

West-East Gas Pipelines and Natural Gas Utilization in China

The West-East Gas Pipeline Project has opened up the era of natural gas in China, established a new development pattern for the nation's gas industry, and promoted the strategic restructuring of the nation's energy consumption mix.

Historically, China was one of the first countries in the world to develop and utilize natural gas. However, given its coal-dominated energy mix, economic development level and remote distance between gas sources and markets, China had not developed and utilized natural gas on a large scale. Statistics show that from 1980 to 2000, the average annual growth rate of gas consumption in China was only 2.8%, while the growth rate of primary energy consumption was 4.2%.

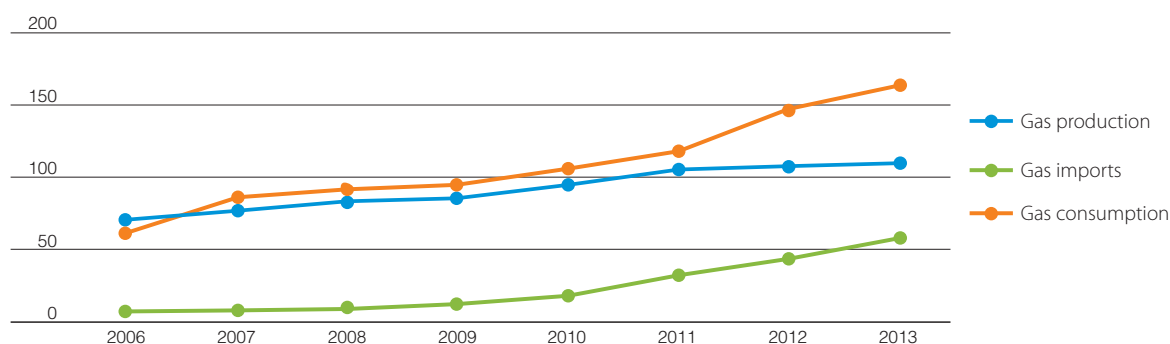
Since the late 1990s, CNPC has made numerous breakthroughs in domestic gas exploration and development, achieving steady increases in both proven reserves and production. We discovered and developed a number of gas fields including Kela-2, Dina-2, Sulige, and Longgang successively in the Tarim, Qaidam, Ordos, and Sichuan basins. In particular, the Kela-2 giant uncompartimentalized gas field identified in the Tarim Basin in 1997 has directly driven the implementation of the West-East Gas Pipeline Project, a landmark project for China's Western Development. China's gas industry started to develop rapidly as the First West-East Gas Pipeline was put into

commercial operation, with expanding gas consumption markets, and a growing proportion of natural gas in primary energy consumption.

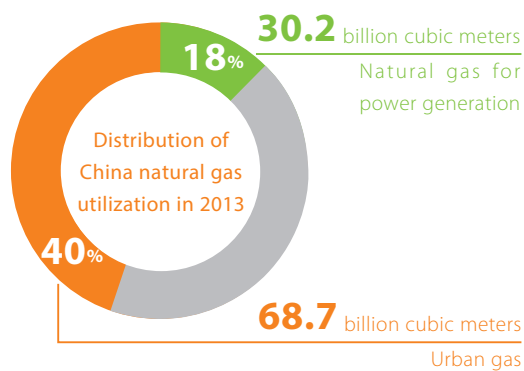
From 2004 to 2013, China's natural gas consumption rose from 41.5 billion cubic meters to 167.6 billion cubic meters, with an average annual growth of over 15%. The proportion of natural gas in primary energy consumption rose from 2.5% to 5.9%, up 3.4%. Domestic gas production rose from 40.8 billion cubic meters to 118.3 billion cubic meters, with an average annual growth of 13.3%. Natural gas imports also increased greatly, amounting to 53 billion cubic meters in 2013, among which pipeline gas imports were 28 billion cubic meters, and LNG imports were about 25 billion cubic meters. Natural gas imports reached 31.6%.

With higher levels of urbanization and stricter environmental requirements, China's natural gas consumption mix has become more diversified, shifting from chemical feedstock and fuel for oil & gas production to urban gas and fuel for power generation. At present, urban gas takes the largest share in gas utilization. In 2013, China's urban gas reached 68.7 billion cubic meters, and natural gas for power generation was 30.2 billion cubic meters, accounting for 40% and 18% of country's total gas consumption, respectively.

Gas production, gas imports and gas consumption from 2002 to 2013 (unit: billion cubic meters)



As China's gas demand, reserves and production are experiencing rapid growth, the construction of gas pipelines and facilities has advanced dramatically. We have completed a number of long-distance natural gas pipelines, including the First and Second West-East Gas Pipelines, Shaanxi-Beijing Gas Pipelines, Zhongxian-Wuhan Pipeline, Sebei-Xining-Lanzhou Pipeline, and Myanmar-China Gas Pipeline, and started the



construction of the Third West-East Gas Pipeline. We have thereby basically established a nationwide gas pipeline network, which also make foreign pipeline gases accessible, with the trunks and branches stretching a total length of over 45,000 kilometers. A national gas supply guarantee system featuring diversified sources and flexible dispatch has taken shape, linking four domestic gas provinces, including the Xinjiang, Qinghai, Shanxi-Gansu-Ningxia and Sichuan-Chongqing areas, and the cross-border Central Asia-China Gas Pipeline and Myanmar-China Gas Pipeline, as well as marine LNG import channels. This system covers 29 provinces, municipalities and autonomous regions and Hong Kong SAR in China.

At the core of the national gas pipeline networks, the West-East Gas Pipelines play an irreplaceable role in guaranteeing the country's gas supply. The project has pioneered the construction of high-pressure, large-diameter and long-distance gas pipelines in China. By giving full play to the complementary advantages in Eastern China and Western China for collaborative development, the project has brought good economic, social and ecological benefits.

