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Can Demand for Imported LNG in Asia Increase Because It is a 'Cleaner' Energy Source?

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Introduction

During the period 2014-21, global LNG supply is expected to increase from around 320 Bcm to more than 500 Bcm. Given that traditionally between two thirds and three quarters of global LNG supply has been imported by Asian countries, it could be expected that a similar proportion of this increase will be landed in Asia. However, concerns about competitiveness, security and environment which have increased during the 2010s, mean that such a conclusion is not automatic and requires answers to three inter-related questions. Specifically, whether Asian LNG imports will be cheap enough, secure enough and clean enough? This article addresses those questions.

The Different Asian Markets for LNG

Asia is a very large continent composed of many countries, but in terms of LNG imports it can be divided into the 'mature' markets of Japan, Korea and Taiwan; and others. The future of LNG in the mature markets is dependent, particularly, on nuclear power development in Japan and Korea. Many Japanese nuclear plants, closed post-Fukushima, are still in the process of being reopened. To the extent that these plants are able to reopen, LNG import requirements will fall significantly from post-2011 levels. In South Korea, a fundamental reorientation of energy policy by the Moon government away from nuclear and coal-fired power, may result in greater demand for LNG than was previously anticipated. A similar trend can be anticipated from Taiwan's move away from nuclear power, but the scale is less significant.

Outside the mature markets the situation is complicated and not easy to describe in a short paper. Fig. 1 shows four key drivers of gas and LNG growth in nine Asian gas markets:

- those where production or pipeline gas imports are likely to decline;
- those where the energy mix, security of supply and environmental policies are likely to favour gas;
- those with a problematic upstream investment framework which, despite probable resource availability, is unlikely to attract sufficient investment to promote domestic production growth;

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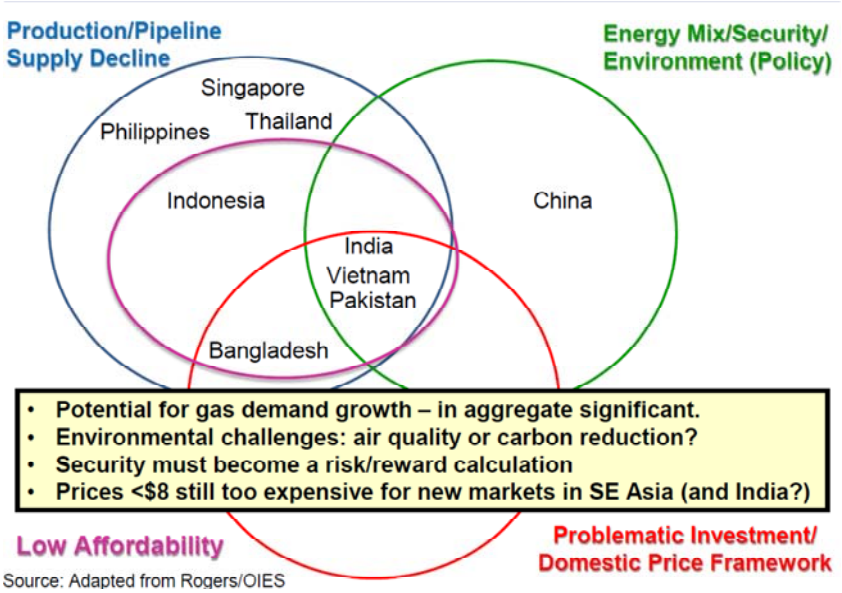
- those where domestic gas prices and affordability – both in absolute terms and relative to other sources of energy – are likely to restrict development of either production or imports.

Fig. 1 Criteria for LNG Import Expansion in Asian LNG Markets

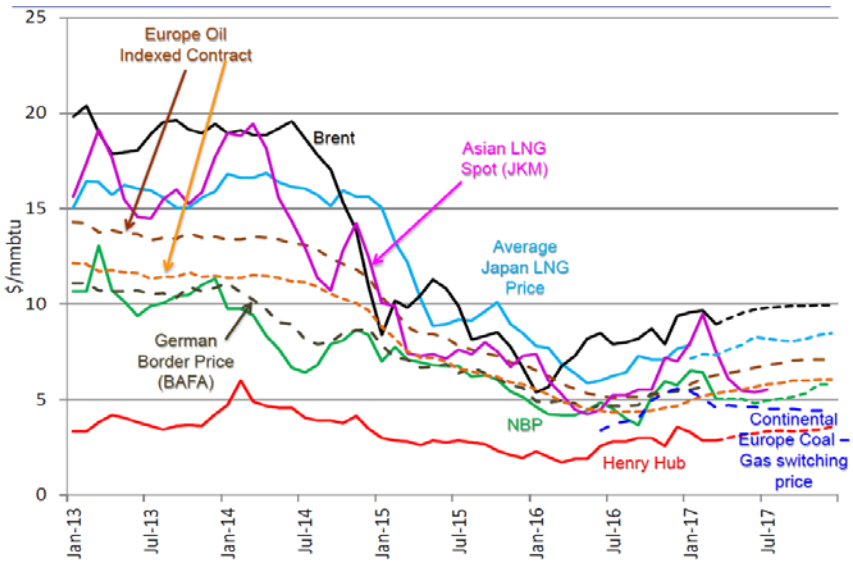


Source: Adapted from Rogers/OIES

Cheap Enough?

Fig. 1 suggests that China will be the key country for gas/LNG demand growth in Asia. Singapore, Philippines and Thailand also have good potential, while particularly in South Asia (India, Pakistan, Bangladesh) growth is likely to be held back by a combination of a poor investment environment and low affordability.

Fig. 2 Regional Gas and LNG Prices 2013-17 ($/MMbtu)



Source: Rogers/OIES based on data from CME, Platts and Argus

Another measure of affordability is shown in the regional price chart (Fig. 2). This shows the collapse in Asian spot LNG prices which preceded the 2014 fall in (oil and therefore) JCC prices. These two trends eliminated the 'Asian premium' (ie the gap between Asian LNG and Atlantic Basin gas prices) to the point where, by 2017, the differences were roughly equivalent to transportation costs. Pricing of Asian LNG is also becoming more complex, as the traditional crude oil-linked JCC formula is replaced by hybrid formulae - a mixture of oil, hub (Henry Hub and NBP) and spot (JKM and others) prices. Efforts are underway to create hubs with local and national prices in Singapore, China and Japan.

The fall in prices has been good news for Asian LNG importers, but bad news for exporters, many of which (particularly from Australia and the US) have projects coming on stream in the second half of the 2010s with higher costs than post-2014 prices. Similar cost problems may apply to new greenfield projects currently under consideration in East Africa and North America. In order to be confident that their LNG will be affordable, project developers must be able to deliver to mature markets in Asia at 2014-17 (rather than pre-2014) price levels. In addition, it may not be sufficient (as it has in the past) for sellers simply to deliver LNG. To be sure of finding a market for their gas. they may also have to participate in creating downstream network infrastructure.

But in addition to these issues, there are competitiveness challenges:

- in countries where the priority for energy supplies is affordability rather than environmental cleanliness. coal – and particularly domestic coal – will always be cheaper than imported LNG, and regarded as more secure.
- the fall in the cost of renewables – specifically solar and wind power – means that these sources are starting to compete more easily with imported LNG (although they still require subsidies in many countries) and are also regarded as secure since they are domestically produced.

Secure Enough?

Much Asian government policy on energy security is still based on the assumption that all domestically produced energy is secure, while any energy which needs to be imported is insecure (even though history shows this to be incorrect). This not only disadvantages imported LNG in comparison to domestically produced coal and nuclear power, but also in relation to renewable energy. Policy is also overly focussed on the *physical* security of imported energy instead of the much more important issue of *price* security. During the 2011-14 period when a variety of problems required Asian countries to considerably increase their imports of LNG, their main problem was not inability to source sufficient supplies, but the huge increase in LNG prices, due partly to tight global LNG supply/demand balance and partly to the increase in oil prices.

Asian LNG market players also tend to view security in absolute terms, rather than relating to a risk/reward calculation. This is illustrated by the discussion of destination clauses in LNG contracts and whether these should be phased out. Originally these clauses were related to technical requirements of the facilities, but also to security of supply and demand. Importers wanted to be sure that cargoes they had bought would not be diverted elsewhere, and exporters wanted assurance that there would be a guaranteed market for their LNG. As markets matured, destination clauses became a burden to importers at times of insufficient demand to take all their contracted cargoes. Both parties – importers and exporters – may also find it more profitable to deliver these cargoes to an alternative market. Phasing out destination clauses could be seen as weakening the security element of long term contracts. But as LNG trade has expanded – and will expand further over the next five years – it has become much easier to purchase spot cargoes and security will increasingly be determined by willingness to pay prices higher than those offered in other markets.

Clean Enough?

While it is well known that, in terms of emissions, natural gas is the ‘cleanest’ fossil fuel in comparison to oil or coal, it is not clear that environmental issues – either relating to air quality or carbon emissions – are a sufficiently important priority in many Asian countries for gas to be prioritised as an energy source. Natural gas and imported LNG can have big advantages for cities which need to quickly phase out coal-fired generation or urban heating to improve air quality. But gas is also a fossil fuel which emits carbon and has additional problems in relation to methane emissions, particularly for LNG transported over long distances. In most Asian countries gas is certainly clean enough, but it is not clear this is a sufficient advantage to promote demand. In other countries, the carbon and methane impacts of gas may raise questions as to whether it is clean enough.

Conclusions

It is difficult to generalise the prospects for Asian LNG demand across a great many countries. For China, India and south east Asian countries, the prospects are very promising if prices can be affordable and competitive with other sources of energy. To be ‘cheap enough’, imported LNG will need to be sold at prices in the 2015-17 range – in other words $5-8/MMbtu - rather than the much higher prices seen during 2011-14. For LNG to be regarded as ‘secure enough’, policies and attitudes towards security – especially a requirement to take greater risk – will be required. In countries where environmental issues related to coal burning are paramount, and there is political urgency to improve urban air quality, imported LNG may have strong advantages. In most Asian countries gas will certainly be ‘clean enough’ but it is not clear whether this is sufficient to increase demand unless pricing and security concerns are met. There is good potential for LNG demand to increase in Asia, but in the majority of countries competitiveness and security currently seem likely to be more important criteria than its environmental advantages.

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.