

Pacific Basin LNG

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We are in a new era of energy shocks. Oil prices are hovering around \$40 per barrel and could remain so for a long time to come. Surpassing the growth rate of world oil consumption, the world natural gas trade is growing at three percent per year. LNG trade, which accounts for 26 percent of world natural gas trade, is expected to grow at more than 11 percent per annum for the next 10 years. The Pacific Basin has dominated LNG trade since its inception in 1969, although Atlantic Basin LNG trade is expected to witness the fastest growth before the end of this decade. The Pacific Basin is both a major producing area and consuming market. The existing LNG producers in the Pacific Basin mainly supply the customers within the region, but new greenfield projects, in addition to serving existing and potential new customers such as China, are targeting the US market as their export destination.

Who supplies?

The current total capacity in the Pacific Basin is 67.7 MTPA, accounting for 48 percent of the world's total. The two important LNG suppliers in the Pacific Basin are Indonesia and Malaysia, which together supplied approximately 35 percent of world's LNG consumption in 2003.

Indonesia is currently the world's largest LNG exporter with a capacity of 29.4 MTPA. The 22.6 MTPA Bontang LNG plant was constructed in the late 1970s and has been supplying Japan and S. Korea since. A ninth train expansion at the Bontang plant is being considered. Some of its sales contracts to Japan are expected to expire before the end of this decade. The 6.8 MTPA Arun plant was shut down due to security issues in 2001 and is expected to be completely shut down in 2015 if no new gas

reserves are available. The 7-MTPA Tangguh LNG plant is a greenfield facility and is expected to come on stream in 2007/2008. A 7-MTPA plant at Donggi is planned for start-up in 2008 for supplying the US West Coast.

Malaysia has replaced Algeria as the world's second largest LNG exporter with a capacity of 22.3 MTPA following a fire explosion in Algeria's Skikda plant in January 2004. All the three LNG plants in Malaysia are located in Bintulu, which is currently the world's largest LNG production complex. Malaysia mainly supplies Japan and S. Korea.

Australia is currently the third largest LNG exporter in the Pacific Basin and is expected to experience the strongest growth before the end of this decade. The 3-train North West Shelf LNG with a capacity of 7.5 MTPA has been in operation since 1989, largely supplying Japan. The fourth train with a capacity of 4.2 MTPA is under construction to supply Japan. A fifth train with a capacity of 4.3 MTPA is planned to supply Guangdong, China. The 3 MTPA Darwin LNG is under construction and is expected to come on stream in 2006 to supply the US. The 5 MTPA Gorgon LNG is planned for start-up in 2008 to supply both the US and China. In addition, the 5 MTPA Greater Sunrise LNG is planned for start-up in 2010. Australia's total LNG production capacity could reach 28 MTPA by 2010.

Two other current producers of LNG in the Pacific Basin are Brunei with 7 MTPA and the US (Alaska) with 1.5 MTPA. A 4-MTPA train 6 of Brunei LNG is being considered for start-up beyond 2008.

Russia is scheduled to become the next LNG producer in this region by 2006. The huge 9.6 MTPA Sakhalin LNG is under construction to meet Japanese and Korean

demand and the first delivery is planned for 2006.

Two other potential LNG producers in the Pacific Basin are Bolivia and Peru. The planned 5.8 MTPA Pacific LNG in Bolivia has met internal political resistance and delivery from it may not come before 2010. The planned 4.4 MTPA Peru LNG is scheduled for start-up in 2008. Both of these are targeting the US market.

Who buys?

LNG consumption in the Pacific Basin was approximately 83.5 million tons in 2003, accounting for approximately 67 percent of the world's total. Japan is the largest LNG consumer, accounts for 48 percent of the world's LNG consumption alone. S. Korea consumes approximately 16 percent of the world's total.

India joined the LNG importers' club in January 2004 when the first cargo was delivered from Qatar into the Dahej Terminal. Shell's Hazira LNG terminal on the western coast of India is also planned to be commissioned before the end of 2004 with supplies from Oman LNG. A new 2.7 MTPA receiving terminal is planned at Kochi in southern India.

Two LNG receiving terminals are under construction in mainland China. The 3.3 MTPA Guangdong LNG terminal is planned to be in operation in 2006 with gas from NW Shelf LNG of Australia while the 2.5 MTPA Fujian LNG terminal plans start-up in 2007 with gas from Tangguh LNG in Indonesia. At least three more receiving terminals are planned on the east coast of the Chinese mainland for start-up around 2010. If the Russia-China/S. Korea natural gas pipeline does not materialise in the next few years, LNG could become a viable alternative to pipeline gas import to China. ►►

Three potential LNG importers in the Pacific Basin are New Zealand, Indonesia and the Philippines.

At what price?

Unlike the gas-on-gas competition in the Atlantic Basin market, especially in the US, where buyers mainly rely on pipeline gas, with LNG accounting for a relatively small source of natural gas supply, LNG pricing in the Pacific Basin is traditionally indexed to oil pricing. Since the traditional LNG buyers in this region such as Japan and S. Korea do not have indigenous pipeline gas, natural gas is regarded as a substitute for oil. In spite of the trends in the Atlantic Basin market of de-linking gas from oil prices, LNG pricing in the Pacific Basin is still largely indexed to oil prices. For instance, the most recent long term LNG contracts signed between China and Australia still preserve the oil-indexation features.

The traditional Asian buyers also place great emphasis on supply security; therefore, the LNG sales and purchase contracts are usually long term, usually more than 20 years, and have take-or-pay features with rigid clauses and formulas. For instance, there is usually a destination clause which forbids the buyer re-sell the cargos to third parties. LNG cargos are also usually shipped in designated tankers. Furthermore, valuing supply security also enables the suppliers to charge a security premium, which the traditionally buyers are also willing to pay. As a result, LNG prices in the Pacific Basin are usually higher than those in the US or Europe.

What's new?

In the late 1990s, the debottlenecking of the existing LNG plants in the Pacific Basin coupled with reduced demand due to the Asian financial crisis created certain surplus LNG capacity in the Pacific Basin. This created some opportunities for short-term trading and spot cargo sales. The new capacity additions from the plants in Qatar and Oman in the Middle East in the late 1990s

also provided opportunities for spot cargos and short-term sales. Short term sales increased from less than one percent in 1991 to approximately eight percent of total LNG trade in 2002, and are expected to account for 15 percent to 20 percent of LNG trade by 2010. S. Korea and Japan are major buyers of spot cargos in the Pacific Basin. For instance, S. Korea, Japan, Spain and the US have accounted for 80 percent of the spot cargos since 1996.

The rapid growth of capacity in the Middle East due to technology innovation and economies of scale also creates some downward price pressure in the market. As a result, buyers demand, and seller are willing to accept, more flexible contract terms. One change is the elimination of the destination clause so the buyer can have the flexibility to sell the cargos to third parties if there isn't sufficient demand for them at the time. Another change is that the seller allows the buyer to have more flexibility such as options in taking the cargos.

Another change is the appearance of arbitrage between the Atlantic and Pacific Basin markets. High oil prices in 2004 translate into high LNG prices in the Pacific Basin market where LNG price is linked to oil prices. For instance, LNG prices in Asia hit \$7/MMBtu in 2004 while the physical gas prices at Henry Hub were around \$6/MMBtu. The higher LNG prices in Asia diverted certain spot cargos originally targeting the US to Asia.

Also new is the enlargement of the LNG buyer group, with the newer, perceivably more risky, markets being courted by the sellers in the Middle East and the Pacific Basin. India became an importer in 2004 while China is scheduled to import LNG in 2006. These are two developing markets with great potential. China's joining the game actually brought down the contract prices. For instance, the contract price in China's Guangdong LNG contract with North West Shelf LNG was reportedly 20 percent lower than that of the traditional Japanese contracts. As a result, the recent

renewals of LNG contracts in the Pacific Basin tend to track the recent LNG contracts between China and Australia.

Another phenomenon is the integration down the LNG value chain. For instance, Kogas and Japanese companies have invested in upstream liquefaction projects since late 1990s while CNOOC has bought into upstream reserves and liquefaction assets in Australia and Indonesia in recent years. Also, BP has taken interest downstream. For instance, BP is the majority owner of the Tangguh LNG project while it also owns 30 percent of the Guangdong LNG terminal.

What is the future?

The establishment of LNG receiving terminals on the western coast of the US, if approved, could have major impact on the Pacific Basin LNG market. This will reduce the shipping cost to the US from the producing plants in Southeast Asia and Australia. This will make it easier to conduct arbitrage between the Pacific Basin and the Atlantic Basin. By that time, the gas prices in the US such as Henry Hub, could influence the gas prices in the Pacific Basin market. It might be possible that a unified global natural market might be formed, similar to the current world oil market. In actual fact, empirical studies show that the correlation between the natural gas prices in the Pacific Basin and the Atlantic Basin is currently more than 0.8 and is increasing.

In terms of contract structure, the long term contract is expected to survive for a long time to come, as the existence of a long term contract is still the litmus test for the financial investment decision of a green field LNG liquefaction project. The reality remains that only those projects securing long term sales contracts are able to obtain financing. On the other hand, spot cargo and short term trading are steadily increasing and the long term contracts have become more flexible and more buyer friendly. ■

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