Overseas Oil and Gas Operations

Against the complicated international environment and uncertainties emerging from overseas investment projects, our operating results improved steadily in 2016, thanks to a holistic approach toward optimizing project management, reducing operating costs and conducting capital operation. Oil and gas exploration activities saw important results. Major overseas projects proceeded well and safely. Projects under construction went ahead smoothly. By the end of 2016, CNPC operated in more than 30 countries. In particular, there are 49 cooperation projects in 19 countries along the Belt and Road routes, which have become the main source of the company’s oil and gas output and revenue outside China.

Exploration and Development

In 2016, our overseas oil and gas exploration activities were targeted at high-quality and readily producible reserves through the queuing and selection of suitable projects worldwide. Pursuing a low cost strategy, exploration investment focused on key projects, highlighting cost-effectiveness and success rate. These activities resulted in a number of breakthroughs and progress, with newly added recoverable oil and gas reserves amounting to 96.23 million tons of oil equivalent.

Progressive exploration of high-quality reserves: A number of new oil reservoirs were discovered in the buried hill rocks in Chad; high-yield oil and gas flows were obtained from exploration at Hope Oilfield in the Pre-Caspian Central Block in Kazakhstan; new pay zones were identified at the western uplift of Jabung Block in Indonesia; and significant new reserves were achieved in Ecuador (Andes project), Kazakhstan (PK) and Oman.

Major progress in risk exploration: In Turkmenistan, two new gas reservoirs were discovered at the Amu Darya project; in Sudan, breakthroughs were made at the southern slope of the Sufyan Sag of Block 6 and a new oil-bearing bed series of Amal Formation was detected at the central uplift.

Breakthrough in deep-water exploration: In Brazil, well tests resulted in a high yield from the northwest section of the Libra Block, including well NW-3 with a daily capacity of more than 10,000 tons and well NW-2 with a 400m+ thick reservoir. A giant uncompartmentalized oil prospect with proven oil in place of up to 1.2 billion tons was basically confirmed.

Production

In 2016, our overseas projects achieved steady growth in oil and gas production by boosting fine management, development optimization, capacity building and cost control efforts. The full-year operating production reached 146.32 million tons of oil equivalent, of which CNPC’s equity production was 76.01 million tons, an increase of 5.5% year-on-year. The operating production and equity production of crude oil were 121.51 million tons and 57.53 million tons respectively; and the operating production and equity production of natural gas were 31.1 billion cubic meters and 23.2 billion cubic meters respectively.

Central Asia and Russia: CNPC International in Kazakhstan accelerated development planning for its four major oilfields, optimized drilling workload and improved the production efficiency of new wells. The PK and Aktobe projects saw new progress in oilfield development and the Kashagan project went on stream. In Turkmenistan, CNPC Amu Darya Company sped up the construction of production facilities in new gas fields. The Phase III project at Block B proceeded smoothly with a daily gas processing capacity of 21 million cubic meters. In Uzbekistan, the Mingbulak project moved ahead steadily. In Russia, construction work of the Yamal LNG project was in full swing, seeing 75% of the project schedule completed by the end of 2016.

Latin America: CNPC America was able to maintain stable production with a focus on profit-generating output, production coordination and fine management. In Venezuela, the MPE3 project made significant progress in the integration of production and drilling services, with surface works advancing smoothly; the Zumano and Caracoles-Intercampo projects reduced the capacity of inefficient blocks and ensured that production was safe and well under control. In Ecuador, the Andes project saw the completion of 600Kt/a capacity building at the Johanna East Oilfield, signed exploration contracts on Block 79 and Block 83, and extended the service contract for Block 14 to 2025. In Peru, despite the adverse impact of El Niño, the planned targets for production were exceeded without new drilling activities.

CNPC’s share in overseas crude production

57.53 mmt

CNPC’s share in overseas natural gas production

23.2 bcm
**Middle East:** We completed business restructuring and realized a smooth transition. New wells became operational as planned and water-flooding projects advanced well. Operating fields in Oman, and Al-Ahdam, Rumaila, Halfaya and West Qurna in Iraq saw production targets remarkably exceeded. Meanwhile, their production capacity grew steadily. The North Azadegan project in Iran was put into operation. The Abu Dhabi project and the restoration of Iran’s MIS project proceeded smoothly.

**Africa:** CNPC International Nile adopted differentiated approaches to oil production in Sudan and South Sudan, with a focus on geological research and fine management. A total of 60 new wells started pumping to create a new capacity of 380,000 tons. In South Sudan, new well production picked up in Block 3/7 and workover operation was carried out efficiently. The average daily output per well reached a three-year high, and surface engineering work was completed to enable the timely treatment of produced fluid. In Sudan, a series of measures targeted at idle wells and unproductive wells were implemented to boost production in Block 6 and Block 1/2/4. In Chad, the Phase-2.2 oilfield project advanced steadily.

**Asia-Pacific:** In Australia, our local company achieved production and operation targets successfully despite the challenge of low oil prices. Sticking to a low-cost strategy, the Arrow project focused on the development of the Surat Basin. The Daandine Expansion project came on stream, and the Browse project restarted Concept Select. Our projects in Indonesia, Mongolia and Singapore actively implemented cost reduction and revenue generating measures to ensure steady and effective operations.

**Other regions:** The Phase I MacKay River Oil Sands Project in Canada became operational with the targets of construction and steam injection achieved on schedule, laying the foundation for oil production and bitumen sales beginning in 2017. Located in northern Alberta, the project is expected to produce 35,000 barrels a day upon completion of Phase I.

**Pipeline Construction and Operation**

As of 2016, the company operated a total of 14,507 kilometers of overseas oil and gas pipelines including 6,604 kilometers of crude pipelines and 7,903 kilometers of natural gas pipelines, which transported 25.93 million tons of crude oil and 43.9 billion cubic meters of natural gas throughout the year. The Kazakhstan-China Crude Pipeline, the Russia-China Crude Pipeline and the Myanmar-China Gas Pipeline maintained safe and steady operation. The Myanmar-China Crude Pipeline was successfully connected with water transportation system; Line C of the Central Asia-China Gas Pipeline was fed with gas sources in Uzbekistan, with the annual transmission capacity of Line A, B and C totaling 51 billion cubic meters.

Key overseas pipeline projects made headway. The No.4 and No.8 compressor stations along the Kazakhstan section of Line C of the Central Asia-China Gas Pipeline became operational. The Second Kazakhstan-China Gas Pipeline reached an annual capacity of 6 billion cubic meters. The Chinese section of the Eastern Route of the Russia-China Gas Pipeline proceeded smoothly. In Kazakhstan, the subsea pipeline of the Kashagan Oilfield was thoroughly repaired to transport crude oil successfully for...
North Azadegan Project in Iran Became Operational

On April 13, 2016, the North Azadegan project in Iran was put into official production and began to deliver crude oil. Located 80 kilometers west of Ahvaz, the capital city of Khuzestan Province, the North Azadegan project is a major investment of CNPC in Iran. It has a production capacity of 4 million tons of crude per year and of 700,000 cubic meters of natural gas per day.

The project company adopted a number of innovative technologies to ensure the efficient development of the oilfield, including large-scale gas lift, 3D directional cluster well drilling and horizontal well drilling, as well as inclosed transportation and processing of crude. Meanwhile, an internationally leading data acquisition, monitoring and security system was put in place to enable automated production management and safety protection.

As the North Azadegan Oilfield is situated in a national wetland reserve, the project company kept improving its HSE system and emphasized the importance of ecological environmental accountability. No environmental accidents have been reported since the project was launched in 2009. The project company received an honorary certificate of environmental protection from the local government for its environmental efforts, making it the only holder of this certificate among foreign companies operating in Iran.

the first time. In Canada, the Phase I project of the Grand Rapids Pipeline System saw 100% completion of winter engineering and 90% completion of summer engineering, with stations along the route basically completed.

Refining and Chemicals

In 2016, CNPC’s overseas refineries operated in a safe and stable manner and processed 44.57 million tons of crude. In Sudan, the takeover of equity and operatorship of the Khartoum Refinery was completed smoothly. In Niger, Zinder Refinery made significant progress in negotiations with Sonidep on sales and pricing of oil products and signed a new sales agreement. In Kazakhstan, Shymkent Refinery saw steady progress in its renovation and upgrading project.

Project Cooperation and Development

In 2016, driven by China’s Belt and Road Initiative, CNPC continued to deepen and broaden its ongoing efforts in international oil and gas cooperation by signing a range of cooperation agreements and memorandums with the governments of Russia, Venezuela, Peru, Mozambique, Algeria, etc. and their energy companies.

In Central Asia-Russia, CNPC and Gazprom signed a Memorandum of Understanding on promoting cooperation in underground gas storage and gas power generation projects in China, in an effort to promote relevant collaboration and seek a wider range of joint venture and cooperation opportunities. The two sides also signed an agreement to cooperate in the mutual recognition of standards and conformity assessment results, and an MOU on feasibility study cooperation in the NGV fuels sector, in a bid to deepen cooperation in standardization and NGV fuels.

In Latin America, CNPC signed MOUs on cooperation progress with PDVSA, and on deepening oil and gas cooperation with the Ministry of Energy and Mines of Peru.

In Africa, CNPC signed a cooperation framework agreement with Mozambique’s national oil and gas company ENH. Under the agreement, the two sides will step up collaborative efforts in oil and gas exploration and production, and natural gas processing and marketing. CNPC will not only participate in Mozambique’s E&P projects and promote services cooperation, but also train technicians and managers for Mozambique’s oil industry.

In addition, CNPC and Total signed a strategic framework cooperation agreement to promote cooperation in oil and gas investment and R&D, and strengthen exchange and cooperation in soft power such as corporate management and corporate social responsibility.