

Overseas Oil and Gas Operations

Adhering to a prudent approach to overseas operation, the company continued to push ahead with international collaboration along the Belt and Road route and strengthen the management of its global operation in 2018, with a focus on optimizing investment structure and regional footprint. The company's overseas operation has seen major breakthroughs, including oil and gas discoveries, commissioning of key projects and remarkable growth in overseas earnings. So far, the company has made oil and gas investment in 34 countries around the world.

Oil and Gas Exploration

The company's overseas exploration activities were centered on large-scale, high-quality and readily producible reserves, leading to achievements in a number of key zones. These activities resulted in newly added equity recoverable reserves of 33.16 million tons of oil equivalent, including 18.03 million tons of crude oil and 19 billion cubic meters of natural gas.



75.35 mmt

CNPC's share in overseas crude production



28.7 bcm

CNPC's share in overseas natural gas production



Libra project in Brazil

Layout of overseas oil and gas operations

- **Central Asia – Russia:** Building a core oil and gas cooperation zone under the Belt and Road Initiative
- **Middle East:** Building a high-end cooperation zone that gives full play to our comprehensive and integrated advantage
- **Africa:** Building a most influential cooperation zone for the development of conventional oil and gas resources
- **Americas:** Building a unique cooperation zone for the development of unconventional and deepwater oil and gas resources
- **Asia-Pacific:** Building an important cooperation zone for natural gas and integrated projects

Major breakthroughs were made in offshore exploration. The appraisal wells drilled in the northwestern part of the Libra project in Brazil encountered pay zones with a net thickness of 310 meters, identifying proven oil in place of 1.6 billion tons. Deepwater exploration in Myanmar was succeed, marking the first biogenic gas play discovered in the block.

Important discoveries were made in onshore risk exploration. Two productive buried-hill reservoirs were identified in the Bongor Basin, Chad, adding to the existing discoveries in this basement rock – buried hill complex. Two exploratory wells in Block 1 of the Abu Dhabi Onshore-Offshore Project proved successful, opening up good prospects of commercial development and further exploration. The exploratory wells at the Yamal project in Russia produced high-yield gas flows after a fracturing process, indicating great potential of reserve replacement. In Uzbekistan, Well M-15 was completed in spite of challenges from high temperature, high pressure, high density, high sulfur-content and ultra-deep drilling, obtaining good oil and gas shows during the formation test.

Targeted exploration in mature plays, such as the Andes Block T in Ecuador, Pre-Caspian Central Block in Kazakhstan, Block 3/7 in South Sudan and Block 6 in Sudan, has shown significant progress.

Oil and Gas Production

In 2018, based on a cost-efficient strategy to overseas operation, the company achieved robust growth in oil and gas production by stepping up field management and streamlining processes to ensure smooth running of production facilities; deploying new EOR techniques, boosting

per-well capacity, reducing decline rates and unleashing the potential to stabilize production in mature fields; and enhancing reservoir interpretation, optimizing well location and speeding up drilling to bring new wells into operation and build up production capacity. The full-year operating production reached 172.39 million tons of oil equivalent, in which CNPC's share was 98.18 million tons, up 10.2% year-on-year. In particular, the operating and equity production of crude oil were 144.63 million tons and 75.35 million tons respectively; and those of natural gas were 34.8 billion cubic meters and 28.7 billion cubic meters respectively.

Central Asia-Russia: Focusing on natural gas capacity expansion, the company has made great headway in bringing its natural gas production to higher level. In Turkmenistan, the EGR Project at the Saman-Depe Gas Field was completed. In Uzbekistan, the Sigit and East Alat gas fields in Karakul Block went on stream, marking the completion of the capacity building project. In Russia, the second and third LNG trains of the Yamal Project were launched, boosting the project's annual capacity to 16.5 million tons; the construction for the fourth train was started. In addition, the construction of Asia Steel Pipe Co., Ltd., the company's investment in Kazakhstan, was well underway.

Middle East: Under a diversification strategy, CNPC International Middle East continued to optimize asset structure and bolster robust growth in oil and gas operation by leveraging a multi-level, flexible innovation and cooperation mechanism. The offshore Bu Haseer Oilfield in Abu Dhabi, UAE became operational one year after its construction. The newly-signed Abu Dhabi Offshore Project started to produce oil. The Halfaya Oilfield Phase III (CPF3) project became operational, bringing a 200,000 bbl/d addition to processing capacity and boosting the field's total annual capacity to 20 million tons; a power station and water injection pipelines were put into operation at the Rumaila Oilfield, with other upgrades and ramp-ups proceeding as planned.

Latin America: CNPC International Latin America managed to stabilize production operation and achieve an upturn in crude output amidst the social complexities in host countries. The company continued to improve its unconventional resource development and deepwater project management capabilities while pushing ahead with the deepwater project in Brazil and the extra-heavy oil project in Venezuela, in a bid to create overseas demonstration zones for cooperation in the development of unconventional and deepwater resources. In Brazil, the Libra project successfully completed offshore oil lifting operation, generating returns on the company's first ultra-deepwater investment; a floating production storage and offloading (FPSO) unit was constructed as planned in the Mero block. In Venezuela, the 165,000 bbl/d expansion (Phase I) of the MPE3 project saw the completion and commissioning of the main facilities.

Africa: In Sudan and South Sudan, CNPC International Nile exceeded production targets for the year, by strengthening oilfield management, improving well stimulation measures and increasing profit-generating output. The company managed to put the Block 1/2/4 in South Sudan back into production with a daily capacity of 22,000 barrels. The Raphia PPF and second Daniela CPF facilities for the Chad Project Phase 2.2 became operational. In Mozambique, the Coral Gas Field (Phase I) works for a LNG project proceeded smoothly as planned.

Asia-Pacific: The Arrow PTL project in Australia completed a revamp of the Daandine central gas processing plant and was put it into operation. Our projects in Indonesia and Canada streamlined reservoir management and took a range of measures to unleash potential, improve quality and boost efficiency.

Pipeline Construction and Operation

With a focus on operation management, coordination and hazard control, the company's overseas long-distance pipelines, including the Central Asia-China Gas Pipeline, Myanmar-China Oil and Gas Pipeline and Kazakhstan-China Crude Pipeline, etc., remained safe and stable operation, delivering 33.11 million tons of crude oil and 53.5 billion cubic meters of natural gas throughout the year. By the end of 2018, CNPC operated overseas oil and gas pipelines totaled 16,500 kilometers, including 8,597 kilometers for crude oil and 7,903 kilometers for natural gas.

New achievements were made in overseas pipeline construction. The Second Russia-China Crude Pipeline became commercially operational; the Central Asia-China Gas Pipeline-Line D project and the Kazakhstan-China Crude Pipeline (Northwest) revamp project were under construction as planned; the Chad Crude Pipeline expansion project was completed and went on stream.

Refining and Chemicals

The company's overseas refineries achieved safe and steady operations in 2018 and processed 45 million tons of crude throughout the year. In Kazakhstan, the Shymkent Refinery renovation project Phase II was completed, with major improvements in crude processing degree and light oil yield. Our joint venture refinery in Chad adjusted its product mix in response to market demand and achieved balance between production and distribution. Our joint venture refinery in Niger saw some best economic and technical indicators of all time, thanks to optimized production planning and process running. Our joint venture refineries in Sudan, UK and France were operating smoothly after timely and quality overhauling.

Renovation of the Shymkent Refinery

The Shymkent Refinery renovation project Phase II in Kazakhstan was completed and went on stream. As one of Kazakhstan's top three refineries, the Shymkent Refinery is jointly operated by CNPC and KazMunaiGas.

Started in 2014, the renovation project comprises of two phases: Phase I was made operational at the end of June 2017; Phase II went on stream in September 2018. The revamping efforts have turned the Shymkent Refinery into a state-of-the-art, eco-friendly refinery with significantly improved processing capabilities. In particular, the light oil yield has increased from 56% to 80% and oil products are compliant with the Euro IV and Euro V standards as well as the local regulations for clean fuels, playing an important role in promoting eco-friendliness and securing oil products supply.

Project Cooperation and Development

In 2018, the company has been actively engaged in international cooperation and new project development through international platforms such as the SCO Qingdao Summit and FOCAC Beijing Summit. The Abu Dhabi Offshore Project was successfully delivered; a production sharing contract on the Peroba deepwater block in Brazil was signed; and agreements on oil contract extension & deepening oil and gas cooperation between China and Kazakhstan were inked.

We entered into cooperation agreements and MOUs with a number of governments and energy companies to bolster international oil and gas cooperation in a wider scope and at a deeper level. In Russia, we inked a cooperation agreement on upstream projects with Rosneft, and reached into a technical cooperation agreement and a cooperation framework agreement on the Sutor Minsk Oilfield with Gazprom. In Latin America, we signed MOUs on natural gas development with Venezuelan counterparts, and an integrated project business model agreement with Petrobras. MOUs for strategic partnership with our partners, e.g. Equinor, were nailed down.