Natural Gas and Pipelines

2016 saw steady growth in our natural gas and pipeline business. Oil and gas pipeline networks were operated smoothly, and there was also progress in the construction of key pipelines. We made steady headway in natural gas utilization and market development, and completed the separation of oil and gas pipeline operation from natural gas marketing.

By the end of 2016, we operated a total of 81,191 kilometers of pipelines in China, including 18,897 kilometers for crude oil, 51,734 kilometers for natural gas, and 10,560 kilometers for refined products, accounting for 69.2%, 75.8%, and 42.3% of China's total respectively.

Pipeline Operation and Control

In 2016, we optimized operation schemes to strengthen prior control and process control, and ensured the safe and smooth operation of our crude oil pipelines. The Lanzhou-Zhengzhou-Changsha Pipeline completed the replacement of National V Standard refined products, effectively promoting the upgrading of refined products quality.

We adjusted domestic gas production according to market demand and seasonal changes. By purchasing LNG spot, making the best use of pipeline capacity, and increasing the injection/extraction volume of underground gas storages to enhance peak-shaving capability, we effectively balanced production and sales, and guaranteed safe and stable gas supply for winter heating and other special purposes.

Underground Gas Storages

We continued to expand our existing gas storage capacity to the maximum and build new storage facilities. We have built and operated 10 underground storages including Dagang, Jintan, Xiangguosi and Hutubi with continuously enhanced peak-shaving capacities up to 6.1 billion cubic meters, which made us more responsive to potential emergencies. Shuang-6, the first underground gas storage in Northeast China, officially became operational.

Storage and Transportation Facilities

In 2016, we continued to optimize pipeline layout and build new pipelines. The eastern section of the Third West-East Gas Pipeline and the Baodi-Xianghe-Xiji connecting line of the Fourth Shaanxi-Beijing Gas Pipeline were completed and became operational. We commenced the construction the Fourth Shaanxi-Beijing Gas Pipeline, the Second Russia-China Crude Pipeline, and the Zhongwei-Jingbian connecting line of the Third West-East Gas Pipeline. Construction of the Jinzhou-Zhengzhou and Yunnan refined products pipelines proceeded smoothly.

The Third West-East Gas Pipeline

The pipeline has a total length of 5,777 kilometers, including one trunk, one major branch, three branches and one connecting line. It starts at Horgos in the Xinjiang Uygur Autonomous Region and ends at Fuzhou in Fujian Province. The 5,278 km-long trunk has a pipe diameter of 1,016-1,219mm, designed pressure of 10-12MPa and an annual transmission capacity of 30 billion cubic meters. It was constructed and put into operation on a section-by-section (eastern, middle and western sections) basis.

The western section runs from Horgos to Zhongwei in the Ningxia Hui Autonomous Region, with a total length of 2,445 kilometers. Construction of this section began in October 2012, and was completed on August 25, 2014. The eastern section runs from Ji’an in Jiangxi Province to Fuzhou in Fujian Province, with a total length of 817 kilometers. Construction of this section commenced in August 2013 and the section became operational on December 12, 2016. Construction of the Zhongwei-Jingbian connecting line began on May 21, 2016, and it is expected to be operational in 2017.

The Fourth Shaanxi-Beijing Gas Pipeline

The pipeline consists of one trunk and three branches. The truck runs from Jingbian in Shaanxi Province through Inner Mongolia and Hebei to Gaoliying in Beijing. The current phase of construction includes one trunk and one branch with a total length of 1,144 kilometers, pipe diameter of 1,016-1,219mm, designed pressure of 10-12MPa, and designed annual transmission capacity of 25 billion cubic meters.

Construction of the pipeline started on July 30, 2016, and it is expected to become operational by the end of October 2017.
The Second Russia-China Crude Pipeline

The Second Russia-China Crude Pipeline runs from Mohe in Heilongjiang Province through Inner Mongolia to Linyuan in Daqing. Running parallel to the First Russia-China Crude Pipeline, it has a total length of 951km, pipe diameter of 813mm, designed pressure of 9.5-11.5MPa, and an annual transmission capacity of 15 million tons.

Construction of the pipeline commenced on July 20, 2016 and it is expected to be completed by the end of October 2017. According to our contract with Rosneft, the crude supply from Russia to China will be increased by 15 million tons annually through the Second Line upon its commercial operation in January 2018.

Natural Gas Utilization and Market Development

With continuous improvement of our natural gas pipeline network, CNPC delivers natural gas to 32 provinces, municipalities, autonomous regions and special administrative regions. In 2016, we adopted a flexible pricing promotion strategy, advocating fair and open access to pipeline and network facilities, and improving the service quality to major direct supply customers. We prioritized resource allocation to highly profitable markets and high-end users. 70.1% of our gas was sold in Central China, the southeast coastal region, the Bohai Rim, and the Yangtze River Delta region. The percentage of urban gas and direct supply to industrial and power generating users rose to 91%. We signed 85 new long-term purchase and sales contracts with an annual contracted gas volume of 6.1 billion cubic meters. We marketed 131.5 billion cubic meters of natural gas throughout the year, an increase of 8.9 billion cubic meters or 7.2% year-on-year.

We made new progress in tapping the natural gas terminal market. The sales growth of urban gas and LPG terminals reached 10.1% and 10.6% respectively year-on-year. Our gas projects became operational in Dali and six other cities. Branch pipeline construction proceeded in an orderly way, with the length of newly built pipelines reaching 280 kilometers. The Industrial Park branch under Qinzhou Petrochemical became operational, and the construction of Tengchong, Xiangyun and Shidian branches in Yunnan Province were basically completed. Construction of the Yangzhou, Bengbu and Taihe branches proceeded on schedule. Construction of four branches, including the Changsha-Liuyang and Lianyuan-Xinhua sections, commenced. We also vigorously implemented projects including substituting urban coal with gas, replacing industrial coal with fuel gas, and using gas instead of oil in industrial processes. Our CNG/LNG terminal marketing network was expanded through multiple channels, with more combined oil-and-gas stations being built.

Liquefied Natural Gas (LNG)

In 2016, we had 13 LNG plants in operation with a total annual capacity of 4.77 billion cubic meters and we produced 640 million cubic meters of LNG, an increase of 15% year-on-year. We had 438 LNG refueling stations in operation and 33 under construction. Our annual terminal sales of LNG totaled 1.35 billion cubic meters.

In 2016, our Jiangsu, Dalian and Tangshan terminals played a more important role in securing gas supply and peak shaving, receiving a total of 3.65 million tons of LNG. The Phase II projects of the Jiangsu and Dalian terminals were completed and became operational with their annual capacity rising to 6.5 million tons and 6 million tons respectively, which further ensured stable gas supplies to the West-East Gas Network and the Yangtze River Delta region in winter.