US Gas Supply And Potential For Export
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US LNG provides offtakers with flexibility in an uncertain world

- Uncertainty – demand and price

- Destination flexibility associated with US LNG enables LNG to be routed to alternative markets

- Offtake flexibility provides option value – capacity payments lower cost than purchasing long term ToP LNG elsewhere

- Liquidity of US markets enable investment without dedicated upstream development

Source: Wood Mackenzie Japan & Gas Power Service  (forthcoming)

While flexible, many US LNG offtakers will invest in US upstream as a long term price hedge
US LNG supply offers supply diversity…and the need to manage new risks

Contracted LNG Dependency (2018)

Source: Wood Mackenzie LNG Tool Feb’13
Compared to other potential LNG supply sources US LNG can get to market more quickly…and capacity charges can be less onerous on balance sheets

- Typical LNG investment
  - high capital costs
  - large offtake liability

- US capacity charge
  - operating cost
  - reduced liability

Source: Cheniere Energy Inc
The seasonality of US LNG offers additional opportunities for some offtakers

- Europe is well suited to US LNG supply seasonality
- Seasonality of other markets, particularly other Atlantic markets, less well suited
- Shipping capacity required to capitalise on the opportunity

Source: Wood Mackenzie LNG Tool, Global Gas Tool
Positions in both Atlantic and Pacific basins will contribute to US LNG export value optimisation

- Pacific is the primary initial target market for US LNG exports

- But some Atlantic markets are target markets too

- New Pacific LNG will likely displace some US LNG back into the Atlantic in the longer term (thru intra-company or inter-company swap arrangements)

- Much of the LNG exported from the US will likely stay in the Atlantic over the longer term

Source: Wood Mackenzie Global Gas Service H2’12

Globalisation and partnering between traditional Atlantic and Pacific players will result

Strategy with substance
The value of supplier portfolios may be enhanced through the combination of traditional and US LNG supply

**Supplier LNG Access**
- Access to HH linked LNG
- Portfolio access to both
- Access to legacy oil indexation supply sources

**LNG Pricing**
- HH+ only?
- Hybrid oil/HH pricing option?

Source: Wood Mackenzie
Portfolio flexibility will contribute to the sustained commercial success of US LNG exports

US LNG Exports to Asia (2018)

Portfolio hybrid deals into Asia can secure high margins – but only for early movers?

US LNG Exports to Europe (2018)

Europe works for low cost US suppliers

Possible Asian Alternatives (2018)

Appetite for HH deals influenced by HH vs oil view

Source: Wood Mackenzie

2018 futures prices used for HH (US$4.42/mmbtu), NBP (US$9.90/mmbtu) and Brent as crude proxy (US$90/bbl); hybrid of 65:35 using 14.5%oil+1 and 115%HH+5; favourable oil indexation of 13%oil+1; toll of US$3/mmbtu.
But the appetite for US LNG varies significantly between players – suppliers and end users.

**Appetite of Selected US LNG “Suppliers”**

- Possible US LNG
- Firm US LNG

**Appetite of Selected US LNG “End Users”**

- Firm and possible US LNG
- % of contracted (2020)

Source: Wood Mackenzie LNG Tool
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