

## 4 A Holistic Approach to Increasing Natural Gas Supply

As Chinese economy continues to grow and the energy mix transformation and upgrading pick up the pace, the domestic demand for natural gas has been growing rapidly in recent years. CNPC, as China's largest natural gas supplier, has taken a holistic approach to increasing supply and meeting market needs by coordinating and streamlining processes across production, trade, storage and transportation, and marketing. The company sold 172.4 billion cubic meters of natural gas in China throughout 2018, an increase of 13.6% year-on-year.

**172.4** bcm  
Domestic natural gas sales in 2018



### Maximizing domestic gas production

We bolstered E&P efforts in four major gas provinces, i.e. Changqing, Tarim, Southwest and Qinghai, to maximize the gas output. Production has expanded in less high-profile gas fields such as those in Daqing and Jilin, reaching their all-time highs. Meanwhile, unconventional resources accounted for a larger share in newly-increased natural gas, as tight gas, shale gas and coalbed methane are becoming an increasingly important complement to conventional resources.



### Consolidating gas resources throughout the world

We reached out to global resources through the Central Asia-China Gas Pipeline, Myanmar-China Gas Pipeline and LNG sea routes to make up the shortfall in domestic supply. Natural gas imports rose remarkably in 2018. Emergency response plans have been developed to address pipeline-related risks and ensure stable supply. LNG purchases were further ramped up. In addition to long-term agreements, spot purchases were increased in response to peak demand in winter. Three LNG terminals in Jiangsu, Tangshan and Dalian were running at their maximum capacity in the fourth quarter.



### Boosting peak-shaving capacity of underground gas storage facilities

There have been currently 13 underground gas storage facilities in China, 10 of which are constructed and operated by CNPC. Besides, CNPC also accounts for more than 90% of the country's peak-shaving capacity. In 2018, the company enhanced its gas injection efforts and prepared winter peak-shaving resources beforehand. A total of 9.4 billion cubic meters of gas was injected, up by 23% year-on-year. 10 new gas storages are being planned, and preliminary evaluation and pilot testing are now under way. Meanwhile, we expanded existing gas storage facilities to boost their peak-shaving capacity.



### Promoting gas pipeline connectivity

We launched gas pipeline connectivity projects together with Sinopec and CNOOC in debottlenecking transmission issues faced by natural gas infrastructure. By the end of 2018, 24 projects had gone on stream to give a strong boost to the gas resource dispatching capability all over China.



### Improving natural gas marketing network

Market development efforts have been stepped up to ensure smooth marketing channels and enable an integrated marketing approach across the upstream and downstream markets. By the end of 2018, CNPC's gas marketing network covers 32 provinces, municipalities, autonomous regions and Special Administrative Regions. The company continues to be the major supplier in the northern, southwestern, northwestern, central and northeastern parts of China with a growing presence in the eastern and southern markets.