

Future of the LNG Short-Term and Spot Markets in Asia and New Actions of Buyers

November 6, 2014

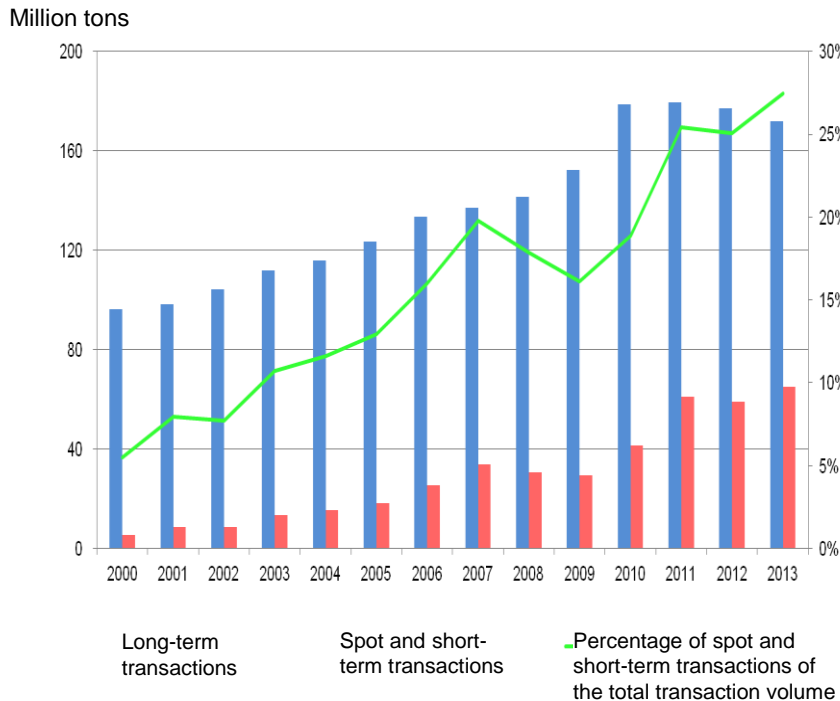
Chubu Electric Power Co., Inc.

Akihisa Mizuno

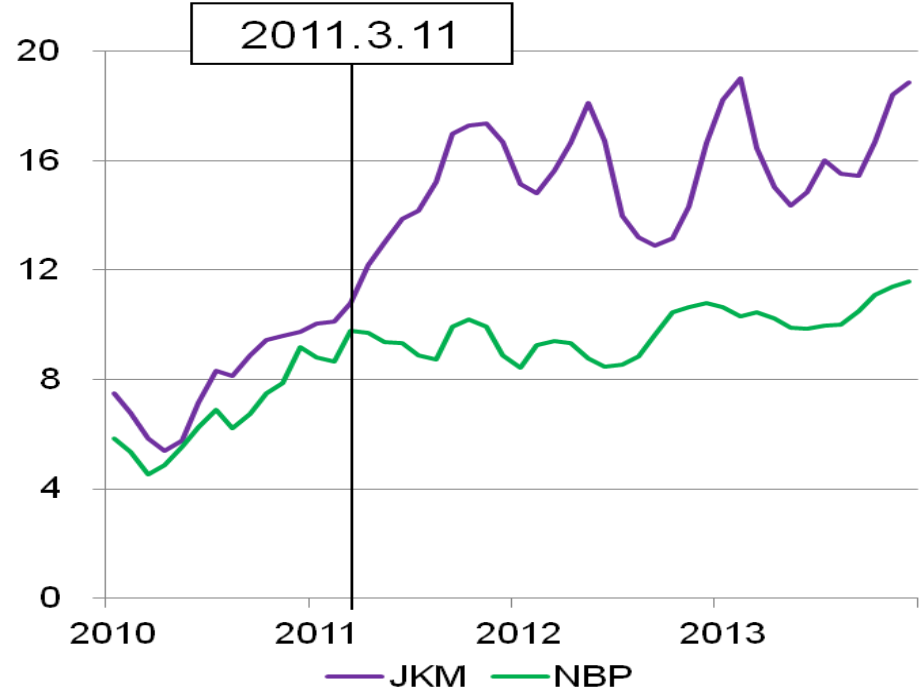
Current State of LNG Procurement: East Asia

- The majority of short-term and spot transactions are based on a formula linked with oil prices.
- The percentage of so called "spot" transaction (fix price for each cargo) is assumed to be less than 10%.
- JKM, the spot price index in East Asia, fluctuates considerably compared to the NBP.

[Breakdown of LNG contract terms in the world]



[Recent-year trends of JKM and NBP]



Structural Change in the Asian LNG Market

- In 10 years' time, an Asian LNG market will have been established with sufficient liquidity and allowing transactions with transparent prices.

[Factors of Structure Change in the Asian LNG Market]

<p>① US LNG imports to Asia</p>	<ul style="list-style-type: none"> ➤ From the late-2010s, massive quantities of North American LNG will be imported to Asia. ➤ Permitted volume for US LNG export to non-FTA countries is 82 mtpa (as of September 2014)
<p>② Payback state of LNG projects targeting Asia</p>	<ul style="list-style-type: none"> ➤ The number of Asian LNG projects with completed payback will increase from now on. ➤ In the projects with completed payback, diversified contract terms and easing of contract terms and conditions will be possible.
<p>③ Development of international gas pipelines in Asia</p>	<ul style="list-style-type: none"> ➤ In the 2020s considerable progress will be made in the development of international natural gas pipelines in Asia.
<p>④ Establishment of Asian natural gas and LNG hub</p>	<ul style="list-style-type: none"> ➤ "Asian LNG hub" refers to a site where LNG and pipeline natural gas are frequently traded in massive quantities, and the site's trading price is publicly announced and used as an index and made use of in spots and futures transactions. (Candidate sites: Tokyo, Singapore, Shanghai, Seoul, Taipei, Mumbai, etc.)

Issues Confronting Japanese LNG Buyers

- The uncertainty of the volume of LNG needed in the near and far future
- Reducing the Asia Premium price

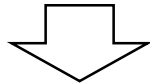
[Fluctuation of LNG Demand]

Japanese electric power companies purchase 60 million tons, 67% of Japanese LNG imports.

(FY2013 results)

Factors of LNG demand fluctuation

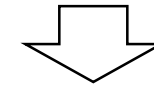
1. Uncertain reopening of nuclear power stations
2. The liberalization of the Japanese electricity market
3. Spread of renewable energy



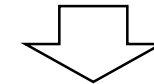
Volume flexibility for LNG demand fluctuation is needed

[Reducing the Asia Premium price]

A price formula linked to oil prices which doesn't reflect natural gas and LNG supply/demand is the mainstream in Asia.



One of the factors for high LNG price which doesn't reflect actual LNG supply/demand (= Asian Premium price)



It is necessary to establish highly transparent prices that appropriately reflect natural gas and LNG supply/demand.

Actions Taken by Chubu Electric Power

- Aiming at the establishment of an LNG market with sufficient liquidity and allowing transactions with transparent prices, Chubu Electric Power will change its procurement portfolio, and contract terms and conditions.

Procurement portfolio	Mid- and short-term contract, spot contract	<ul style="list-style-type: none"> • Increase the percentage of mid- and short-term contracts at the renewal of long-term contracts. • Increase the percentage of spot transactions in accordance with changes in the LNG market.
Contract terms and conditions	Restrictions on the destination	<ul style="list-style-type: none"> • Increase the number of destination-free new contracts. (North American project, and increase of the FOB percentage, joint procurement with overseas buyers)
	Price index	<ul style="list-style-type: none"> • Increase contracts applying such indexes as HH, NBP, or JLC. (Reduce the degree of dependence on oil-price-linked contracts) • Increase contracts applying Asian spot price indexes such as JKM or RIM. (Utilization of the LNG futures market)

Chubu Electric Power's Objectives

- Promoting structural changes in the Asian LNG market
- Establishing new fuel procurement models ahead of changes

