

Asian LNG Market Development to 2025: Pricing and Contractual Challenges*

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Introduction

It is well known that the Asia-Pacific LNG market has been experiencing very substantial change since 2014. This short paper looks forward to 2025 at the main changes in supply and demand which may be expected, and which governments and companies may wish to introduce especially in relation to contracts and prices, over the period up to 2025.

LNG Supply and Demand

Global LNG supply capacity will increase by about 50% during the period 2015-20 (Figure 1). Most of this capacity is either in the process of being commissioned or under construction in Australia and the US. It is less certain what will happen post-2020. Many other LNG projects are under consideration in East Africa, Canada, the US and Australia but the fall in prices since 2014 to much lower levels – which are predicted to last for several years - has cast doubt on their economic viability.

Since 2014, oil prices fell from more than \$100/bbl to less than \$30/bbl but had recovered to around \$45-50/bbl by May 2016. Asian LNG prices have fallen from highs of \$15-18/MMbtu (and higher for spot prices) to around \$5/MMbtu in the second quarter of 2016 (Figure 2). In addition to the fall in absolute prices, regional gas price differentials have narrowed substantially: in early 2014 average Japanese LNG import prices, UK NBP (roughly equivalent to a European price) and US Henry Hub were roughly \$16, \$10 and \$5/MMbtu respectively. By early 2016, those levels had fallen to \$7, \$5 and \$2/MMbtu respectively. In other words the spread between Japanese gas prices and those of Europe and Asia narrowed from \$6 and \$11/MMbtu respectively in 2014, to \$2 and \$5/MMbtu respectively by 2016. Within a very short time the famous 'Asian premium' in relation to LNG import prices has disappeared.¹

If we turn to likely future Asian demand, the major surprise has been a marked slowdown in growth rates relative to what was expected. This particularly relates to China where the 'new normal' economic growth has been matched by a slowdown in energy and gas demand. While

♦ This paper draws heavily on work by the author and colleagues to be published in a new book: eds. Anne-Sophie Corbeau and David Ledesma, *LNG Markets in Transition: the great reconfiguration*, Oxford University Press: OIES/KAPSARC (forthcoming 2016).

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¹ It is a little difficult to find a precise definition of the 'Asian premium' but it generally refers to excess prices paid by Asia-Pacific countries for oil and gas relative to those paid in other regions for the identical products.

projections of future energy demand growth in many countries have clearly been influenced by carbon reduction commitments arising from the December 2015 COP21 Conference in Paris, many Asian countries have a much more immediate problem which is that air quality in major cities is at crisis levels. Although renewable energy can make a significant contribution to air quality improvements, if *rapid* improvements are to be achieved over the next 5-10 years, there will be little alternative other than to replace particularly coal (but also oil products) with gas. This applies particularly to Chinese and Indian cities, but also a number of other cities in the Asia-Pacific region with poor air quality.

The fall in international gas prices will make it easier for many countries to afford additional LNG imports but the actual figures remain uncertain. As an analytical community we are poor at predicting price elasticity of gas demand. In the period up to 2020, uncertainty in relation to Japanese nuclear power restarts, and Chinese economic recovery are the two most important individual factors which may impact on Asian gas demand; the difference between the high and low demand cases in these two countries could total nearly 50mt of LNG (Figure 3). Post-2020, the most important Asian gas demand developments concern relatively new LNG importing countries – Malaysia, Indonesia, Vietnam, Thailand, Pakistan, Bangladesh, Philippines and Singapore – which individually have relatively small demand but (relative to our low demand case) could create an additional 25mt of demand by 2025 and 50mt by 2030.

Prices and Contracts

The recovery of Asia-Pacific LNG demand prospects are strongly dependent on two elements relating to price:

- in relation to price *level* – LNG must remain substantially below what importers experienced during the 2011-14 period;
- in relation to price *formation* – LNG contracts need to move away from the traditional JCC oil-linked, to market pricing based on Asian supply/demand balances.

I have already shown that price levels have fallen substantially. We also have an expansion of interest in spot LNG price indices such as JKM, RIM, Argus and JOE. In 2016, some Asian buyers are hedging their price exposure using the UK's NBP hub price which is very close to the Platts JKM spot price (Figure 4).²

In relation to contracts, the Asian LNG market has been dominated by traditional 20-25 year long term take or pay contracts, but as markets have evolved these contracts have failed to provide the flexibility needed by buyers to cope with rapid swings in both prices and demand which they have experienced in their markets. When combined with government legislation to liberalise access to pipelines and LNG terminals, and the entry of new companies to compete with established

² This is because north west Europe (particularly the UK with substantial receiving terminal capacity) is a region where marginal cargos can always be delivered due to liberalised access to regasification terminals and markets which operate with hub-based prices. This is likely to be the lowest price for LNG globally for cargos which cannot find any other market. Hence Asian buyers wishing to ensure that they are paying a low price for spot cargos are hedging against NBP prices.

utilities, it is clear that the latter need to diversify their contractual portfolios away from their traditional heavy dependence on long term contracts. This will not mean the end of such contracts but rather two new developments:

- the shortening of long term contracts from 20-25 years to perhaps 8-12 years
- the diversification of Asian utilities from heavy dependence on these contracts to a portfolio of perhaps one third long, one third medium (5-8 years) and one third short term (less than 5 years).³

New contracts will have:

- greater destination flexibility ie buyers will be able to send cargos which they do not need to other markets;
- greater volume flexibility ie take or pay levels lower than 85-90%;
- regular price reviews, with much more precise criteria for price changes than traditional contracts, able to be adjusted to changing market conditions.

The Development of Asian Hubs

The logical endpoint of this price and contractual transition will be the development of Asian gas and LNG hubs – along the lines of those operating in North America and Europe. There are a number of different requirements for hub development starting with third party access to facilities and moving on to price discovery, OTC and eventually futures trading. Eventually a hub develops with a forward curve of prices several years ahead, which is sufficiently liquid to be accepted as a price reference for long term contracts. However, in North America and Europe this process required a minimum of 5 – and mostly closer to 10 – years to complete; and in many European countries has yet to be completed.

The only existing Asian gas hub is in Singapore which has a liberalised gas market and where trading teams from many major companies have based their operations. Singapore has first-mover advantage but the disadvantage of being a physically small market with limited growth potential. Nevertheless, the Singapore hub could evolve from its current small physical status to a virtual hub encompassing the whole of South East Asia – given the potential noted above for LNG demand growth in that region.

In Shanghai, there is a benchmark price at the citygate where gas is priced against fuel oil and LPG; this price is intended to evolve to encompass prices of gas from a range of sources – domestic and international, pipeline and LNG. The Shanghai Petroleum Exchange is trading small quantities of LNG, but volumes are so far too small and erratic to constitute a significant traded market. Although the term ‘Shanghai hub’ does not yet reflect a deep liquid traded market, there is great potential for a significant gas hub to develop in that location. The likely growth in Chinese gas demand (albeit perhaps slower than was experienced and expected a few years ago), and the

³ The actual percentages will depend on the progress of liberalisation, the portfolio of individual buyers and the development of a liquid spot and short term market. Generally speaking, utilities in liberalised markets have tended to favour shorter and medium term over longer term contracts.

diversity of sources of gas supply – domestically produced and imported, pipeline gas and LNG – are ideal conditions for the establishment of a physical gas hub. A key development will be third party access rights to pipelines and LNG terminals which currently exist, but at the discretion of the owners of those facilities.

In Japan, there has been discussion of an LNG hub for several years but in 2016 these became much more serious with the publication of METI's new LNG strategy. The location of the hub is likely to be in Tokyo Bay due to the concentration of import volumes in that location (but could also be in Osaka Bay). The passage of liberalisation legislation to open up the LNG terminals to third party access in 2017 has been an important step but this needs to be accompanied by a commitment of all parties to spot and short term trading, and the establishment of common trading rules and regulations. Because of the lack of pipeline connections between the different regions in Japan, the initial establishment will probably need to be a physical LNG hub which in time (with greater regional pipeline connectivity) could evolve into a virtual hub for the whole of the country.

Conclusion

In conclusion, in the period up to (and possibly beyond) 2020, a surplus supply over demand and lower prices will provide ideal conditions for: increasing LNG demand in Asia, increasing spot LNG trade, the introduction of market pricing and – over a 5-10 year period – the development of Asian hubs. All of this will be very positive for the competitiveness of LNG in Asian energy markets.

However, this will require the liberalisation of gas markets across Asia but particularly in the major LNG import markets. In North America and Europe, liberalisation has proved to be a destructive process in relation to established utility companies and the traditional contractual structures on which the industry was established. Because Asian governments and companies have traditionally viewed these structures and arrangements as essential for their security of gas and energy supply, liberalisation will require a more relaxed attitude towards security of supply and risk in LNG markets.

Writer's Profile

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Jonathan Stern has a range of other roles, including: honorary professor at the Centre for Energy, Petroleum & Mineral Law & Policy, University of Dundee; fellow of the Energy Delta Institute; and, since 2011, the EU Speaker for the EU-Russia Gas Advisory Council. In 2003, he was appointed Director of Gas Research at the Oxford Institute for Energy Studies.