Special Bulletin

A Japanese Perspective on the International Energy Landscape (369) March 29, 2018

Analysis on Asian Natural Gas/LNG Trading Hub Development

Ken Koyama, PhD
Chief Economist, Managing Director
The Institute of Energy Economics, Japan

On March 27, I participated in an international conference in Tokyo on natural gas/LNG trading hub development in Asia. Numerous Japanese and foreign LNG policy and industry stakeholders joined the conference for active discussions focusing on the matter.

Natural gas and LNG, which are the cleanest among fossil fuels and feature great supply potential, are much expected to play a greater role in the global energy mix. A broad consensus is that global natural gas and LNG demand has been steadily increasing and will continue expanding in the future. However, the so-called “golden age for gas”, which had been much touted once, has yet to come to the whole of the world excluding the United States where gas has rapidly expanded under the shale revolution. This is because natural gas and LNG are exposed to severe competition from such rivals as coal, renewable energy, nuclear, petroleum products and LPG. Natural gas and LNG must further increase their competitiveness and overall attractiveness to enter the “golden age”.

Natural gas is literally gas energy. Therefore, its energy density is relatively low and transportation from production sites to consumption sites is costly. In the case where natural gas is used as LNG, particularly, a supply chain must include liquefaction facilities and special tankers, meaning huge initial investment. For this reason, long-term, stable and fixed contracts have been viewed as a key condition for establishing LNG projects. Such contracts have contributed to securing stable supply and developing long-term, stable relations between producers and consumers. At the same time, however, they have led to a rigid, inflexible market. In Asia, LNG prices have traditionally been indexed to crude oil prices to secure LNG projects and their economic feasibility. When crude oil prices remained around $100 per barrel from 2011 to the first half of 2014, however, Asian LNG prices indexed to crude oil prices were viewed as outstandingly higher than U.S. natural gas prices that plunged on rapid supply expansion under the abovementioned shale revolution. Then, the “Asian premium” problem for LNG prices has remarkably emerged as a structural problem of the Asian LNG market.

Becoming a key problem against such background is how natural gas and LNG would enhance their overall attractiveness and play their expected great role in Asia where the demand is expected to expand as the center of the global natural gas and LNG market. This problem represents how to enhance the competitiveness of natural gas and LNG. In this respect, natural gas and LNG market stakeholders are required to continue strong efforts to reduce costs through such measures as the introduction of new technologies and business models. If gas and LNG are to enhance their overall attractiveness and be selected “as preferred option”, however, supply and market flexibility as well as price competitiveness may have to be improved to make well-functioning market available. In an effort to increase market flexibility, stakeholders are moving to eliminate or ease the destination clause for LNG transactions and have made some relevant achievements.

Meanwhile, efforts have just started in Asia to develop natural gas/LNG trading hubs where highly flexible, liquid transactions are actively conducted to fully reflect market conditions in pricing and contribute to developing market functions. As the Asian premium problem for LNG prices has attracted attention, with the LNG market coming into oversupply, Asian countries such as Japan, China and Singapore have promoted initiatives to develop trading hubs for the future. However, an analysis on backgrounds and conditions for the development of representative US and European hubs indicates some key problems that Asia must overcome for developing regional hubs. A key point is that natural gas instead of LNG is actively traded on Western hubs. A background factor behind active, liquid transactions on these natural gas trading hubs is natural gas market liberalization or deregulation through which numerous, various players have participated in markets. Domestic or nearby gas production sites serve as key supply sources for hubs. Also important for hubs are advanced pipeline networks and other infrastructure to physically enable such transactions.

Given these matters, Asia has various challenges to be resolved before hubs are fully developed. Japan has promoted electricity and gas system reform, becoming a top runner in liberalization or deregulation in Asia. As indicated by Western cases, however, a long period of time is required for highly liquid transactions to be realized even after full-fledged liberalization. Singapore, which has freer markets than other Asian countries, has promoted specific efforts to develop an LNG trading hub. However, Singapore itself represents a small market and is physically distant from Japan, China and South Korea that form the largest Asian LNG market. China with great market potential is trying to develop hubs in such cities as Shanghai under government support. China has some advantages including various supply sources like domestic production sites, pipeline imports and LNG, and relevant infrastructure development. However, full market liberalization is still left for the future, with problems existing with relations between the government and the market. These Asian initiatives to develop hubs have thus left their respective problems to be resolved. However, this means that a well-functioning hub could be developed at any of these candidate sites.

A fundamental problem regarding LNG trading hub development is how to enhance the liquidity of LNG transactions. The liquidity may be enhanced if progress is made to freer and more flexible LNG trade due to the effect of removal of destination clauses and large scale introduction of U.S. LNG with greater supply flexibility. At the international conference, however, an interesting point was made as a reference regarding spot and forward transactions that rapidly developed in the first half of the 1980s for the benchmark Brent crude oil.

The activization of Brent transactions, as well as the development of relevant price reporting services and a futures market, has allowed Brent to become a global benchmark. However, the average number of spot Brent crude cargoes is limited to one or two per day, compared with three to four cargoes for LNG imported into Japan. A key point for Brent transactions is that a cargo is resold frequently in a “daisy chain” manner, leading to numerous transactions and pricing signals. In fact, however, there have been unique conditions for Brent transactions, including a great number of market players, their active transactions for tax-saving purposes and a great number of middlemen engaging in speculative trading in anticipation of price volatility. Any simple comparison or analogy between Brent and LNG cannot be warranted. Given necessary conditions for active transactions on Western natural gas hubs and time-consuming hub development, however, it is important to further increase the liquidity of LNG transactions to develop LNG hubs in view of the current oversupply. To this end, various ideas and innovations are required. Initiatives responding to market players’ real needs should be promoted.

Contact: report@tky.ieej.or.jp
The back issues are available at the following URL
http://eneken.ieej.or.jp/en/special_bulletin.html