LNG MARKETS
PATH TO THE FUTURE

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March 22, 2016
Agenda

• The goal: LNG marketplace with international significance
• Current conditions set the stage
• Requirements for a marketplace
• Futures: Physical delivery or derivative convergence
The goal: LNG Hub

Create a trading hub for LNG in Japan with international significance
Conditions are right

LNG supply grows
Japan absorbs it
LNG is very important to Japan

one Chevron LNG tanker carries enough natural gas to power all of Japan for over 9 hours
Plentiful supply sparks demand
Asia needs LNG
Market focus on Asian demand

- Japanese LNG imports declined for the fifth consecutive month in January, down by 1.19 Mt (-14.1%) y/y to 7.25 Mt. Over all of 2015, Japanese demand was weak, and contracted by 3.5 Mt (-4%) y/y. The country experienced a mild January, with HDDs the same as last year, and down by 7% on the five-year average, as El Niño continued to influence the climate.

- In January, Chinese LNG imports were up again strongly, increasing y/y by 0.34 Mt (16%) to 2.46 Mt. Pipeline gas imports were also up in January, increasing by 0.61 Mt (28%) y/y. The average price of pipeline imports (5.82 $/mmbtu) remained considerably below the average import price of LNG (7.32 $/mmbtu). January was also colder than normal, defying earlier forecasts, with HDDs up by 14% y/y.

- The most recent customs data show that South Korea’s LNG imports declined y/y in February by 0.1 Mt (-2.8%), to 3 Mt. This marks the fourth month in a row of y/y declines. Over 2015, South Korea’s appetite for LNG was soft, with total imports down by 3.7 Mt (-10.1%) y/y. LNG imports dropped despite colder weather in February, with 6% more HDDs y/y.

- Source: Energy Aspects
Trading hubs: The world of possibilities

- Japan CIF
- Japan/Korea North Asian markets
- Japan/Korea/Taiwan
- Japan/Korea/Taiwan/China
- FOB Australia
- FOB US
- FOB Norway
- FOB Qatar
- FOB/CIF Singapore
- And many more...
- Including a liberalized natural gas market that act as the price setter
The natural gas market looks at Asia as the demand center

And Japan is seen as the main center
LNG hub: The objectives

• To encourage the development of a trading environment conducive to liquidity and best practices
• Enable buyers and sellers with an environment conducive to managing risk
• Set environment where performance and financial risk is properly monitored
• To reflect market conditions in an environment designed to be fair and unbiased
• Generate benchmark not subject to non-market distortions
• Position the hub at the center Asian LNG price discovery
Current market conditions set the stage

- Growing supply of LNG will lead to more spot trading
- Natural gas prices are very cheap and suppliers look for outlets
- Main consumers seen in Asia
- Japan is seen as the main marginal price driver
- Market participants are still looking for a reliable price center
LNG Prices

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LNG des Northeast Asia (ANEa) half-month 1 (outright, USD/mnBtu)
LNG Prices in more detail

USD/mnBtu

01 Jan 15 To 31 Dec 15

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LNG des Northeast Asia (ANEA) half-month 1 (outright, USD/mnBtu)
Broad market affects LNG, comparison with Dated Brent
Henry Hub and Japan still far apart

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Fuel oil and LNG, a close correlation
Fukushima changed the energy equation in Japan and uncertainty continues

- Fukushima nuclear plant hit by tsunami March 11, 2011; plant disabled March 12.
- All nuclear plants subsequently shutdown.
- Restart of plants is fraught with uncertainty.
- On March 9, the Otsu District Court in Shiga Prefecture ordered Kansai Electric Power to halt the No. 3 and No. 4 reactors at its Takahama nuclear plant in Fukui Prefecture, after taking issue with the power company's safety protocols regarding earthquakes and tsunamis. The order is the first of its kind suspending the operation of a reactor in service in Japan and has raised questions about who among the many stakeholders -- utilities, the central government, local authorities, regulators, residents and courts -- has the power to start or stop them. (Nikkei)
LNG will continue to play a critical role in the energy mix

- The "best mix" of energy sources for 2030, projected by the government last year, puts the ratio of nuclear power at 20% to 22%. Former Economy, Trade and Industry Minister Yoichi Miyazawa said Japan "needs to operate some 35 reactors," suggesting the difficulty of achieving the target. In a survey by The Nikkei, 60% of people said the reactivation of nuclear power plants should not be promoted. (Nikkei)

Dependence on LNG to continue
Japan Energy Mix

2011
Fukushima disaster

% share of power


- Natural gas
- Hydro
- Renewables (exc hydro)
- Oil
- Nuclear
- Coal
Requirements for the LNG Hub

Extremely critical: A pre-existing marketplace
What makes for a robust marketplace?

- Sufficient underlying production/imports ensuring no squeezes
- Open trade
- No logistical bottlenecks
- No legal impediments
- Fungible quality of material
- Ample consumers/buyers
- Ample suppliers/sellers
- Ability to sell short and cover later
- Ability to buy and sell later
- Market liquidity
- Price transparency
- No single entity can control the price
- Reliable legal environment

[Market forces determine price]
Confidence in trading environment is key

- Legality and transparency go hand in hand
- Companies must meet performance and financial requirements
- Performance is paramount
- Alignment with market practice
- Sufficient spot market activity
Determinants of price

- Size of unit of trading, cargo or portion of cargo
- Specifications of LNG
- Quality escalators
- Delivered price basis; CIF or DES
- Quality and size of ship
- Time of delivery of shipment
- Location
- Payment terms
- Logistical definitions
- Volume tolerances for cargo delivered
Need for standards and definitions

- Analysis of existing practices
- Establishment of standards
- Determination of escalators
- Determination of marketplace
  either for futures with physical
  delivery or convergence with a
  published price

Underlying conditions already exist.
Determination of key attributes doable
with industry participation
Thank you

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