S'pore could get better deal buying gas from US

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Energy security is a major determinant for a country's development and economic growth. As a surrogate for the latter, the demand and security for energy have become extremely critical issues facing countries today.

Singapore is no exception.

Not only is it an energy-disadvantaged country, it is also the only member state in the Association for Southeast Asian Nations (ASEAN) without indigenous energy supply, and is completely reliant on energy imports — oil from the Middle East and natural gas from within ASEAN — to meet its development needs.

As such, Singapore faces a higher exposure and vulnerability to energy security threats.

Supply Is Tightening
It is within this milieu that its energy security drive has become more urgent and challenging, particularly with the emergence of several factors.

Firstly, the economic rise of China and India has led to a tightening supply of crude oil and natural gas. A forecast by the International Energy Agency last year projected that energy demand in ASEAN is to increase by 85 per cent by 2035.

Secondly, imperatives of climate change complicate the task. Singapore has to focus on ensuring an adequate level of energy security while reducing its carbon footprint.

Development of new and reliable energy sources may be inadequate if these are not sufficiently clean and green.

Thirdly, with worldwide energy markets - in particular, the traditional fossil fuels - getting more compact and inelastic, and coupled with the economic cycles, Singapore is exposed to volatile energy prices that will likely be on a long-term upward trend.

Why Natural Gas
Given these issues, the investment in a liquefied natural gas (LNG) terminal, due for completion by 2013-2014, is a logical move for Singapore.

Gas is touted as the most benign of fossil fuels, in terms of carbon dioxide emissions, and is already a vital energy source in many applications, including electricity generation and fuel for vehicles here.

The terminal's completion will reduce Singapore's reliance on imported oil and the delivery of piped natural gas from neighbours Indonesia and Malaysia, whose own domestic gas needs are expected to grow in the near future.

It is estimated that global gas reserves can last for at least another century, though with the development of unconventional gas, like shale and coal-bed methane, reserve potential could well exceed 250 years.

In ASEAN, current proven natural gas reserve is about 224 trillion cubic feet (tcf) - essentially concentrated in Brunei Darussalam, Indonesia and Malaysia - enough to meet demand for another three decades based on current production rates of 7tcf annually.

Once Natuna D-Alpha, presently the largest single unexploited gas field in the South China Sea and within Indonesia's territory, opens up with its projected reserves of 46tcf of recoverable hydrocarbon gas, ASEAN, including Singapore, would benefit immensely.

Having said that, the total project cost to put Natuna D-Alpha's gas on stream can be exceptionally costly, given the reported excessive carbon dioxide content of the gas. Therefore Natuna gas, either transported by pipeline or via LNG, is expected to cost more in the future.

Alternative Sources

This being the case, it is timely for Singapore to earnestly evaluate its options of buying gas from markets beyond the South-east Asian region. Which are the alternative markets?

It is a fact that the Russian Federation holds the world's largest natural gas reserves with 1,680tcf, while Iran and Qatar each have about 900tcf of proven gas reserves.

In the United States, with new applications technology and innovation in drilling, shale gas has emerged significantly as a source of natural gas, and has contributed to the swelling of its gas reserves.

It is now speculated that the US has up to 100 years' reserve of natural gas. Such economic success of shale gas in the US has led to a brisk shale gas development in nearby Canada and, more recently, spurred interest across Europe and Asia-Pacific.

Doing the Math

Gas exports to Singapore have conventionally been lucrative to the sellers as prices are pegged to international demand. Singapore is reportedly currently paying in the vicinity of US$15 (S$19) per million Btu (British thermal unit) to Indonesia, based on current crude oil price.

With the completion of the LNG plant, Singapore can soon explore gas supply from around the world. The country can diversify its purchases - which, in theory, will address challenges of economic competitiveness and environment sustainability, and improve both energy security and gas price, barring unforeseeable circumstances like global undersupply or international calamities.

Based on preliminary calculation, LNG is about 4.2 million Btu per barrel. Each barrel is 137.6kg and each million Btu is 32.76kg. At ten cents per kg (or S$10 per tonne), cost of sea-transport gas should be no more than S$3.28 (or US$2.60) for one million Btu.

Supposing long-term gas price in the US normalises at a ceiling of US$6, considering the vast shale gas development; and with various miscellaneous processing - liquefaction and re-gasification - no more than US$5, total gas-buying cost from the US, shipped by LNG/LPG (liquefied petroleum gas) carriers, could probably be no more than US$14 - a more economical rate.

This price can even be lower for the intra-Asia route, with the mass maritime traffic

between Middle East and South-east Asia. Furthermore, with large numbers of new LNG ships likely to enter the market in the next two years, the charter rate would fall even more.

With Singapore's robust sea linkages and connectivity, coupled with the availability of modern technology for LNG or LPG liners to carry gas more effectively, it may not be utopian after all to believe that buying gas from as far afield as the US could be a more cost-efficient energy security move than importing from within South-east Asia.

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