria
 - Will there be a threshold at which next project is no longer in “national interest”?
- Currently four applications sitting with DoE for export to non-FTA countries
 - Total exportable amount in applications plus 2.2 BcF/d from Sabine Pass = 6.6 BcF/d or 10% of U.S. daily domestic production

US LNG export plants operating or being developed (1 of 2)

Location	Owners	Capacity holders	Capacity	Status	Notes
Sabine Pass (Gulf Coast)	 100%	 3.5 mtpa  3.5 mtpa	9 mtpa	Awaiting FERC approval (operation from 2015)	<ul style="list-style-type: none"> • Authorised to export 16 mtpa to non-FTA countries • 20-yr deals for 3.5 mtpa each to BG and Gas Natural Fenosa; MOUs for 7.7 mtpa • \$3.9B EPC contract awarded to Bechtel in Nov 11
Freeport (Gulf Coast)	 100% ¹	 4.5 mtpa  2.7 mtpa  1.4 mtpa  0.4 mtpa	9 mtpa	Awaiting FERC and non-FTA export approvals (operation from 2015)	<ul style="list-style-type: none"> • Authorised to export 10 mtpa to FTA countries • Macquarie to market 50% of capacity, other regas customers to be offered right of first refusal on remaining 50%
Lake Charles (Gulf Coast)	 100%	 (100%)	19 mtpa	Awaiting FERC and non-FTA export approvals (operation from 2018)	<ul style="list-style-type: none"> • Authorised to export 15 mtpa to FTA countries • BG has stated it still wants to export 14 mtpa from Lake Charles in spite of the Sabine Pass deal
Cove Point (East Coast)	 100%	 (68%)  (16%)  (16%)	7.7 mtpa	Awaiting FERC and FTA export approvals (operation from 2015)	<ul style="list-style-type: none"> • Already has small liquefaction unit • Submitted re-export request to DOE in Aug and FTA export request for 7 mtpa in Sep 2011
Hackberry (Gulf Coast)	 100%	 (60%)  (40%)	3.25 mtpa	Awaiting export approvals	<ul style="list-style-type: none"> • 2-year DOE re-export authorisation from Feb 2011 • Requested DOE approval for 12- mtpa FTA export in Nov 2011 • In talks with counter-parties to agree contracts
Valdez (Alaska)	 ?	 ?	Unknown	Unknown	<ul style="list-style-type: none"> • Would export gas from North Slope • Alaska government is keen to support LNG export • Exxon and TransCanada surveyed prospective customers in 2010; results unknown

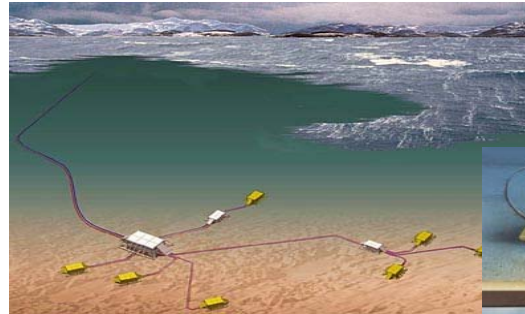
Note: ¹ Freeport LNG are ConocoPhillips, Dow and Macquarie; capacity holders' shares shown in parenthesis refers to import capacity
Source: US DOE; Energy Intelligence; Center for LNG; Wood Mackenzie; press releases; media reports

Hammerfest LNG – field development concept

New technology on several areas:

- ✓ Overtrawlable subsea templates
- ✓ Remote operation of subsea system
- ✓ 143 km multiphase pipeline to shore
- ✓ No toxic discharges to sea
- ✓ Onshore gas processing and liquefaction
- ✓ The world's most energy-efficient LNG-plant
- ✓ Re-injection of carbon dioxide (CO₂)

Products: LNG, LPG and Condensate
Tankers export gas to markets





Winterisation challenges

Winterisation features Statoil LNG Carriers

- Arctic Discoverer, Arctic Voyager & Arctic Princess
- Enclosed bridge wings
- Heat tracing of
 - main passage ways
 - exposed emergency escape routes
 - emergency escape openings (weather doors and hatches)
 - fire fighting equipment (monitors and nozzles)
 - wheel house and cargo control room windows
- Exposed navigational equipment
 - mooring areas
 - air intakes for engine room, air conditioning system, cargo machinery room and emergency generator room
- Windlass and mooring winches using hydraulic oil of 'low temperature type'.



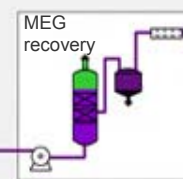
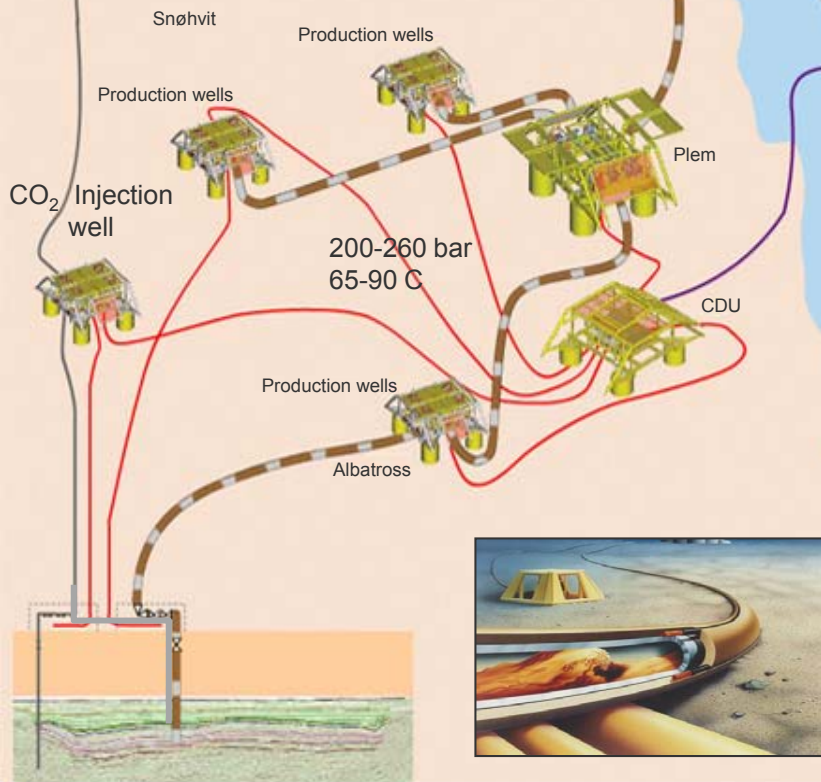
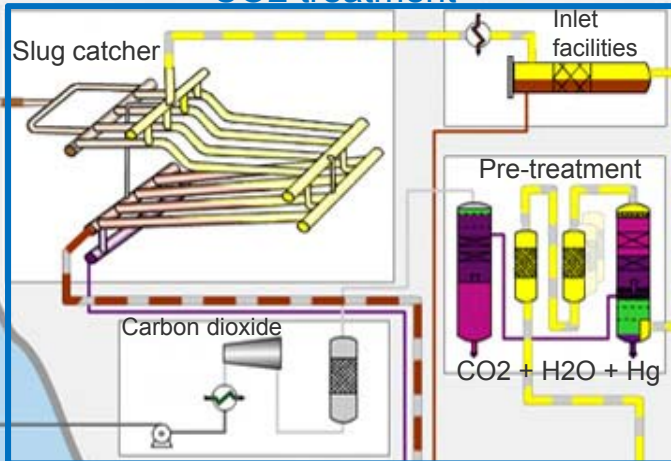
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Simplified overview

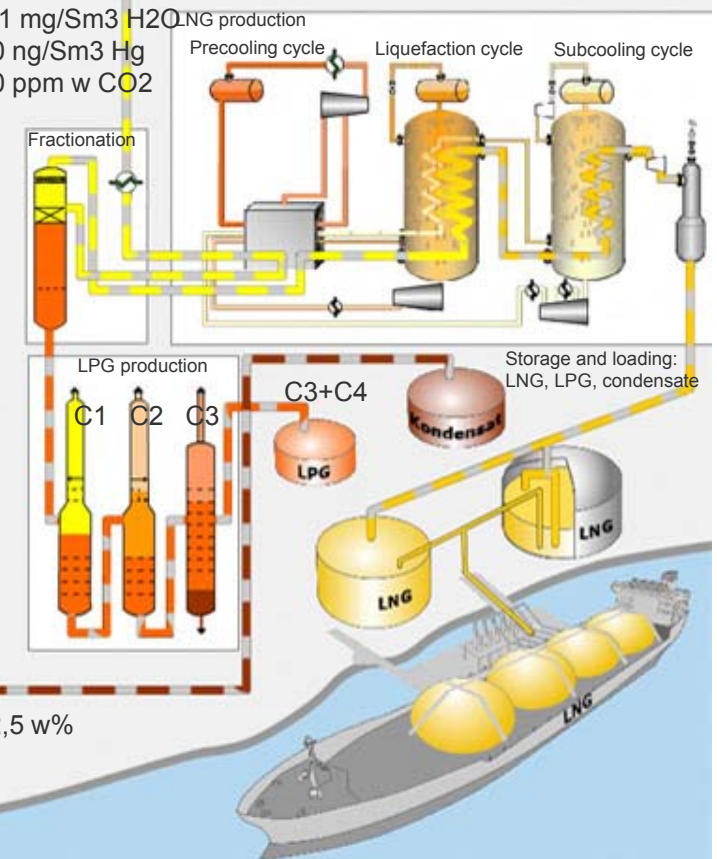
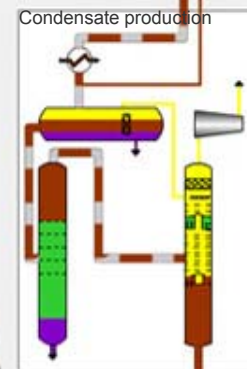
Feed-gas
21,6 MSm³/d
-1 °C, 70-75 bar

~1 MSm³/d = 2100 t/d
4 °C, 150 bar
< 50 ppm (wt) H₂O
< 100 ppm (mol) H₂S

CO₂ treatment



< 0,1 mg/Sm³ H₂O
< 10 ng/Sm³ Hg
< 50 ppm w CO₂



C₄ < 2,5 w%