

# Natural Gas Development in China: Status and Prospects

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Respected Mr. Chairman, esteemed guests, ladies and gentlemen:

Good morning!

Thank you Mr. Chairman for your kind introduction, and I also want to express my sincere thanks to the Summit organizers for giving me the opportunity to deliver an introductory speech at Session 5.

It is widely accepted that natural gas is playing an increasingly vital role in the sustainable development of global energy. Since the beginning of the 21st century, a tremendous achievement has been made in China's natural gas industry, which has not only strengthened domestic energy supply and pushed forward clean energy process, but has also poured new vitalities into the global natural gas industry. Here today I'd like to share with you the recent developments and future trends of China's natural gas industry.

## **I. Natural gas development in China has entered a historically unprecedented stage.**

It has been a long history since the start of natural gas exploitation and utilization in China, but accelerated development has only emerged in recent years with the following characteristics:

**First, China is experiencing rapid growth in natural gas consumption.** In the past 10 years, Chinese natural gas consumption has grown by an annual average of 16%. In 2010, the consumption surpassed 100 billion cubic meters(BCM), totaling 107 BCM, an amount roughly 4.4 times greater than that in 2000, with its share in Chinese primary energy mix increased to 4% from 2.4% in 2000. China has already become the fourth biggest natural gas-consuming nation after the United States, Russia, and Iran. Until now, Chinese natural gas consumption has been regionally expanded to almost all the provinces, municipalities and autonomous regions, except Tibet. 40% comes from the Eastern economically developed regions, including the Yangtze River Delta, the Bohai Bay Rim, and the Southeast coastal provinces. In terms of sector consumption, rapid growth was mainly witnessed in residential sector (urban gas) and power generation. During 2000 and 2009, gas consumption in residential sector increased by nine-fold with its share in total

natural gas consumption jumping from 18% to 43%; while gas consumption in power generation increased by ten-fold, with its proportion tripling from 4% to 12%. By comparison, the share of gas consumption in industrial sector dropped from 41% to 26% while that in chemical sector dropped from 37% to 20%, despite of their growth in absolute terms. Calculated by calorific or thermal value, the proportion of natural gas consumption in urban residential sector surpassed that of LPG in 2010 for the first time and became the biggest source for gaseous energy.

**Second, Chinese natural gas production and reserves keep growing.** In the past 10 years, proven natural gas reserves in China have grown by an annual average of 300 BCM. As of the end of 2010, China has already developed a series of large-scale gas fields in Sichuan province, Ordos Basin and Tarim Basin, etc. which resulted in 4.73 trillion cubic meters (TCM) of proven reserves. The ranking of China in world proven gas reserves jumped from the 19th in 2000 to the 13th today. In the past decade, natural gas production grew with an annual average of 14% and reached 94.5 BCM in 2010, 3.6 times higher than that in 2000. China is now the 5th largest natural gas producer , compared with 16th largest in 2000.

**Third, China's natural gas infrastructure is rapidly improving.** In the past 10 years, many long-distance gas pipelines went into operation, including CNPC's West-East Gas Pipeline I and II, the Shaanxi-Beijing Gas Pipeline II and III, and Sinopec's project of Gas Transmission to the East. As of the end of 2010, the total length of domestic natural gas trunk-lines surpassed 40,000 kilometers. At the same time, 3 LNG receiving terminals have been established. Another 8 LNG receiving terminals are under construction and expected to be completed prior to 2013, and then the total re-gasification capacity will surpass 40 million tons per annum. Moreover, 6 underground gas storages are under operation, with 1.87 BCM of peak-shaving capacity.

**Fourth, Breakthroughs were made in natural gas imports along with a pattern of diversified gas sources.** Currently, China is the only country in the Asia-Pacific that imports both LNG and pipeline gas. In 2010, the total gas import was approximately 17 BCM, among which, 12.6 BCM (or 9.3 million tons) was in LNG and 4.4 BCM by pipeline. The import now constitutes 16% of China's total natural gas consumption.

As you know, China has become a big oil producing country with production above 100 million tons since late 1970s. By contrast, gas development was slow. However, the gas expansion in the first ten years of the 21<sup>st</sup>-century represents a new chapter in Chinese oil and gas history. The share of natural gas in primary energy mix in China is not as high as in other large gas-producing and gas-consuming countries. But, generally speaking, Chinese natural gas industry is in a systematic and rapid development stage.

**II. China's natural gas market promises to be flourishing.**

The next 10 to 20 years shall be the critical time for Chinese social and economic transformation, and welfare society building. Facing the robust energy demand driven by steady and continuous economic development, and the enormous environmental pressure brought by the primary energy structure dominated by coal with 70% share, the Chinese government has put forward a series of policies including reasonable controls on total energy consumption, promotion of energy efficiency, improvements in energy innovation, adoption of low-carbon and clean energy pathway. Accelerating natural gas development is one important component of this strategy, which provides an encouraging atmosphere for further gas development in China.

According to our forecast, in the scenario of moderate encouragement, Chinese natural gas demand will reach 230 BCM by 2015 and 350 BCM by 2020. The share of gas in total primary energy consumption will increase from 4% now to above 10% then. A noticeable change will take place in Chinese natural gas consumption structure, with the high-end market still lie in the economically developed eastern regions while rapid surging gas consumption taken place in central and western regions. Gas consumption in residential sector will keep growing while that in industrial sector and power generation will witness a large-scale increase. By realizing the aforementioned scenario, the Chinese energy structure will achieve obvious improvements, and will make a big contribution to environmental protection and GHG emission reduction.

A healthy foundation for accelerating gas development in China is the plentiful resource. According to the new round of resource assessments, China's long-term natural gas reserve is amounted to 56 TCM, of which only 19% or 22 TCM are proved. Unconventional natural gas resources are also abundant. The estimated reserve of coal bed methane (CBM) in China is approximately 36.8 TCM, of which 10 TCM are proven, but these reserves are still in the initial stages of industrial development. Shale gas reserve in China is approximately amounted to 30 TCM, but still in the phase of evaluation and experimental development. Moreover, a breakthrough has been made recently in evaluation of natural gas hydrates in China, with samples have already been obtained in the South China Sea. It is expected by the year 2015, Chinese domestic natural gas production might increase to 150 BCM, CBM production may reach 10 BCM, and shale gas will also be available for commercial extraction.

Along with rapid and steady growth in gas demand and production, construction of natural gas infrastructures in China is still in a peak stage. It can be expected that by the year 2015, gas pipeline density, gas storage capacity, and LNG terminal capacity will expand to a new level and will provide guarantees for further market extension and steady gas supply with safety.

Apart from reinforcement in domestic gas exploration and development, international gas cooperation based on mutual benefit and win-win foundation will unabatedly continue to strengthen and intensify. It is forecasted that the total

Chinese gas import in 2015 will reach approximately 70 BCM, with its proportion in total domestic consumption rising from 16% today to nearly 30%.

Currently, national oil companies (NOCs), such as CNPC and Sinopec are the major participants in the Chinese gas market. CNPC, as the largest domestic gas producer and supplier, owns 80% of domestic gas production and operates more than 90% of the country's gas pipelines. In 2010, the Chinese government issued a new policy, encouraging private enterprises to be involved in oil and gas businesses. That will actively accelerate the pace of market-orientation in China's natural gas industry.

However, in the next decade, China's gas industry will also face numerous challenges, including (1) challenges of technological innovation raised by the relatively inferior domestic gas reserves; (2) challenges of supply security raised by rapidly booming consumption; (3) challenges of investment returns brought by large scale investments; (4) challenges of gas pricing mechanism due to different affordability and gas price differentials between domestic and foreign gas sources.

Looking into the future, China's natural gas industry will keep growing. "China could lead us into a golden age for gas" . That is the expression by IEA in its newly published WEO 2010. Even if I don't fully agree that statement, it can be expected that global natural gas has a bright and promising future, and Chinese gas development will make positive contribution to the sustainable energy development of the world.

Thank you for your attention!