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Japanese LNG import prices – are alternatives to JCC evolving?

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The question of whether alternatives to JCC are evolving in the Japanese LNG market is important because the answer can make a fundamental difference not only in Japan but also elsewhere in Asia. This article discusses the problems of the current pricing regime and then examines LNG market conditions (including the supply–demand balance in Asia, and the benefits of, and constraints on, developing alternative pricing mechanisms). The conclusion assesses the possible future direction of LNG pricing in the Pacific Basin.

The problems of JCC

The rationale of current JCC indexation is being questioned by an increasingly large number of Japanese stakeholders which include: LNG importing companies (power and gas utilities), final consumers, government officials, politicians, and media sources. The rationale clearly existed in the 1970s and 1980s when LNG was introduced, as it was competing directly with crude oil in power generation. But in normal circumstances, oil-fired stations are used for peak shaving and account for only around 10 per cent of total power generation as power supply. Thus far, buyers and sellers of LNG have been unable to find a mutually acceptable alternative to JCC.

By definition, LNG prices determined by JCC indexation have nothing to

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do with LNG or natural gas supply–demand fundamentals, but are solely related to global crude oil prices. A serious problem arose when crude oil prices shot up after 2011 and, as a result, Japan's LNG import price reached $16–18/MMBtu. This period coincided with the Fukushima accident, which had led to a large increase in LNG imports to offset the reduction in generation from nuclear stations. It also coincided with the US shale gas revolution, which resulted in Henry Hub prices falling to $2–4/MMBtu. High LNG prices caused by the oil price hike at a time of national energy security crisis, when contrasted with low US gas prices, attracted significant attention from public, industry, and policy domains in Japan. This led to a perception that there is a problem with the current price mechanism and that something has to be done about it.

The pressures on LNG buyers for competitive procurement

Post 2011, the procurement of LNG at more competitive prices has become a national priority. This is because high LNG prices have emerged as being an important factor in Japan's trade deficit and in its rising energy and power generation costs. In FY 2010 (before the nuclear accident) Japan had a trade surplus of 5.4 trillion yen, but recorded a 14 trillion yen trade deficit in FY 2013, while power generation costs rose by 4.4 yen/kWh during this period – a 43 per cent increase in industrial electricity prices. These changes were caused partly by significant increases in the volumes of LNG and other fuels imported to compensate for the loss of nuclear power, but LNG price increases also played an important role. Thus, together with nuclear restart efforts, competitive procurement of LNG has become an energy policy priority for Japan.

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For LNG importers, competitive procurement has become a real and serious challenge for their survival. Success (or failure) of competitive procurement will have a direct impact on the financial performance of electric utility companies, which account for about 70 per cent of total LNG imports. Substantial increases in LNG and fuel import costs, combined with limitations on cost pass-through to customers by the government, have resulted in most of the utilities making historically high financial losses. At the same time, they have been under strong pressure from government, consumers, media, and the general public to make serious efforts to lower energy costs. For gas utility companies, the share of LNG purchase costs is much larger than for electric utilities, emphasizing the significance of competitive procurement and cost reduction.

Finally, ongoing electricity and gas market reform (liberalization) in Japan will increase competitive pressures on utility companies. The retail electricity market is scheduled to be fully liberalized in FY2016 (with legal unbundling to be introduced in FY 2018–20); gas sector liberalization is scheduled for FY 2017 (with legal unbundling for the three major gas utilities in FY2022). In a liberalized market, the development of a competitive advantage in fuel procurement will be an important key to survival and success, and modification of existing JCC-based contracts and the introduction of alternative pricing mechanisms have become a priority for electric and gas utilities.

Changing LNG market conditions in Asia

Supply–demand conditions in Asian LNG markets will be the key determinant of improved procurement (specifically price) conditions. In 2015, the Asian LNG market is over-supplied and favours buyers due to a combination of: weak demand growth in major consuming countries such as China, Korea, and Japan, and increased LNG supplies from the start-up of new projects in Australia. As a result, Asian spot prices declined substantially from over $15/MMBtu in Q1/2014 to around $7/MMBtu by Q2/2015, a five year low and similar to European price levels.

Many market observers believe these conditions are likely to continue at least for the next four to five years, because the expected supply additions from US and Australian projects will be more than sufficient to meet demand growth. On the demand side, Japan's nuclear restarts will further weaken the LNG appetite of the world's largest LNG importer and affect the supply–demand balance in the market.

Of course, there are many uncertainties in this outlook. Demand in Asia may pick up unexpectedly due to the effects of possible delay in nuclear restarts in Japan, and/or any slowdown in nuclear power generation elsewhere in the region. Any accidents and operational problems would also reduce LNG supply. But more importantly, lower LNG contract prices (because of indexation to crude oil) are beginning to impact the LNG supply–demand balance. Lower spot and contract LNG prices may stimulate LNG demand, particularly in emerging markets, but may also negatively impact the economic viability of, particularly, 'greenfield projects'. In short, the current low oil and LNG price environment may lead to a tighter supply–demand balance beyond 2020.

Buyers of LNG in Japan and elsewhere in Asia are struggling to explore any opportunity to improve the competitiveness of LNG procurement

under current market conditions. While there are uncertainties over the long run market conditions, buyers are now embarking on various procurement initiatives, including new ideas for pricing mechanisms.

Current situation and prospects for alternative pricing

But the fact remains that almost all of the existing long-term LNG contracts in Japan (and Asia) have JCC indexation and the traditional sellers of LNG have no incentive to change the current pricing regime. Therefore, buyer–seller negotiations on pricing may focus on indexation adjustment – for example by changing the 'slope' or reintroducing an 'S-curve'. This may assist buyers in securing lower prices, but will be of no help in addressing the 'rationality' of the price in relation to LNG (or natural gas) market supply–demand fundamentals.

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Despite these drawbacks, buyers have continued to explore new or alternative price mechanisms, with Henry Hub-based pricing emerging as a 'front runner'. This is based on the widely shared expectation in Japan that US LNG exports will have many advantages: a lower price than JCC-indexed LNG, diversification of import sources, diversification of price mechanism, and greater supply flexibility (specifically destination-free delivery). US LNG import contracts signed by utilities, trading houses, and others, based on Henry Hub pricing, could reach 17 million tonnes around 2020, accounting for around one fifth of Japanese imports.

But with oil prices around $50–60/bbl the competitiveness of Henry Hub pricing against JCC is being questioned. As US LNG import requires fixed transportation and liquefaction costs of some $6–7/MMBtu, landed costs of US LNG to Japan are expected to be in the range of $11–12/MMBtu. While this is cheaper than actual import prices in the period 2011–14, it is significantly higher than the mid-2015 spot price, and contract prices are falling below $10/MMBtu. Thus buyers in Japan have started to take a more cautious stance toward imports based on Henry Hub pricing. The latter reflects natural gas supply–demand fundamentals in the USA, not in Asia, limiting its advantages as an alternative to JCC. Despite these problems, however, US LNG imports are still regarded as valuable for Japan because of other advantages (mentioned above) such as supply and price diversification and flexibility.

Spot LNG pricing presents another potential alternative to JCC. Several price reporting agencies (PRAs) publish regular spot price assessments, based on their own information and intelligence. By definition, spot prices reflect supply–demand conditions and can be regarded as a market reference, but there are issues related to reliability and transparency of prices. Though LNG spot trade has increased steadily and now accounts for about 10 per cent of global LNG trade (based on 407 cargoes in 2014, estimated by ICIS Heren, multiplied by 60,000 tonnes average cargo volume and divided by total LNG trade), the liquidity and depth of the market is not sufficient to be regarded as a reliable benchmark by many traditional buyers, who also tend to be wary of price volatility. But there is an expectation in the industry that further growth in trading will create greater liquidity and flexibility, and spot prices will eventually become a reliable benchmark for contract prices. In this regard, market participants have expectations that US LNG imports combined with the removal of destination clauses, will create conditions for greater spot trade.

The creation of an Asian gas hub is a longer-term measure for an alternative price mechanism. Asian hub-based pricing could be seen as the most desirable solution, in that it would genuinely reflect Asian gas market fundamentals. The success of US/European hubs, such as Henry Hub and NBP, as well as an observed ongoing shift to gas hub-based pricing in Continental Europe, has created the momentum to promote the establishment of gas hubs in Asia. In Japan and China, the creation of gas hubs is being considered, but current market conditions in these countries suggest that it will take longer to create well-functioning Asian gas hubs. Market liberalization, along the lines of the reforms currently under way in Japan, will be key to this approach, but the extent and timing of its impact is difficult to predict.

Corporate strategies for LNG procurement

Given current developments and expectations, Japanese and Asian LNG buyers are now trying to take a 'portfolio' (diversification) approach to pricing. Understanding that there is no perfect solution, buyers are exploring all available price mechanisms – such as Henry Hub, NBP, spot LNG, hybrids of these mechanisms, and JCC. The purpose of this approach is to reduce dependence on traditional JCC pricing and to promote risk diversification in the face of market uncertainties, until a viable alternative emerges which can fully replace JCC indexation.

For example, Chubu Electric, the second largest LNG importer in Japan after TEPCO, is reported to have a target to reduce traditional JCC pricing to less than 50 per cent of total imports. Chubu and TEPCO have

established JERA, a comprehensive alliance company which will be responsible for power generation and fuel (including LNG) procurement. JERA's LNG procurement policy will be very important for the future of Japan's pricing regime as its annual purchases may be as high as 40 million tonnes, accounting for almost half of the country's total imports. It is believed that JERA will use alternative mechanisms (discussed above) to reduce dependence on JCC. Other major importers such as Tokyo Gas, Osaka Gas, and Kansai Electric are known to be adopting similar approaches.

Conclusion

Given the dominance of existing contracts, it is highly likely that JCC pricing will remain the principal mechanism in Japan and Asia up to at least the early 2020s. Even in the longer run, JCC can remain an important part of Asian LNG pricing, depending on future negotiations between buyers and sellers.

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But the market environment is changing rapidly. The prevailing over-supplied market, expected growth in LNG supply flexibility, and buyers' pursuit of competitive LNG, all point to a gradual shift towards a pricing regime which better reflects market fundamentals.

The answer to the question posed in this article is, therefore, that alternatives to JCC are indeed evolving in the Japanese LNG market; buyers are searching for alternatives and the share of JCC-based LNG is likely to decline. Currently, there is no clear answer as to what will be the single most promising alternative to JCC, but options that will better reflect market conditions are being introduced and will be tested.