

Special Report

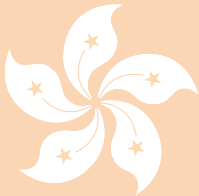
Contributing CNPC's Solutions to a Low-Carbon Future

The world energy pattern is going through profound adjustment, and transition to efficient, clean and diversified energy is accelerating. As the world's largest emerging economy, China has become the largest energy consumer in the world. Optimizing China's energy mix and promoting China's revolution in energy production and consumption would significantly contribute to addressing global energy challenges.

In order to promote the low-carbon transition of China's energy mix and deliver modern and efficient energy for all, CNPC has taken the accelerated development and utilization of natural gas as a strategic and valuable project. In the ever-bright city of Hong Kong, remote regions in Tibet, smog-hit Beijing-Tianjin-Hebei, and the "Oriental Pearl" city of Shanghai, we accelerated the construction of natural gas pipe networks, and successively implemented natural gas green projects. By the end of 2017, CNPC had completed a trunk pipeline network crisscrossing the country. Covering 30 provinces (municipalities and autonomous regions) and the Hong Kong Special Administrative Region, CNPC's pipeline network is mainly supported by the West-East Gas Pipeline System, Shaanxi-Beijing Gas Pipeline System, Myanmar-China Gas Pipeline System and Northeast Pipeline Network System. In 2017, CNPC supplied 151.84 billion cubic meters of natural gas, which, if calculated by equivalent heat value, is equal to the substitution of 310 million tons of standard coal, and a reduction of 570 million tons of carbon dioxide and 3.89 million tons of sulfur dioxide.



Hong Kong



5.17 billion cubic meters

Hong Kong, a prosperous and densely populated city, still uses coal for power generation. In 2012, the Hong Kong Branch of the Second West-East Gas Pipeline was completed and put into operation, and natural gas was delivered to the west coast of the Pacific Ocean from the right bank of Amu Darya River in Central Asia. Castle Peak Power Station, the largest power station in Hong Kong, achieved replacement of coal with gas. It can replace 3.4 million tons of standard coal and reduce 6.3 million tons of carbon dioxide emissions and 40,000 tons of sulfur dioxide emissions on a yearly basis. By the end of 2017, a total of 5.17 billion cubic meters of natural gas had been delivered to Hong Kong through the Second West-East Gas Pipeline. According to the report of Hong Kong's Environmental Protection Department (EPD), the past decade saw a decline in the concentration of PM2.5 in Hong Kong; moreover, the overall air quality continued to improve in 2016, with a decline in the concentration of various air pollutants.

Tibet



400 million cubic meters

Tibet is located in the alpine area and ecologically sensitive area. However, gasoline, diesel, coal and liquefied petroleum gas were mainly used for industrial production and residential life, while fuel wood, coal and cow dung were still used by some farmers and herdsmen as fuel, which was not environmentally friendly. Since 2010, CNPC has started to build a gasification station in Lhasa to process the liquefied natural gas delivered from Qinghai Oilfield, meeting the local industrial and domestic gas demand. As of 2017, CNPC had completed one liquefaction plant in Golmud with a daily processing capacity of 350,000 cubic meters and a LNG gasification station in Lhasa with a daily processing capacity of 150,000 cubic meters. In addition, seven LNG filling stations were built in the Haixi region of Qinghai Province and the Lhasa Economic and Technological Development Zone. Since the projects were put into operation, an accumulative total of 400 million cubic meters of LNG has been produced and a total of 80 million cubic meters of natural gas was supplied steadily to Tibet, improving the local energy mix.

Beijing-Tianjin-Hebei region



275.1 billion cubic meters

Air pollution has become a major problem hindering the development of the Beijing-Tianjin-Hebei region. In cooperation with the government and companies, CNPC has been making great efforts to promote the construction of natural gas pipeline networks and the development of "coal-to-gas" projects in the region. Since their operation, the first, second and third Shaanxi-Beijing Gas Pipelines have delivered a total of 275.1 billion cubic meters of natural gas to Beijing and the rest of North China. On average, days with good or excellent air quality in November 2017 in 13 cities in the region was up 31.6% year-on-year, while PM 2.5 concentration was down 41.2%, as shown in the air quality report for November released by the Ministry of Environmental Protection of the People's Republic of China.

Shanghai



24.7%

Natural gas has been in use in Shanghai since April 1999, however, the source of gas supply has always been a bottleneck. In January 2004, natural gas from the West-East Gas Pipeline was officially delivered to Shanghai. Since then, the proportion of natural gas has been on the rise in Shanghai's energy consumption mix, directly changing the coal-dominated energy consumption structure. In recent years, the Special Steel Plant, a subsidiary of Baosteel, has removed 149 coal gas furnaces, contributing to an emission reduction of sulfur dioxide and soot by 59.5% and 26.8% respectively, and a decrease of atmospheric dust fall index by 24.7%. The steady stream of green energy will inject new momentum into Shanghai's efforts to develop Chongming Island into a world-class eco-island.