

Energy Report: “China's Entry into Liquefied Natural Gas (LNG) Markets”

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Introduction:

China is witnessing rapid growth in the consumption of natural gas, among other sources of energy. Chinese overall consumption of all kinds of energy increased by 2.9% in 2017, and the consumption of natural gas by 14.5%. When compared to the 3% growth in world consumption of natural gas, China accounts for 37% of this global increase. The increase in consumption in China follows the pattern of its economic growth of 6.9%, a high rate of growth compared to the global rate of 3.7% in 2017.

1. Chinese Government Turns to Natural Gas

Chinese government policies are one of the main reasons for the rise in the consumption of natural gas. In 2013, the Chinese government adopted an action plan to reduce and control environmental pollution. One of the main objectives of this plan was to increase the consumption of natural gas and reduce the use of coal-fired power plants by replacing them with natural gas plants. The goal is to reduce environmental pollution in the most affected industrial areas, especially the provinces of Beijing, Shanghai and Guangdong.

As a result of the Chinese action plan, many of the oil refineries were modernized and upgraded to comply with the environmental pollution requirements. Coal-fired power plants with a combined capacity of 800 GW have also been upgraded, while older plants with a capacity of 100 GW were closed. During this period, the production capacity of the power plants that use natural gas was increased by 76 GW.

China has imposed strict rules to comply with this action plan. The Chinese Ministry of Environmental Protection has warned and fined 18,000 Chinese companies for committing multiple violations. The fines amounted to \$ 130 million and implicated 12,000 officials.

As a result of these policies, the increase in the consumption of natural gas in 2017 was twice as high as the yearly average in the previous five years. Industrial activity also played an important role in the increase in consumption. The rebound of the industrial sector in

2017 led to increasing the consumption of natural gas to 78 billion cubic meters compared with 58 billion cubic meters in 2015, an increase of 34% for the industrial sector alone.

2. Domestic Production and Pipelines

China had to make up for this increase in demand by raising production locally and by making the best use of the pipelines coming from Turkmenistan and Uzbekistan. However, China's natural gas production in 2017 increased by only 10 billion cubic meters, bringing the total production to 147 billion cubic meters. Although this increase in production covers one-third of the new demand in 2017, the total production has not reached the target set by China Electricity Council at 170 billion cubic meters, which meant increased dependence by China on natural gas imports through pipelines to meet domestic demand.

On the other hand, the pipelines failed to supply sufficient quantities to cover the large increases in the consumption of natural gas. The pipelines from Turkmenistan experienced frequent interruptions, and Turkmenistan was unable to operate the pipelines at full capacity.

As for the pipelines from Uzbekistan, the quantities of natural gas have also declined. In the winter, Uzbekistan stopped exporting natural gas to China because of rising domestic demand. Even after it resumed pumping gas to China, the quantities were less than what used to supply in previous years. With insufficient domestic production and its inability to rely on pipelines, China had no choice but to increase its imports of Liquefied Natural Gas (LNG).

3. LNG Markets

As expected, China's imports of LNG surged by 47% in 2017 compared to the previous year. China's LNG imports rocketed to 52 billion cubic meters to take the position of South Korea, which it held since 1994, as the second biggest importer of LNG after Japan.

Australia won the lion's share of the Chinese additional LNG demand. The additional quantities of LNG supplied by Australia on long-term contracts in 2017 amounted to 7.35 billion cubic meters, followed by an increase in Qatari and Malaysian exports of 3.47 and

2.24 billion cubic meters respectively. Then come other suppliers with lower shares, such as the United States which increased its exports of LNG by 1.84 billion cubic meters. See Figure (1).

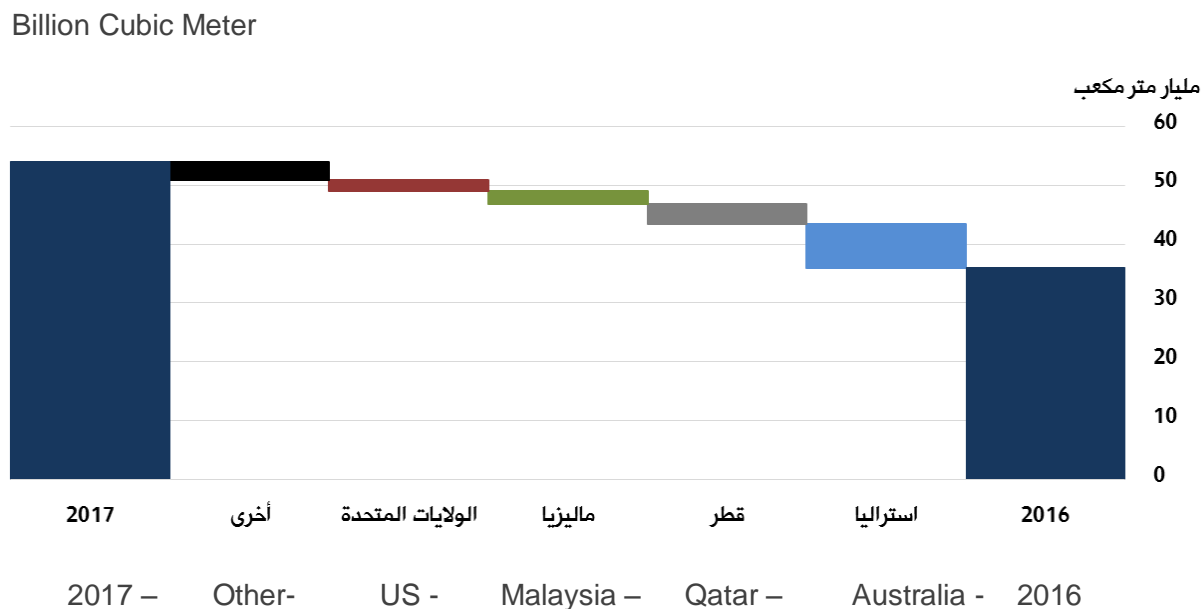


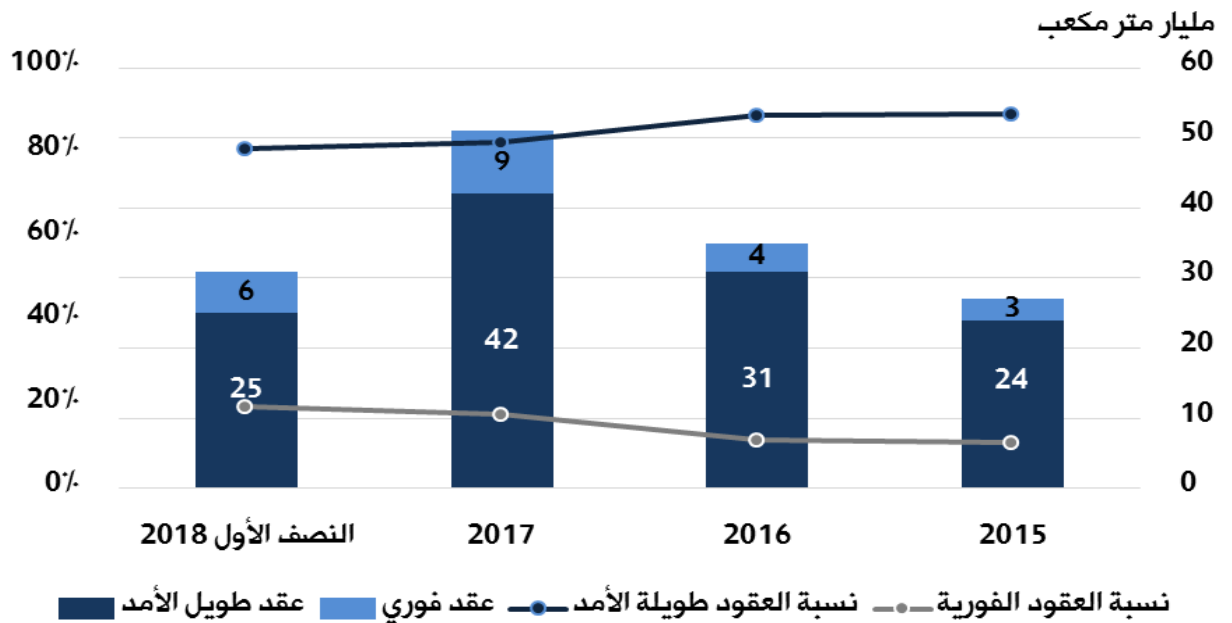
Figure (1): Increase in China's LNG 2017 Imports by Country

Source: Argus

LNG spot markets have seen significant growth due to the sudden demand from China. China's LNG imports from these markets have increased three folds in 2017 compared to year 2015 (Figure 2). LNG spot contracts increased from 3 billion cubic meters in 2015 to 9 billion cubic meters in 2017.

Of the total LNG imports, spot contracts amounted to 20% against 80% for long-term contracts. Chinese state oil companies dominated the LNG imports on spot contracts with 95% of the total contracts. The remaining 5% was contracted by Chinese private companies.

Billion Cubic Meter



Long-term contracts – Spot contracts – Percentage of long-term contracts – Percentage of spot contracts

Figure (2): China's Imports of LNG by Contract Type

Source: ICIS

China's strong demand led to significant increases in LNG spot market prices in 2017, especially to East Asia. The average price of LNG was \$ 7.1 per million British Thermal Unit (BTU), an annualized increase of 25%. At the time of peak consumption in winter, prices reached \$ 11 per million BTU. The average price for the first half of 2018 was \$ 9.1 per million BTU, which is above the first half of 2017 by a whopping 47%.

These high prices are impeding the Chinese government's plans to continue its economic growth while at the same time control the environmental pollution resulting from its industrial expansion. Rising prices to such level will hurt all the economic sectors and weaken China's energy security.

China has taken several steps to mitigate the negative effects of high prices. These include working on the establishment of LNG financial derivatives for spot and long-term contracts,

construction of new natural gas pipelines and building new natural gas storage facilities. These infrastructure projects will enhance China's ability to protect itself from price hikes during peak consumption periods and in cases of unforeseen interruptions.

Many question the ability of China to make these changes in a very short time, especially that the Chinese government is very keen to maintain its economic growth. With increasing natural gas consumption for industrial purposes, electricity generation and heating, spot market prices are bound to continue to rise.

Recommendations:

1. To monitor the developments in LNG spot and forward markets and the impact of these on Bahrain's import plans.
2. To study the Chinese efforts in attempting to minimize the damage that may be caused by sudden interruptions to LNG imports.
3. To study the experiments of East Asian countries as they are amongst the most important LNG markets.