China National Petroleum Corporation (CNPC) is an integrated international energy company with businesses covering oil and gas operations, oilfield services, petroleum engineering & construction, equipment manufacturing, financial services, and new energy development.

- **Our Goal**
  To be a first-class integrated international energy company

- **Our Mission**
  Caring for Energy, Caring for You
  Energize · Harmonize · Realize

- **Our Strategies**
  Resources, Market,
  Internationalization, Innovation
Maintaining a focus on value creation with E&P, refining and petrochemical operations achieving quality enhancement and efficiency growth. Following the instructions of Chinese President Xi Jinping on boosting E&P activities, action plans have been launched to achieve fruitful results. The full-year additions to proven oil and gas in place exceeded 1 billion tons of oil equivalent and the crude oil production remained above 100 million tons. Refining upgrades made headway steadily. Construction works started at Guangdong Petrochemical. The revamp project for Russian crude processing became operational at Liaoyang Petrochemical. A nationwide upgrade to National VI-compliant fuels completed, and sales of high-value products maintained double-digit growth. Refined product sales increased steadily as a result of efforts targeting market expansion and more sales through oil guns to improve profit. New progress was made in consolidating the distribution network. Our service capabilities and competences continued to improve.

Pushing ahead with energy transition with natural gas and LNG business leading a shift to low-carbon development. CNPC is committed to implementing and promoting energy transition towards a low-carbon and sustainable future, with a focus on natural gas as a strategic and value-generating business. In 2018, we achieved significant growth in natural gas production and sales, guaranteeing stable gas supply in the domestic market and helping reshape the nation’s energy mix. Meanwhile, we impelled the full gas value chain development and global operation, expanded natural gas imports, and facilitated the high-efficiency utilization of natural gas and LNG in power generation and transportation.

Vigorously implementing Belt and Road Initiative with international cooperation making new headway. Focusing on new project development along the Belt and Road, and leveraging international platforms such as the SCO Qingdao Summit and FOCAC Beijing Summit, a series of agreements on strategic cooperation and major projects were signed. Our overseas projects were pushed forward steadily, with positive progress made in the “Offshore Project” (Abu Dhabi), Libra Project (Brazil) and Yamal LNG Project (Russia), etc. and new highs achieved in overseas oil and gas equity production. International trade continued to grow in terms of trade volume and profit. Our international operation competence was enhanced, with an optimized overseas asset portfolio and international and professional systems on technology, management and talent.

Deepening corporate reforms with momentum for business growth further unleashed. Based on global vision and strategic thinking, the company has developed the guideline for high-quality growth with a prudent approach, together with ongoing measures for cost reduction and efficiency improvement, to boost asset efficiency and secure a leading position in China’s oil and gas industry in terms of earnings. Our corporate governance structures and internal controls continued to
improve while reforms in key areas moving forward steadily. Remarkable progress was made in the business restructuring of natural gas marketing system, market-oriented mechanisms as well as labor, personnel and compensation systems. Focusing on national and corporate key projects, our R&D efforts led to 12 important achievements by leveraging the ever-improving R&D platform. In particular, “Exploration theory & technology for conglomerate reservoir in sags and the discovery of the giant Mahu Oilfield” won the first prize of the State Science and Technology Progress Award. Our IT capabilities have been seamlessly integrated with day-to-day operations and significant progress was made in digital oilfield, intelligent refinery and intelligent pipeline.

Highlighting HSE performance with major risks being prevented and mitigated. The company continued to push ahead with safe production and green development to ensure steady and controlled HSE performance and eliminate major HSE accidents. HSE assessment and safety monitoring in key areas are implemented across the organization with an emphasis on cutting greenhouse gas emissions. All emission reduction requirements for key pollutants have been met. The productivity-linked remuneration mechanism was improved, so was the workplace condition, pushing employees’ sense of gain, happiness and security to a higher level. Law-based corporate governance and compliance management were pushed forward. Effective measures and accountability mechanisms were strengthened and no major risk event occurred throughout the year. Increased control over investment risks was in place to curb investment in non-productive facilities and non-core business activities. Debt and funding risks were closely monitored to keep the company’s financial conditions stable and healthy.

Building up soft power with brand image maintaining industry-leading. Training programs were implemented around Xi Jinping’s Thought on Socialism with Chinese Characteristics for a New Era. In addition, we continued to strengthen our management team and the competence of the party at the grass-roots level was greatly enhanced. In line with the general principles for party building in the new era, a rigorous approach to party self-governance was adopted organization-wide. Ongoing rectification measures were put in place to crack down corruption and create a healthy political ecosystem. Adopting a long-term, consistent approach to building corporate image, the company has always actively involved in targeted poverty alleviation and socio-economic development efforts as a responsible corporate citizen. The company was awarded official partner of the Beijing Olympic and Paralympic Winter Games. As a CSR Special Contribution Award winner, the company enjoys a commendable corporate image, with its brand value ranking the second in the global oil and gas industry.

CNPC has made great progress on all fronts after years of assiduous efforts. Under the strong leadership of CPC, the company is experiencing a profound shift across the organization and opening up a new chapter of robust growth. On behalf of the company’s board of directors and management team, I would like to express my heartfelt thanks to your support to CNPC’s development.

2019 marks the 70th anniversary of the founding of the People’s Republic of China. It is a critical year for CNPC to achieve the objectives of the 13th Five-Year Plan. Guided by Xi Jinping’s Thought on Socialism with Chinese Characteristics for a New Era, we will seize strategic opportunities and firmly follow the general guidelines for steady and robust growth and the overall requirements for consolidating achievements, strengthening vitality, enhancing competence, as well as providing an enabling environment for business development. Focusing on building a world-leading enterprise, we will strengthen our core business, boost opening-up and cooperation, push ahead with reform and innovation to lay a solid foundation for the development of CNPC as an integrated international energy corporation.

Chairman
We made remarkable achievements in all business sectors in 2018:

**Strengthened E&P efforts boosted both reserves and production.** Under the Growth Acceleration Program, the company developed a series of plans for maintaining annual crude production above 100 million tons and expanding natural gas operation. Measures were taken to speed up key ongoing projects and facilitate internal concession swaps. Our exploration efforts led to major reserve additions, including risk prospecting breakthroughs in the Tarim, Junggar and Sichuan basins and new headway in unconventional resource exploration. The full-year additions to proven oil and gas in place were 633.16 million tons and 584.6 billion cubic meters respectively. The company produced 101.02 million tons of crude oil for the full year, thanks to heightened measures for improving production management at mature fields and boosting capacity at new projects. The company’s full-year gas output surged to an all-time high of 109.4 billion cubic meters, with the shale gas output increased by 41.2%, as a result of capacity expansion in key gas producing areas, such as shale gas blocks in Southwest Oilfield. Our joint E&P projects in China with foreign partners produced more than 10 million tons of oil equivalent for the first time. With an emphasis on both output and profit, we developed and implemented a three-year action plan aimed at reducing all-in cost of crude oil production, deliberated investment decisions and optimized production portfolio, achieving a drop in both operating cost per unit and all-in cost per barrel, as well as a significant increase in operational benefit.

**Improved production and benchmarking management stabilized earnings of our refining & chemical sector at high levels.** The company optimized resource allocation and category-specific earning estimation in line with market demand and facility features, and ensured high utilization rate of integrated refining-petrochemical complexes and high-performing refining facilities. We processed 162.36 million tons of crude, and produced 112.91 million tons of refined products throughout the year, up 6.5% and 9.1% year-on-year respectively. The upgrading of products portfolio resulted in an increase of 2.38 million tons in jet fuel output and a reduced diesel-gasoline ratio of 1.19, down by 0.09. Our ethylene units were running at high utilization rate with a full-year output of 5.57 million tons, thanks to increased ratio of light hydrocarbon and LPG from oilfields and more flexible feedstock allocation among refineries. We launched 81 new brands of chemical products in responding to market demand and sold 29.01 million tons throughout the year. Upgrading and expansion projects at Liaoyang Petrochemical (Russian crude processing) and Huabei Petrochemical (refining) were completed and became operational. The refining-chemical integrated project at Guangdong Petrochemical was launched. All in all, our refining & chemical sector saw 14 technical and economic indicators better than a year earlier.

**Reinforced marketing activities pushed oil product sales growing steadily.** Against the backdrop of oversupply and cutthroat competition in the domestic market, our marketing efforts were focused on market expansion, nozzle throughput and profit. Meanwhile, a coordinated approach to production, transportation and distribution and a refined approach to marketing have been adopted to boost distribution, direct sales and retailing. The company’s full-year oil
product sales totaled 117.36 million tons, up 2.8% from a year earlier. In particular, there was a 20.9% increase in jet fuel sales and a recovery in diesel sales after six years of decline. The nationwide upgrade to National VI-compliant gasoline and diesel has been completed on time to provide the market with cleaner fuels. Our point-of-sale network continued to expand with a steady ramping-up in retail capabilities. Retail was prioritized. An integrated approach to marketing was adopted for oil products, fuel cards, non-fuel business and lubricants, to ensure double-digit growth in non-fuel sales income and profit, the biggest share of the domestic asphalt market and a 14.3% increase in lubricant sales.

Enhanced market deliverability and project capability resulted in both increased natural gas sales and revenue. The company continued to improve its natural gas distribution system, consolidate resources from home and abroad under well-managed gas contracts, and better arrange its transportation and distribution capacities to ensure adequate supply in the domestic market. We sold 172.4 billion cubic meters of natural gas for the full year, up 13.6% year-on-year, by optimizing our marketing strategies, tapping into high-end and end-use markets and expanding direct sales to key customers. We actively participated in online bidding transactions and promoted the formation of market-based pricing mechanism. A number of key projects proceeded steadily, with 24 pipeline connectivity projects going on stream, the Russia-China Gas Pipeline (Eastern Route) gathering pace, the Fujian-Guangdong branch of the Third West-East Gas Pipeline under construction, the expansions of Tangshan and Jiangsu LNG and the LNG terminal construction in Shenzhen pushing ahead as planned, and the Qinzhou-Nanning-Liuzhou, Fushun-Jinzhou and Yunnan refined products pipelines being operational. Leveraging centralized scheduling, our crude pipelines delivery hit a new historical high and the pipeline gas import exceeded 50 billion cubic meters.

Enhanced new venture development and reserve/output boosting measures saw robust growth in earnings of our overseas operations. The company has been actively engaged in international cooperation. The Abu Dhabi Offshore Project has been successfully delivered. The contract on Peroba deepwater project in Brazil was signed. Major progress was achieved in project extensions in Kazakhstan. Focusing on large-scale readily producible reserves, our offshore exploration efforts led to major discoveries in Libra in Brazil and deepwater biogas project in Myanmar; onshore prospecting made new breakthroughs in the Bongor Basin, Chad and the Yamal Project, Russia. The newly added recoverable reserves amounted to 97.90 million tons of oil equivalent for the full year. Our overseas projects were running smoothly and reported a full-year equity production of 98.18 million tons of oil equivalent, up 10.2% year-on-year. Headways were made in the construction of key projects, as evidenced by the Halfaya Phase III in Iraq and the EGR project at the Saman-Depe Gas Field in Turkmenistan, and the first LNG shipment from Yamal to China. Focusing on resources and markets both at home and abroad, our international trading business actively organized oil imports and sales of share oil from overseas projects and expanded high-end export markets for oil products. In 2018, our trading volume totaled 480 million tons.

Improved service competence and market competitiveness resulted in better earnings of our service businesses. Faced with booming E&P activities in 2018, our oilfield service sector deployed more deep-well drilling rigs, fracturing units and coiled tubing equipment to support reserve and capacity ramp-ups in domestic fields, and meanwhile won some mega service contracts in the UAE and Venezuela, etc. Our engineering & construction arms strengthened project lifecycle management in support of the company’s field surface engineering, refining and chemicals, storage and transportation, and LNG projects. Strategic cooperation has been advancing steadily and a global market network has taken shape, with contracts signed with clients from Iraq, Saudi Arabia and UAE, etc. Our financial service sector achieved record-high operating results in terms of earnings, profits and number of clients, etc., by leveraging innovative products, integrated services and heightened risk controls. Our manufacturing subsidiaries highlighted lean management and equipment customization, achieving profitable operation.

Intensified reform and fundamental management played a bigger role in increasing the company’s operating efficiency and revenue. Organization-wide reforms targeting corporate governance, internal controls, business processes and market-driven mechanisms continued to push forward. The reform in labor, personnel and compensation systems has gathered pace. The mixed-ownership reform proceeded steadily to generate momentum effectively. Ongoing efforts in cost reduction, efficiency improvement, investment deliberation and structural optimization, together with innovative capital operation models and enhanced day-to-day management have achieved a good result. The company’s technological innovation has contributed to major technological advancements, as evidenced by a first prize of the State Science and Technology Progress Award and a second prize of the State Technological Invention Award. Meanwhile, significant progress was achieved in the fields of digital oilfield, intelligent refinery, intelligent pipeline, and Service Station 3.0, etc. The company has maintained a strong commitment to production safety and eco-friendliness. Our HSE system review and safety monitoring practices have helped strengthen risk control in our overseas operations. The Blue Sky Program was launched to address air pollution. No major HSE accident was reported throughout the year.

Looking ahead into 2019, we will strive for high-quality growth and make new headway on building an integrated international energy conglomerate, through heightened efforts to bolster core operations, innovation and IT capabilities, management mechanisms and HSE procedures, with a focus on resource optimization, coordination, service competence and risk control.

President
### Financial Index

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total revenue from operations (billion RMB yuan)</td>
<td>1,871.9</td>
<td>2,340.3</td>
<td>2,739.0</td>
</tr>
<tr>
<td>Total profit (billion RMB yuan)</td>
<td>50.7</td>
<td>53.3</td>
<td>110.6</td>
</tr>
<tr>
<td>Net profit (billion RMB yuan)</td>
<td>26.8</td>
<td>17.6</td>
<td>42.8</td>
</tr>
<tr>
<td>Taxes and fees paid globally (billion RMB yuan)</td>
<td>349.7</td>
<td>377.4</td>
<td>421.2</td>
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</table>

### Oil and Gas Production

#### Oil production (mmt)

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<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>105.45</td>
<td>102.54</td>
<td>101.02</td>
</tr>
<tr>
<td>Overseas (CNPC’s share)</td>
<td>57.53</td>
<td>68.80</td>
<td>75.35</td>
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</table>

#### Gas production (bcm)

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>98.11</td>
<td>103.27</td>
<td>109.37</td>
</tr>
<tr>
<td>Overseas (CNPC’s share)</td>
<td>23.19</td>
<td>25.45</td>
<td>28.65</td>
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</table>

### Refining, Chemicals and Sales

#### Crude runs (mmt)

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<tbody>
<tr>
<td>Domestic</td>
<td>147.09</td>
<td>152.45</td>
<td>162.36</td>
</tr>
<tr>
<td>Overseas</td>
<td>44.57</td>
<td>45.78</td>
<td>45.00</td>
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</tbody>
</table>

#### Domestic refined products output (mmt)

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>99.32</td>
<td>103.51</td>
<td>112.91</td>
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<tr>
<td>Overseas</td>
<td>1.16</td>
<td>1.64</td>
<td>1.60</td>
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</table>

#### Domestic lube oil output (mmt)

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>5.59</td>
<td>5.76</td>
<td>5.57</td>
</tr>
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</table>

#### Domestic ethylene output (mmt)

<table>
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<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>113.03</td>
<td>114.16</td>
<td>117.36</td>
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</table>

#### Domestic service stations

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>20,895</td>
<td>21,399</td>
<td>21,783</td>
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</tbody>
</table>

### Natural Gas and Pipelines

#### Domestic natural gas sales (bcm)

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>131.45</td>
<td>151.84</td>
<td>172.42</td>
</tr>
</tbody>
</table>

#### Domestic pipeline mileage (km)

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude oil</td>
<td>81,191</td>
<td>85,582</td>
<td>86,734</td>
</tr>
<tr>
<td>Natural gas</td>
<td>18,897</td>
<td>20,359</td>
<td>20,736</td>
</tr>
<tr>
<td>Oil products</td>
<td>51,734</td>
<td>53,834</td>
<td>54,270</td>
</tr>
<tr>
<td></td>
<td>10,560</td>
<td>11,389</td>
<td>11,728</td>
</tr>
</tbody>
</table>

#### Overseas pipeline mileage (km)

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude oil</td>
<td>14,507</td>
<td>16,500</td>
<td>16,500</td>
</tr>
<tr>
<td>Natural gas</td>
<td>6,604</td>
<td>8,597</td>
<td>8,597</td>
</tr>
</tbody>
</table>
CNPC is a solely state-owned enterprise. According to laws and regulations such as the Company Law of the People’s Republic of China, the Law of the People’s Republic of China on State-owned Assets in Enterprises, the Constitution of the Communist Party of China, and the Regulation on the Work of Leading Party Members Groups of CCP (for Trial Implementation), as well as arrangements made by the State-owned Assets Supervision and Administration Commission of the State Council, CNPC has built and continuously perfected the legal person governance structure with clearly defined rights and responsibilities of the board of directors and senior executives, to ensure that each department carries out its own duties with effective balance, scientific decision-making and coordinated operations.

Board of Directors

The Board of Directors consists of seven members. The Board has four affiliated committees, the Strategic & Development Committee, the Nomination Committee, the Remuneration & Evaluation Committee and the Audit & Risk Management Committee, which are designed to provide advice to support the decision-making of the Board.

According to the Articles of Association of CNPC and Board of Directors Authorization Management of CNPC, the Board of Directors issues conventional authorization on decision-making regarding corporate operations to the Chairman.

Wang Yilin
Chairman

Zhang Wei
Director

Wang Jiuling
Outside Director

Liu Guosheng
Outside Director

Li Yuhua
Outside Director

Huang Long
Outside Director

Wang Shihong
Employee Director
Top Management

Zhang Wei  
President

Xu Wenrong  
Vice President

Liu Yuezhen  
Chief Financial Officer

Liu Hongbin  
Vice President

Jiao Fangzheng  
Vice President

Xu Jiming  
Chief of Discipline & Inspection Group

Hou Qijun  
Vice President

Duan Liangwei  
Vice President, Chief HSE Supervisor

Qin Weizhong  
Vice President
Organization

China National Petroleum Corporation

Board of Directors
- Audit & Risk Management Committee
- Remuneration & Evaluation Committee
- Nomination Committee
- Strategy & Development Committee
- Top Management

Top Management
- Corporate Culture Department
- Corporate Social Department
- Logistics Department
- Corporate Reform & Management Department
- Auding Department
- Management Department
- International Department
- Procurement & Equipment Management Department
- IT Department
- R&D Department
- Quality & HSE Department
- IT Department
- Production & Operation Management Department
- Finance Department
- Treasury Department
- Planning Department
- Procurement & Equipment Management Department
- M&A Department
- Corporate Culture Department
- Corporate Social Department
- Logistics Department
- Corporate Reform & Management Department
- Auding Department
- Management Department
- International Department
- Procurement & Equipment Management Department
- IT Department
- R&D Department
- Quality & HSE Department
- IT Department
- Production & Operation Management Department
- Finance Department
- Treasury Department
- Planning Department
- Procurement & Equipment Management Department
- M&A Department
- Holding Companies
- Research Institutes & Others
- Wholly-owned Oil & Gas Field Companies
- Wholly-owned Refinery & Chemical Companies
- Wholly-owned Specialized Companies
Key Topics

1 High-quality Growth

China’s economy is in a shift from high-speed growth to high-quality growth. CNPC, as China’s largest oil and gas producer and supplier, has been promoting high-quality growth to support the growing demand for oil and gas and the need for a low-carbon, secure and efficient energy system. This is an inevitable choice of the company in coping with risks and challenges and gaining strategic initiative. This is the road we must go through to strengthen and expand the state-owned capital and build a world-class enterprise with global competitiveness. And this is the answer to prominent problems in our business growth.

How Do We Define High-Quality Growth?

For CNPC, high-quality growth means an energy security-oriented approach to building a world-class and globally competitive company with high-quality operating results, high-quality growth momentum, high-quality development foundation and high-quality business performance through the reform in terms of quality, efficiency and driving force.

Framework Requirements for “Four High-Quality”

High-quality operating results
Continuous improvement of oil and gas value chains; further optimization of investment structure and asset structure; steady growth in revenue and profit from core business operation; increased supply of high-quality clean energy; realization of world-leading ROI and RONA; and preservation or increase of state-owned assets.

High-quality growth momentum
Implement the innovation and human capital strategies and deepen enterprise reform in support of building a world-class innovative and IT-enabled company; continuously improve modern state-owned enterprise systems with Chinese characteristics; enhance employee competencies; and enhance contribution of technological progress and total-factor productivity.

High-quality development foundation
Reinforce quality control and rectification of hidden perils; promote safe and eco-friendly operations; enhance energy/resource efficiency; maintain the overall harmony and stability of the company; improve project quality and product quality; achieve industry-leading HSE performance; strive for a harmonious relationship between the company and the environment; and ensure the success of the company also shared by its employees.

High-quality business performance
Exert more efforts on analyzing macroeconomic situations and market trends; strengthen risk identification, early warning and prevention; optimize resource allocation; timely adjust business strategies; take a measured and paced approach to policy implementation; reinforce corporate governance and compliance; ensure steady production and management; and improve risk control and operating efficiency.
How Do We Achieve High-Quality Growth?

**Highlight innovation and accelerate the shift in growth momentum**
Seize the emerging opportunities in a new wave of technological and industrial revolution; foster innovations in technology, management and business models in the principles of “business-oriented, self-dependent, incentive-driven and knowledge sharing” facilitate deep integration of information technology with the process of industrialization; and strength the capabilities in self-dependent innovation and guiding of industrial standards, making innovation the major driver of business growth.

- Strengthen technological innovation
- Promote management innovation
- Inspire innovation vitality

**Achieve coordinated development across all business segments and enhance value-creating competence of our core business**
Give full play to our advantage of having integrated business. In developing our core business, differentiated approaches are employed such as “prioritized efficient, accelerated and coordinated” specific to different business segments. In line with the supply-side structural reform, efforts are focused on enhancing the quality and efficiency of oil and gas supply. Improve mechanisms for profit distribution, price transmission and interaction evaluation between upstream and downstream activities, domestic and overseas businesses, oil and gas operation and oilfield services, in a bid to shore up our weak points and bolster the company’s overall value-creating competence and market competitiveness, making coordination an organic attribute of our business growth.

- Strengthen E&P activities
- Accelerate refining and chemicals business transformation and upgrading
- Increase oil and gas sales and profit
- Enhance service capability

**Establish a low-carbon modern energy system**
Give priority to resource conservation and eco-friendliness in our operations. Promote all-round technology progress in oil and gas production and energy use so as to build CNPC into an energy-saving and environmental-friendly enterprise, making green development a universal practice.

- Promote clean and safe production
- Enhance efficiency in resource and energy use
- Develop new energy

**Forge a community of shared interests in international oil and gas cooperation**
Improve the scope, depth and level of international oil and gas cooperation. Enable efficient allocation of domestic and overseas resources and the complementary interaction between the domestic and international markets, making opening up indispensable to development.

- Strive for high quality overseas oil and gas operations
- Deepen involvement in shaping the global oil and gas trading and market system
- Further opening up to the outside world

**Highlight a harmonious community for common growth and benefit sharing**
Share the benefits of growth with our employees, the society and our partners on the principles of “with everyone, by everyone and for everyone” to allow a sense of gain, happiness and security, making benefit sharing the fundamental goal of business growth.

- Work towards the success of both the company and our employees
- Achieve win-win with stakeholders
The year 2018 marks the 40th anniversary of China’s Reform and Opening-up, as well as the 20th anniversary of CNPC’s restructuring. CNPC, as an epitome of the SOE reform, has witnessed a number of historic milestones and huge strides in business growth over the past four decades, especially the past 20 years since its restructuring.

From the Ministry of Petroleum Industry to an oil company and an energy conglomerate, from the 100Mt crude oil production scheme to global market involvement, from opening up offshore resources to launching onshore cooperation projects, from operating domestically to operating internationally, Reform and Opening-up has been a powerful driver of CNPC’s business success.

CNPC has turned into an integrated international energy company after 40 years of growth, with remarkably improved comprehensive strength and international competitiveness in oil and gas operations, oilfield services, engineering construction & equipment manufacturing, financial services and new energy development. In 2018, CNPC ranked 3rd among the world’s top 50 oil companies by Petroleum Intelligence Weekly and 4th on the Fortune 500 list.

### Milestones of Our Reform


- **1978**
  The Ministry of Petroleum Industry was set up.

- **1980**
  Contracts on offshore oil projects were signed for the first time between the Ministry of Petroleum Industry and foreign oil companies.

- **1981**
  The Ministry of Petroleum Industry launched the 100Mt crude oil production scheme and adopted a “twin-track” approach to oil pricing.

- **1985**
  Onshore oil cooperation projects were kicked off.

1988
The Ministry of Petroleum Industry was disbanded; China National Petroleum Company was established.

1989
E&P activities in the Tarim Basin were launched. Following the managerial mode of international oil companies, CNPC introduced the client-contractor mechanism and project management practices. New techniques and processes were adopted to ensure effective and efficient operation.

1993
CNPC won the bid for the Talara oil project in Peru. It marked CNPC’s debut in the global E&P activities.

1997
The 15th World Petroleum Congress was held in Beijing. It was the first time that this event had been hosted in China.


1998
China National Petroleum Corporation was incorporated.

2000
PetroChina, with CNPC as its parent company, listed on SEHK and NYSE.

2002
The West-East Gas Pipeline Project was kicked off, marking the start of China’s Great Western Development Program.

2004
The new flower-shaped logo was adopted.

2007
PetroChina listed on SSE.

2011
The company’s overseas projects produced more than 100 million tons of oil equivalent for the first time, with CNPC’s equity production exceeding 50 million tons.

2014
Corporate reforms were deepened throughout the company.

2017
The nature of China National Petroleum Corporation was changed from an enterprise owned by the whole people into a (solely state-owned) limited liability company.

2018
The company entered into a new stage of high-quality growth.
3 Discovery of a Giant Conglomerate Oilfield in the Mahu Sag

Since 2005, CNPC has been conducting research and studies to challenge the traditional understanding that no large-scale coarse sediment leads to few oil and gas reservoirs with scale benefits in sags. With the Mahu Sag in the Junggar Basin in Xinjiang as a pilot site, the company has been exploring a brand new exploration target — conglomerates in sags. Consistent efforts over the past decade have helped us develop a theoretical and technological framework for the exploration of conglomerate reservoirs in sags, resulting in the discovery of a giant conglomerate oilfield in Mahu with reserves of about 1 billion tons. In 2018, this significant discovery was awarded the first prize of the State Science and Technology Progress Award.

Project Background

The northwestern margin of the Junggar Basin in Xinjiang is one of China’s major oil-producing areas featuring conglomerate reservoirs. The Karamay Oilfield, one of China’s most important petroleum production bases, was discovered in this region. However, after half-century-long ongoing exploration, the region now lacks newly added reserves and needs to seek for new pay zones. And the discovery of this giant oilfield in the Mahu Sag has come just in time.

Theoretical and Technological Innovations

- **Oil bearing**: Break through the conventional view of sedimentology that conglomerates are distributed along the basin margin. The sag-wide conglomerate deposit model is introduced as a new theory for continental deposit
- **Oil generation**: Break through Tissot’s single-peak oil generation model and establish the dual-peak oil generation model for hydrocarbon source rocks in alkaline lakes, developing the existing continental petroleum formation theories
- **Oil accumulation**: Break through the existing view that large-scale deposits result from source-reservoir assemblage and build the source-conglomerate accumulation model, developing the lithological reservoir theory
- **Oil extraction**: The bottlenecks in conglomerate reservoir evaluation, desert forecast and economic producibility are overcome to enable effective exploration and efficient production

Project Significance

The giant oilfield in the Mahu Sag witnessed the, probably, oldest alkaline lacustrine deposits in the world for the first time and managed to reconstruct the thermal evolution and hydrocarbon-generating process. As the greatest exploration achievement of China over the past decade, Mahu is the world’s largest-ever monoblock conglomerate-type oilfield, and one of the most important sources of crude production ramp-up in China, with its production capacity expected to exceed 10 million tons by the end of the 13th Five-Year Plan period.

In particular, crude in Mahu Oilfield contains the naphthenic base component, a rare raw material essential for the production of high-end petrochemicals such as high-power aviation fuels and ultra-low temperature lubricants, etc.

For CNPC, the discovery in Mahu represents a successful move into a new sphere of hydrocarbon exploration and provides replicable theories and technologies for global peers, making it possible for the conglomerate reservoirs in sags, which is of vast potential, to serve as an important alternative of hydrocarbon exploration in the 21st century.
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.

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.
Recoveries around the world continued in 2018, with the order being restored in the oil and gas industry. Oil prices rallied as a whole and the markets were buoyant. The shift to low-carbon fossil fuels was a key driver of the global energy transition.

Energy mix continued to improve and new challenges occurred in the energy transition. As the world economy experienced a moderate pick-up in growth, global primary energy consumption grew by approximately 2.4% to 13.34 billion tons of oil equivalent in 2018. In particular, fossil fuel consumption rose by more than 2.4%, non-fossil fuel consumption increased by 2.1%, with significantly lower year-on-year growth rate. The low-carbon pathway for energy consumption highlights changes in the mix of fossil energy sources, i.e. coal’s share shrank while natural gas rose. Addressing climate change and promoting energy transition have been a consensus of the international community as well as the energy industry. However, there are still disagreements among governments and their low-carbon energy policies were restricted by various uncertainties.

Oil prices slumped after surging, with an average rise of 30%. Brent and WTI crude futures averaged at USD 71.69 and USD 64.90 per barrel in 2018, up 31.0% and 27.6% respectively year-on-year. Oil prices rose and then crashed in 2018, with a noticeable rally in the average annual prices. From the perspective of demand, given the weakening growth prospects of the world economy, the pace of oil demand growth slowed down. From the perspective of supply, as the global market slipped back into oversupply, OECD countries saw the amount of oil sitting in storage since October standing above the five-year average again.

Growth in global gas consumption hit a five-year high and an easing of supply and demand remained. Globally, natural gas consumption hit a five-year high in 2018, growing by 5.3% to 3.86 trillion cubic meters. Natural gas consumption rebounded sharply in North America, growing by 6% to 1.6 trillion cubic meters. Europe showed the biggest increases, with the biggest increases, i.e. 11% and 16.6% respectively. As global capacity additions continued, natural gas output rose by 4.5% to 3.97 trillion cubic meters, resulting in a supply glut. North America and Eurasia delivered half of global gas production. The natural gas liquefaction capacity rose by 7.8% to 383 million tons per year to maintain adequate LNG supply. Newly built capacity was mainly found in U.S., Russia and Australia.

E&P investment picked up and oilfield service market ramped up. Global oil and gas investments soared up along with a rally in oil prices. Oilfield service market continued to ramp up and expand. In 2018, global E&P spending grossed USD 427.2 billion, up 14% year-on-year, with North America onshore and Latin America offshore topping the list of spending increases. The global oilfield service market expanded to USD 265.1 billion, up 11.7% on-year, while staying focused on maintaining/boosting oil and gas output and remaining prudent about prospecting and capacity building.

Refining/ethylene capacity kept increasing and facilities ran smoothly. In 2018, global oil products markets saw a glut bigger than 2017. Global refining capacity reached 4,964 million tons per year, an increase of 45.3 million tons largely from China and Vietnam. Asia Pacific’s share in global refining capacity continued to rise. The refining industry thrived as a whole with daily crude runs hitting an all-time high of 81.88 million barrels, up 1.8% year-on-year, despite a decrease in utilization rate and refining margin. Global demand for ethylene reached 164 million tons per year. Global ethylene capacity rose to 177 million tons per year, with capacity increment mainly found in North America and Asia-Pacific. The share of North America and Asia-Pacific in global capacity continued to rise. Governments pushed ahead with cleaner fuels in response to the stricter marine fuel standards.
China's petroleum industry reform gathered pace amidst an economic slowdown in 2018. China became, for the first time, the world's largest oil and gas importer with a fast-growing dependence on foreign resources. The oil and gas sector moved forward in support of opening-up and foreign/private capital inflows to create a pluralistic landscape of investment.

China saw fast-growing energy consumption and an improved energy mix. Along with the transition of the Chinese economy from high-speed growth to high-quality growth, China's energy consumption stayed in the fast lane in 2018. The full-year energy consumption rose by 4.8% to 4.71 billion tons of standard coal, marking the highest growth rate over the past seven years. The shift to a low-carbon energy mix was accelerated, with coal's share shrinking, for the first time, to less than 60%. Natural gas and non-fossil fuels were the key drivers of such energy structure transformation, with their shares rising by 0.8% and 0.4% respectively.

China's crude runs and apparent oil consumption both exceeded 600 million tons, with a nearly 70% dependence on foreign oil. China's apparent oil consumption rose by 7% to 625 million tons in 2018, mainly as a result of refining capacity additions and surging crude runs in local refineries. The full-year oil imports were approximately 440 million tons, up 11% year-on-year. The dependence on foreign oil hit 69.8%, 2.6% higher than the previous year. Growth in demand for oil products slowed to 0.6%, with full-year apparent oil products consumption at approximately 324 million tons, due to economic restructuring, declining appetite of traditional oil-demanding sectors and shrinking car sales, etc. Domestic crude runs exceeded, for the first time, 600 million tons, rising by 6.7% to 606 million tons. The total output of oil products reached 365 million tons, up 1.8% year-on-year, resulting in net exports at record-high levels. Meanwhile, the Shanghai crude futures started trading and opened up to foreign investors. Regulatory efforts were stepped up. Local refineries grabbed a larger slice of the market. The process of marketization in the oil sector was further accelerated.

Growth in China's gas consumption remained robust with a dramatic increase in import dependence ratio. As Chinese economy functioned smoothly in 2018, environmental policies contributed to a thriving natural gas market. A set of environmental policies targeting air pollution were launched to push ahead with the shift from coal to natural gas as the energy source for residential, heating and industrial purposes. There was a corresponding surge in natural gas consumption. The full-year natural gas consumption rose 16.6% to 276.6 billion cubic meters, accounting for 7.8% of China's primary energy consumption. The full-year natural gas supply was 282.7 billion cubic meters, up 16.4% year-on-year. Natural gas imports soared by 31.7% with an ever-increasing dependence on foreign gas up to 45.3%. The natural gas market remained tight. Seasonal peaks in demand eased thanks to an improved supply system.

China's proven oil and gas reserves continued to increase and the gas output grew rapidly. CNPC, Sinopec and CNOOC strengthened their E&P activities in 2018, resulting in a number of major breakthroughs in the Bohai Bay, Xinjiang, Sichuan and Chongqing. The continuous fall of the crude output was arrested. Natural gas production continued to soar. In particular, shale gas output stood for the first time above 10 billion cubic meters, with an over 20% increase.

Structural surplus tended to be worse for China's refining capacity and a more diversified market landscape was taking shape. China's crude processing capacity grew rapidly in 2018 to 830 million tons per year, adding 22.25 million tons per year. The structural overcapacity in refining got worse. Domestic refineries had a less run rate than the world average. As local refineries grew at a faster pace and international companies found their way into China, a more diversified market landscape was taking shape.

2019 Outlook

With the global recovery losing traction and trade tensions escalating in 2019, the global oil market will be faced with more uncertainties and elevated volatility. Global oil demand growth will continue to slow with a sustained glut. Wide swings in oil prices are possible, with Brent crude futures expected to fall to USD 60–65 for the coming year. Globally, excess natural gas supply will continue. Global natural gas demand is expected to hit 3.98 trillion cubic meters and global natural gas output will expand, leading to a narrowing glut. Worldwide, E&P investment will continue to grow and the oilfield service market will remain buoyant. A dramatic rise in refining capacity is expected and the tight supply of ethylene is likely to ease.

China's primary crude processing capacity will continue to expand in 2019 to fuel a rapid growth in apparent oil consumption, with full-year apparent oil demand estimated to be 668 million tons. Both natural gas demand and imports will grow at double-digit rates. The dependence on foreign gas will climb further to 46.4%. Domestic E&P investment will continue to pick up. Crude production is expected to rebound and natural gas production enjoys fairly large growth potential. China's refining sector will see fast expansions. The share of private refineries is expected to reach 27.2%. The overcapacity problem in oil refining will worsen.

Source: 2018 Report on Oil and Gas Industry Development by CNPC ETRI
The company is committed to the principle of "people-oriented, quality foremost, safety first, environment prioritized" to achieve "zero defect, zero injury and zero pollution". We pay attention to people’s livelihood and social progress, and strive for harmonious relationship between energy and environment, as well as enterprise and community.
Safe Operation

We actively promote the building of a long-acting safety system and comprehensively enhance our work safety management. In 2018, the company maintained a safe production.

Management System and Performance Assessment

In 2018, we enacted and amended nine regulations including Regulations on Management of Production Safety and Measures for the Supervision and Management of Hazardous Chemicals. We improved review on HSE management system, and put more efforts in rectifying problems found in review. We revised the detailed regulations based on the assessment of safety performance, and strengthened performance evaluation and accountability system for accidents.

Safety Risk Management

We strengthened management and control over safety risks in the production process, implemented a dual-prevention mechanism covering risk prevention and control and hazard identification and treatment for production safety, and established a risk prevention and control classification system, so as to eliminate safety risks and potential hazards.

In 2018, we formulated and released the enterprise classification standard for safety risks, took targeted management and control measures in subsidiaries facing different types of risks, and conducted all-factor review and special review in subsidiaries concerned. In addition, the company compiled a checklist of management and control responsibility for company-level major safety risks, and formulated and implemented risk prevention and control mechanism with the aim to effectively prevent and control all types of safety risks.

Hazard Control

We attach equal importance to both prevention and control of hazards, build a long-acting mechanism for hazard control, so as to ensure all hazards are timely and effectively treated, and enhance the fundamental safety level. In 2018, we continued to conduct treatment of pipeline hazards by carrying out targeted safety inspection on key projects including the Fourth Shaanxi-Beijing Gas Pipeline and Zhongwei-Jingbian Pipeline.

Hazardous Chemicals Management

We exercised full-process management on hazardous chemicals covering production, storage and transportation. In 2018, we carried out targeted inspection on the progress of comprehensive safety management of hazardous chemicals in key subsidiaries including Daqing Petrochemical and Fushun Petrochemical.

Supply Chain Safety

We include suppliers and contractors into our safety management, and have an all-process management from access, selection, training, use, to evaluation, so as to prevent and reduce accidents caused by suppliers and contractors. In 2018, the company continued to reduce production and operation safety risks by strengthening the management of external construction personnel qualifications, implementing construction site management, construction process control, contractor accident liability investigation and other mechanisms.

Emergency Management

We make unremitting efforts to improve our emergency management system. In 2018, our emergency management system 2.0 was put on line, further enhancing our comprehensive emergency response capabilities.
Overseas Security Management

We constantly reinforce the operation of social security management system, strengthen social security risk prevention and control, and enhance emergency response capabilities. In 2018, we strengthened systematic management, implemented management on a regular basis, and braced ourselves for changes in local security situations in major countries. There were no fatalities in our overseas projects concerning social security.

Environmental Protection

We make great efforts to reduce adverse effects on the environment and climate. By improving the resource utilization efficiency, implementing the Clean Air Act, and promoting energy conservation and emission reduction, we strive to achieve environmentally-friendly and resource-saving operations and vigorously advocate the construction of ecological civilization, in order to achieve harmony between energy and the environment.

Environmental Risk Prevention and Control

We carry out environmental risk identification and assessment, and implement a risk prevention and control management model focusing on environmental forecasting, pre-warning and monitoring. We have established a sound risk management mechanism featuring "tiered management and hierarchic prevention and control", in order to ensure overall control over environmental risks. In 2018, no major environmental accidents were reported and all major pollutants reduction targets were reached.

Sustainable Use of Resources

We attach great importance to the protection and rational utilization of resources. We have been striving to reduce the consumption of fossil fuels and increase energy efficiency by reducing energy intensity. Compared with 2010, the proportion of natural gas consumption in our total energy consumption in 2018 increased by 7.2 percentage points, while the proportion of raw coal consumption in our total energy consumption decreased by 6.4 percentage points. We endeavor to improve water utilization efficiency and realize sustainable use of water throughout various steps in our production and operation activities. Through innovation in land-saving, we make careful and efficient use of land during production, make good use of land in various ways, proactively reclaim land, carry out environmental treatment and recovery in mining areas, and enhance land use efficiency. In 2018, the company reduced energy consumption by 860,000 tons of standard coal, water consumption by 12.13 million cubic meters, and land consumption by 1,253 hectares.

Jilin Oilfield closed oil and water wells in the buffer zone of the Chagan Lake National Preserve to protect the local ecosystem.
Control of Wastes and Pollutants Discharge

We strictly monitor and control discharge of waste and pollutants in the production process, strengthen waste management, and reduce discharge of pollutants in the air, land and water. We actively promote collection measures and recycling technologies for drilling wastes, and clean operation technologies at our oil and gas fields, significantly reducing wastes and pollutants. In 2018, the company had its drilling wastes recycled or handled through harmless treatment to 100%, and achieved 100% clean operation coverage.

Ecological Environment Protection

We are committed to striking a balance between business development and environmental protection. We strictly comply with the laws and international standards on environmental protection, take full precautions to avoid environmental impact, and work hard to restore the environment to its original state in case of any adverse impact. We make an all-out effort to identify and address environmental pollution and ecological damage, and reduce the impact on the ecological environment by various means, including reducing noise and emissions. We do our utmost to reduce the occupation of cultivated land, protect water and land, and restore vegetation. Various measures are taken to restore the ecological environment in the working areas and protect biodiversity.

Responsive technologies for drilling wastes

The company conducts whole-process management and control over solid wastes such as oily sludge and drilling wastes. Drilling wastes in environmentally sensitive areas are collected on site without contacting the soil, and oil-based drilling wastes are recycled and disposed of after bio-safety treatment.

Major measures for ecological protection

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<th>Ecological protection and restoration</th>
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<td>Carry out green mining activities</td>
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<td>Restore the vegetation and plant sand-fixing and windbreak forests in Gobi Deserts</td>
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<td>Promote comprehensive treatment of desertification, rocky desertification and soil erosion</td>
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<td>Implement natural forest protection system</td>
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<th>Ecological monitoring and assessment</th>
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<td>Continuously monitor and assess the ecological impact of oil and gas development and pipeline construction</td>
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<th>Ecological protection demonstration programs</th>
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<td>Green ecological oil and gas fields</td>
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<td>Nature reserves</td>
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<td>Participate in afforestation activities</td>
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Climate Change

We support the Paris Agreement adopted by the 2015 United Nations Climate Change Conference, embrace the goal of limiting global warming to less than 2 °C by the end of this century. To this end, we actively respond to climate change, devote ourselves to low-carbon development, and share the practice of greenhouse gas emission control with industry peers and all sectors of society.

Carbon Emission Management

We pay close attention to greenhouse gas emissions and include combating climate change in our development plan. In 2018, following the instructions of the National Greenhouse Gas Emissions Accounting and Reporting Technical Guidelines, we improved the operation of the information system for greenhouse gas accounting and reporting, coordinated the accounting of greenhouse gas emissions, and completed the greenhouse gas emission inventory for each business area, covering direct and indirect emissions such as fuel combustion emission, production process emission, fugitive emission and greenhouse gas recovery and recycling.

Low-carbon Energy and Low-carbon Technologies

As an advocate and participant of the low-carbon economy, we actively develop natural gas, coalbed methane, shale gas, biomass energy and other low-carbon energies, produce and supply clean products, and work hard to achieve clean production and consumption processes. We carry out researches on carbon emission reduction technologies such as CO2 flooding and storage, assessment of carbon sequestration potential in saline layers and oil reservoirs, and CO2 capture for flue gas from captive power plants. Our first CCUS-EOR base for the whole process of CO2 separation, storage and EOR was built in Jilin Oilfield. By the end of 2018, its accumulated CO2 storage reached 1.385 million tons. The "Supporting technology for CO2 flooding and storage and its application" won the first prize for technological progress from the National Energy Administration.

Carbon Emission Reduction During Production

We pay high attention to optimizing our own energy consumption structure. We also care about carbon emissions and carbon footprint during production and operation. In condition-permitting areas like Huabei Oilfield and Tarim Oilfield, we use renewable energies such as geothermal energy and solar energy to reduce carbon emissions during production.

Market-based Mechanism for Carbon Saving

We actively participate in carbon trading activities to achieve carbon emissions reduction through market-based mechanisms. We are the co-founder of the Tianjin Climate Exchange (TCE), the first comprehensive emissions trading institution in China. The energy saving and emissions reduction projects developed by TCE can reduce energy consumption by more than 200,000 tons of standard coal annually, equivalent to over 500,000 tons of carbon dioxide in emission reduction.

Forestry Carbon Sink

We support the construction of carbon sink forest and forestation activities in China. The company established the China Green Carbon Foundation together with the State Forestry Administration. Meanwhile, we set up the Forestation Committee to ensure continuous forestation in our production areas and living quarters. As of 2018, green coverage in CNPC’s production areas reached 293 million square meters and green coverage in living quarters reached 44.59%.
As the only Chinese member of the Oil and Gas Climate Initiative (OGCI), CNPC is deeply involved in international cooperation to address climate change, and coordinates with other OGCI members and initiatives in response to climate change and low carbon transition.

We actively participate in the endeavors under the OGCI framework.

Research on low carbon cooperation strategy and standard setting

- **Low carbon strategy**: Participated in the formulation of OGCI-2040 Low Emissions Roadmap and OGCI methane emissions control objectives, as well as in the completion of the Study on the Potential of Agriculture, Forestry and Other Land Uses in Reducing Carbon Emission.

- **Clean utilization of natural gas**: Jointly carried out the verification and monitoring of methane emission across the full industrial chain of oil and gas production globally.

- **CCUS commercialization**: Participated in CCUS commercialization policy research and developed special CCUS commercialization programs for different regions and countries.

- **Standard setting**: Led the development of Carbon Dioxide Capture, Transportation and Geological Storage - Quantification and Verification (ISO/TR 27915), laying the technical foundation for the benefit evaluation and carbon market access of carbon dioxide sequestration projects.

**Establishment of OGCI Climate Investments China**

In 2018, CNPC jointly established the Climate Investments China with OGCI Climate Investment Fund to invest in China’s domestic low carbon market, promote research, demonstration and popularization of low carbon technologies and business models in China, and explore opportunities for low carbon transition in the petroleum industry.

**Exchange and communication with peers**

Senior representatives of the company attended the OGCI 2018 annual meeting and exchanged expertise and experience with peers on issues such as the role of natural gas in energy transition in developing countries, improvement of energy efficiency and strengthening of international energy cooperation.
Social Responsibility

We remain committed to combining our business growth with local sustainable development, attaching importance to people’s livelihood and social progress, sharing development opportunities and resources with the local community. In 2018, we continued to carry out targeted poverty alleviation and aid programs, and participated in community building through various ways, including education and training, healthcare, etc.

Targeted Poverty Alleviation

We have responded actively to the initiatives of the United Nation’s 2030 Agenda for Sustainable Development and to the Chinese government’s policies on poverty alleviation, with a special focus on improvement of people’s livelihood, industrial development, intellectual development and medical care. By combining our business strengths with local resources and market advantages in areas receiving assistance, we have taken targeted measures to help them develop the local economy on their own. In 2018, we invested RMB 97.49 million in 44 projects, including infrastructure reconstruction, education and training, healthcare, and industrial collaboration, in 13 counties and districts from seven provinces (municipalities and autonomous regions) of China, namely Xinjiang, Tibet, Qinghai, Chongqing, Henan, Jiangxi and Guizhou, directly benefiting more than 80,000 people.

Supporting Education

We carry out various activities and give young people equal opportunities for education. Specifically, we set up scholarships, offer grant loans and subsidies to students from underprivileged families, improve teaching conditions for impoverished regions, and support scientific and cultural activities as well as relevant competitive activities. In 2018, we granted CNPC Scholarships worth a total of RMB 3.99 million to 635 students. In addition, we explore new models to support education, and call on the public to pay attention and work together to achieve education equality. In cooperation with China Foundation for Poverty Alleviation (CFPA), Beijing Normal University Group and Tencent Foundation, we sponsor the Xuhang Educational Program and the Teacher Training Program to help students from poor families complete their studies.

Promoting Local Development

We adhere to the principle of open cooperation for mutual benefit, expanding our joint-venture cooperation with local capital in the upstream, midstream and downstream sectors. During the process of developing and running our projects, we help to nurture local suppliers and contractors, thereby creating jobs, driving the growth of related businesses, and giving back to local people. The company has cooperated with the government of Xinjiang Autonomous Region in extensive areas such as exploration and development, refining and chemicals, oil and gas marketing. In the past five years, we have invested a total of RMB 224.7 billion in Xinjiang, and increased local employment by adding more than 6,200 jobs.

Contributions to the Development of Overseas Communities

We respect the cultures and conventions of the host countries, and are committed to establishing long-term and stable cooperative relations with the host countries. As a corporate citizen, we incorporate our development into local socio-economic growth and create socio-economic value to jointly promote the development and prosperity of local communities.

Enhancing Communication with Local Communities

We have set up environmental protection and community relations departments in many overseas areas to promote cooperation with local governments, NGOs and community representatives. By holding conferences, issuing reports and paying visits, we have strengthened communication and coordination to achieve a win-win situation in cooperation.

Community Welfare

We take an active role to help improve the living conditions of local people, and donate to education, healthcare and other public welfare programs to achieve harmonious and mutual development.

CNPC worked with CFPA in launching the “Internet + Poverty alleviation” Initiative to help sell melons online for farmers in Balkun, Xinjiang.
Developing Local Economy

We place a strong emphasis on local resources and procurement of local products and services, and create opportunities for local contractors and service companies to participate in our projects, so as to boost and promote the development of local SMEs and create more income and employment opportunities for the local communities.

Tax Payments According to Law

We strictly comply with the laws and regulations in the countries where we operate, make lawful and transparent tax payments to local governments, and make due contributions to local economic development. In countries where the EITI (Extractive Industries Transparency Initiative) standard is implemented, such as Iraq, Mongolia and other countries, our local companies actively participate in the multi-stakeholder groups and publish information on our projects and tax payments, as required by EITI yet beyond EITI’s minimum disclosure requirements. We support and respond to the Base Erosion and Profit Shifting (BEPS) initiative and the CNPC Tax Policy, and pledge to pay tax according to the law in areas where we operate and create value, in order to strive towards sustainable development and make due contributions to socio-economic development.

Protecting Indigenous Rights

Before launching a project, we conduct assessments of its social and economic impact, eyeing the needs of the indigenous people, human rights, cultural heritage, and involuntary resettlement. We try our best to protect all rights and interests of the indigenous people. We uphold standard operation in land compensation, and make compensation plans according to the opinions of the local governments, our partners, and the local villagers. Specifically, compensation is paid before land use, and the compensation information is released timely to ensure operational transparency.
The company actively pushed ahead with the reform of talent development system and strengthened talent pool building to develop an innovative and highly motivated workforce and provide an enabling environment for achieving self-worth.
Upholding the people-oriented concept, we attach great importance to protecting employees’ legal rights and interests, build an effective platform for employees to develop, and promote employee localization and diversification. We pay close attention to the physical and psychological health and the livelihood of our staff, and make sure that all employees could benefit from our achievements and realize the common development of both the company and employees.

**Employees’ Rights and Interests**

Strictly complying with international conventions on labor and human rights, we respect and protect employees’ legal rights and interests, and advocate the employment policy based on equality and non-discrimination. We continue to perfect the compensation and benefits system, and improve democratic mechanisms, so as to create a fair and harmonious working environment for employees.

**Employment Policies**

We always value and safeguard the lawful rights and interests of our employees. We strictly comply with the Labor Law of the People’s Republic of China, the Labor Contract Law of the People’s Republic of China and the Trade Union Law of the People’s Republic of China, relevant international conventions approved by the Chinese Government, and relevant laws and regulations of the host countries. We promote the employment policies of equality and non-discrimination, and provide equal opportunities and fair treatment to all employees regardless of nationality, race, gender, religion or cultural background. We resolutely prohibit child labor and forced labor with emphasis on the employment of women and ethnic minorities, and guarantee equal compensation, benefits and career development opportunities for all employees.

By the end of 2018, the company had approximately 1,266,400 employees, with 34.74% holding bachelor’s degree or higher and 33.26% female.

**Compensation and Welfare**

We intensified our efforts to reform the remuneration system, improve policies on enterprise annuity and supplementary medical insurance, and further improve the salary distribution system which is more performance-oriented and closely linked with performance appraisal results. A remuneration system highlighting on-the-post contribution and consistent with different types of work was put in place. Besides, we pay special attention, in terms of income, to employees engaged in technological innovation and those working at grass-roots level and in key positions or harsh environment in an effort to reflect the value of each employee.

**Democratic Participation**

We ensure that our employees play an important role in democratic management, participation and supervision. We have established a democratic management system and a system to make factory affairs more transparent with workers’ congress being the basic form. Specifically, we have further standardized the content, procedures and means of what should be made public by clarifying rights and obligations, organizational system, and working processes of the workers’ congress. By doing so, we have further improved our enterprise democratic management. We have established multiple channels to communicate with employees, continued to implement democratic procedures, and solicited opinions by holding workers’ congress, democratic discussion meetings, and employee representative meetings. Besides, we guarantee the employees’ rights to know, participate, manage, vote and supervise, and encourage them to offer advice for the enterprise development.
Career Development Platform

We believe that the company’s development is underpinned by our employees’ growth. We endeavor to inspire employees’ creativity and help them fulfill their personal value through all-staff training, an unimpeded career development path and an improved incentive mechanism.

Education and Training

We continuously improve our training centers and networks, and provide flexible training programs for employees such as knowledge training, professional training, combination of on-the-job training, off-the-job training and spare-time training to deliver diversified and differentiated vocational training and strive to realize the growth of both the company and individuals. On the basis of promoting all-staff training, we carried out the “Four Talent Training Projects” for managerial personnel, technical experts, skilled operators and internationalized talents. In 2018, a total of 20,000 employees received key training sessions organized by the headquarters.

Career Development

We attach great importance to the career planning of employees and support the career development of employees to realize their value. In 2018, we deepened the reform of technical rank-based career development for technical staff at R&D institutions, and continued to improve the incentive mechanism to fully unleash the potential of employees in an effort to provide technical personnel with an independent, unimpeded and stable career path. We implement Oil Scientists Training Program and Outstanding Young Technician Training Project, and push forward the Skilled Workers Training and Development Program so as to chart course for the development of innovative talents. By the end of 2018, we had 93 Skilled Expert Workshops, including 18 National Skilled Expert Workshops, 303 senior technical experts and 388 skilled experts.

Rewards and Incentives

We organize multiple activities to select model workers, outstanding workers, technical experts and academic leaders, encourage employees to participate in international and domestic competitions, and award winners spiritually and materially.

Local Hiring and Diversity

We embrace a respectful, open and inclusive culture, and are committed to the localization, professionalization and marketization of overseas employees. We constantly improve the employee training mechanism and endeavor to promote local hiring and talent internationalization. By the end of 2018, local employees accounted for 92.9% of the total workforce in our overseas oil and gas operation.

Local Hiring

We continuously improve the workforce localization, attach great importance to attracting and retaining excellent local talents, enhance the training of local employees, and increase the proportion of locals in important technical and management posts. Our local hiring policy not only enables the local employees to play an increasingly important role in the company’s development, but also helps to build a talent pool for the sustainable development of local petroleum industry.

Major progress in education and training in 2018

- The number of trained employees: 800,000, total training hours: 21 million
- Training coverage ratio of senior skilled personnel and key operation post employees: 100%, training coverage ratio of front-line employees: 100%
- Remote training: 6.24 million person-times, 8.75 million hours, 252 projects, online examinations: 620,000 person-times

Employees’ participation in skills competitions in 2018

- Competitions for the refining sector, the pipeline sector and enterprises in Western China: A total of 2,077 people entered for contests in 13 categories
- The 6th China National Staff Welding Professional Skills Contest: A total of 9 gold medals awarded, 29 individuals and 22 entities commended
- “Revitalization Cup”–14th National Youth Vocational Skills Contest
- China National Catalytic Cracking Skills Competition
- The 10th Petroleum and Chemical Industry Vocational Skills Competition
- BRICS 2018 Future Skills Challenge
Respect Cultural Diversity
We respect employees’ individuality, varied ability and experiences, and cherish their different talents. We make every effort to eliminate the employment and occupational discrimination, create a relaxing and tolerant working environment, and promote the mutual respect and understanding among employees from different nations, areas and cultural backgrounds.

Employee Health
We cherish employees’ life and attach great importance to their health. Striving to provide a favorable working environment for the physical and psychological health of our employees, we have established a mental health platform and rolled out a series of policies and measures to ensure that they can work with fit bodies and positive attitudes.

Occupational Health
In 2018, we revised the occupational health file management system, established standards for the quantitative review and inspection of occupational health in oil and gas fields and other workplaces, and strengthened the basic management of occupational health. We trained occupational health management personnel and launched the Occupational Health Awareness Week, and conscientiously implemented “occupational health protection for a healthy China”, a national concept for occupational health protection. In 2018, 99.35% of our employees received occupational physical examinations and the detection rate of occupational hazard factors stood at 99.66%.

Mental Health
We take measures to continuously improve the employee recuperation and vacation system. We implement the Employee Assistance Program (EAP), set up hotlines and website for psychological consultation, and carry out various forms of training on mental health improvement, in order to help employees build a positive and healthy mindset. In 2018, we continued to implement mental health service projects overseas to care for our overseas employees’ mental health. We assigned psychologists to carry out the activity of Bringing Sunshine to Overseas Projects and provide on-site mental health consultation services in Kazakhstan, Brazil, Peru, Venezuela and some other countries.

CNPC EAP overseas

<table>
<thead>
<tr>
<th>EAP online platform</th>
<th>Psychologists on-site counseling</th>
<th>EAP training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve psychological counseling service efficiency</td>
<td>Help employees improve stress management capability and better maintain family bonds</td>
<td>Improve EAP talents training</td>
</tr>
<tr>
<td>About 1,200 hours of mental health counseling services provided</td>
<td>Assigned psychologists to carry out the activity of Bringing Sunshine to Overseas Projects and provide on-site mental health consultation services in Kazakhstan, Brazil, Peru, Venezuela and some other countries</td>
<td>A total of 10 sessions of psychological crisis response training, 3 sessions of EAP ambassador training, and 7 sessions of Family Happiness Camp</td>
</tr>
</tbody>
</table>
Oriented by business, the company has deepened R&D reforms and stepped up talent development in a bid to foster innovation on all fronts and create a new engine for growth.
Technological innovation is the key driver behind the company's robust growth to build an integrated international energy company. Our technological strengths and innovative capabilities were significantly improved in 2018 under an innovation-driven growth strategy. With R&D reforms continued, we have created an optimized atmosphere for innovation. As key R&D debottlenecking efforts continue as planned, innovation is playing an increasingly important role in the company's R&D. Those efforts resulted in more prestigious science and technology awards.

Construction of Technological Innovation System

The company’s R&D management framework has been improved to promote construction of technological innovation system. The expert committee, as part of the R&D management platform, is responsible for evaluating R&D needs and making decisions on R&D programs. A range of procedures on R&D planning, intellectual property and confidentiality have been developed and amended to improve R&D management throughout project lifecycle. An R&D infrastructure information system is in place to encourage information sharing. Incentives are provided to facilitate transfer of new know-how and techniques and create a knowledge-based innovative atmosphere within the organization.

The company has seen new progress in the construction of R&D platforms. Continued improvements have been made in a number of national R&D facilities, including the EOR Laboratory and the Carbon Fiber Engineering & Research Center. The experimental/testing platforms for sour gas and tight oil and gas are under construction as planned. By the end of 2018, the company has 83 research institutes, 54 key laboratories and testing bases.

Major R&D Advances

In 2018, the company achieved major progress in know-how, core technology, equipment and model project development. A series of proprietary technologies have been developed to boost production and tap deeply buried resources and unconventional resources.

Exploration and Production

The evaluation and prediction techniques for massive conglomerate reservoirs have been developed, enabling enhanced rates of success in discovery and early production. This has supported the extension of exploration activities from the Triassic to the Permian in Mahu Sag in Xinjiang.

The theories on how gas reservoirs were formed and exploratory evaluation technologies have been developed for deep marine carbonate rocks. It paves the way for the deep marine carbonates in the northwestern part of Sichuan to become a new candidate for strategic reserve replacement in Sichuan Basin.

Significant headway has been made in continental shale oil exploration, facilitating exploration breakthroughs and production hikes in Junggar Basin, Bohai Bay Basin and Ordos Basin. New EOR technology featuring natural gas injection and gravity-assisted miscible displacement has been developed for deep sandstone reservoirs in Tarim Basin featuring high pressure, high temperature, and high salinity, the problems that could not be resolved by chemical flooding. Commercialization of alkali-free surfactant-polymer flooding and weak-base ASP flooding techniques has proved successful across demonstration projects in the Liaohu, Xinjiang and Daqing oilfields.

Innovative CO2 flooding mechanisms and underground storage theories for reservoirs with ultra-low permeability have contributed to a significant increase in the average daily output per well.
**Refining and Chemicals**

Technological packages for 10Mt/a refining, 1Mt/a ethylene and 45/80 nitrogen fertilizer projects have been improved and applied in Guangdong Petrochemical Plant, the ethane-to-ethylene plants in Changqing and Tarim, and the nitrogen fertilizer unit of Ningxia Petrochemical Plant. Our proprietary refining catalysts have been among the premium of its kind in the domestic market. Nation VI gasoline is commercialized and catalysts for hydrocracking are applied in industrial production. Products including specialty lubricating grease and proprietary asphalt are used in and contributing to a number of major projects. The company produced 36 new polyolefin products under 10 categories and developed new polymerization technique, the first in Chinese market, for phosphorus-free SBR. Such new products as polyethylene with ultra high molecular weight, rubber of solution styrene butadiene and rubber of rare-earth butadiene are produced in high volumes.

**Oilfield Services**

**Geophysical prospecting:** R&D efforts have resulted in world-leading integrated seismic prospecting techniques that support simultaneous recording of 200,000 traces for both onshore and offshore blocks. DSS, a prospecting technique system based on aliasing, has been developed and applied to addressing technical and economical challenge from onshore high-density seisms.

**Well logging:** CIFLog2.0, a new generation of multi-well evaluation software, has been developed to support single-well and multi-well data processing, making a breakthrough in well prospecting. Formation element full-spectrum logging techniques have been applied commercially in key E&P projects in Xinjiang, Daqing and Tarim oilfields, as well as overseas blocks in Brazil, Iran and Chad, greatly improving our capabilities to evaluate complex lithostratigraphic formations and analyze residual oil in mature fields.
Drilling: High-pressure common rail EFI-based 12V175 diesel engine has been launched in Tarim Oilfield for drilling deep and ultra-deep wells. Innovative techniques for treatment and recycling of drilling wastes and fracturing fluids are widely used. Packaged products and technologies have been developed, including oil-based drilling fluids to deal with high temperature, high salinity, high density, non-planar PDC bits, and pressure-controlled drilling and completion in high-pressure saline layers. Those advances make drilling more efficient for 8000m-deep wells in the piedmont zone in Tarim basin.

Storage and Transportation

We have independently developed a suite of equipment and construction techniques for D1422 gas pipeline and applied to building the Russia-China Pipeline (Eastern Route), with a delivering capacity 40% higher than that of D1219 pipeline. Strain-based design and high-strain line pipe technologies have made headway in addressing failures of large-diameter high-pressure pipeline under certain geological conditions.

Technological Cooperation

In 2018, we continued to enhance exchange and cooperation with IOCs, NOCs, international academic bodies, industrial organizations and domestic research institutes in a bid to promote theoretical and technological innovations.

We worked closely with our international partners including Total, Petronas, Gazprom and Rosneft in R&D management, frontier technology and key technological areas in the form of working group meetings and tech workshops, etc. New achievements were made through technological cooperation with the Chinese Academy of Sciences, National Natural Science Foundation of China and China Aerospace Science & Industry Corporation. The research projects on elastic waves and deep exploration in collaboration with the Chinese Academy of Sciences delivered technological innovations, such as high-temperature, high-pressure azimuthal electromagnetic LWD prototype unit, for addressing the company’s strategic technical bottlenecks; collaborative efforts with Beijing Institute of Technology and China North Industries Group Corporation around detonation driver mechanism and high explosives helped improve the performance of perforating charge products.

S&T Awards and Intellectual Property Rights

The company won two national science and technology awards in 2018. “Exploration theory & technology for conglomerates in sags and the discovery of the giant Mahu Oilfield” won the first prize of the State Science and Technology Progress Award. “Oil and gas pipeline integrity technologies and industrial application” won the second prize of the State Technological Invention Award. We led the formulation of two international standards, i.e. “Natural Gas - Upstream Area - Determination of hydrogen sulfide content by laser spectroscopy” (ISO 20676:2018) and “Rubber - Determination of Ash - Part 2: Thermo-Gravimetric Analysis (TGA)” (ISO 247-2:2018).

In 2018, the company applied for patents for 5,117 items at home and abroad, including 2,906 applications for invention patents. The company was offered 4,515 patents, including 2,120 invention patents.
Targeting at market orientation and economic returns, the company continued to optimize production organization and resource allocation, promote an integrated and coordinated operation on oil and gas production, refining, chemicals, marketing and trade activities, and improve internationalized business operation and service market competitiveness.
Exploration and Production

In 2018, focused on economically recoverable reserves and profitable output, the company embarked on a series of E&P initiatives, including the Domestic E&P Business Acceleration Program 2018-2025, the Natural Gas Business Development Plan 2018-2030 and the Shale Gas Development Plan 2020-2035. Our E&P business showed good prospect as a whole, as a result of corporate reform and technological innovation, well-planned E&P activities, favorable outcomes in unconventional resources E&P as well as active engagement in foreign cooperation in China.

Exploration

The company’s exploration efforts in 2018 have proved fruitful. Focusing on risk exploration, we made more investments and efforts in new areas and new fields, leading to new discoveries at multiple basins, strata and spots. Meanwhile, a cost-effective and fine exploration approach was adopted in mature areas, increasing the ratio of high-quality, large-scale, uncompartmentalized reserves that are more developable and upgradable. Unconventional resources have taken a larger share in the newly added reserves and gradually become an important alternative source of reserve expansion. The full-year increment to proven oil in place and gas in place are 633.16 million tons and 584.6 billion cubic meters respectively.

Reserves and operating data (Domestic)

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newly proven oil in place (mmt)</td>
<td>649.29</td>
<td>659.45</td>
<td>633.16</td>
</tr>
<tr>
<td>Newly proven gas in place (bcm)</td>
<td>541.9</td>
<td>569.8</td>
<td>584.6</td>
</tr>
<tr>
<td>2D seismic (kilometers)</td>
<td>24,885</td>
<td>26,813</td>
<td>18,182</td>
</tr>
<tr>
<td>3D seismic (square kilometers)</td>
<td>8,764</td>
<td>7,843</td>
<td>12,570</td>
</tr>
<tr>
<td>Exploration wells</td>
<td>1,656</td>
<td>1,774</td>
<td>1,803</td>
</tr>
<tr>
<td>Preliminary prospecting wells</td>
<td>865</td>
<td>986</td>
<td>997</td>
</tr>
<tr>
<td>Appraisal wells</td>
<td>791</td>
<td>788</td>
<td>806</td>
</tr>
</tbody>
</table>
Crude Production

With an emphasis on both ramping up production in new fields and stabilizing production in mature fields, the company produced 101.02 million tons of crude oil in 2018. Production ramp-up projects at Xinjiang Oilfield (Mahu and Jimsar) and Dagang Oilfield have made major headway, thanks to reinforced measures for low cost development, new capacity management and process control, etc. We continued to deepen refined reservoir interpretation, pilot development, waterflooding campaign and dormant well restoration and extend the use of horizontal wells, cluster wells and factory processes, keeping the natural decline rate below 11.5%. The digital oilfield initiative has proceeded at a fast pace with Internet-of-Things technologies being widely used over the past six years. Digital oilfield systems have been deployed in a number of oilfields including Changqing, Southwest and Dagang, etc.

Stable Production of Mature Fields

The Stable Production Program continued to address challenges faced by mature oilfields, with measures taken to enhance recovery factor, mitigate decline rate and improve water flooding efficiency. In 2018, fine reservoir interpretation for continental sedimentary sandstone was carried out in support of production growth in mature fields. Based on secondary and tertiary (“2+3”) recovery techniques, “2+3” EOR models have been developed for four main types of reservoirs to facilitate sustained and effective transformation in mature fields. Water flooding management efforts have helped keep water injection effectiveness at a high level and further reduced the natural decline and composite decline rates. Improvements in utilization of oil wells, gas wells and water wells have been achieved through enhanced measures on restoring dormant wells.

Field Tests of Key Development Technologies

A range of pilot testing activities have delivered new results. Gas-assisted gravity miscible drive process has been tested successfully at the Donghetang field in Tarim Basin and expected to increase the recovery factor by 29%. Air injection/fire flooding techniques have contributed to

<table>
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<tr>
<th>Major discoveries</th>
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<tbody>
<tr>
<td><strong>Risk exploration</strong></td>
</tr>
<tr>
<td>▪ Risk exploration in Tarim Basin achieved big breakthrough that a new gas-bearing structural belt in Qiulitage was found</td>
</tr>
<tr>
<td>▪ High yield oil and gas flows were obtained at a number of exploratory wells in Bayan-Hetao Basin</td>
</tr>
<tr>
<td>▪ Significant progress was made in natural gas exploration in Sichuan Basin, include the identification of new gas-bearing volcanic strata in the western part and high yield gas flows from exploratory wells in the eastern part</td>
</tr>
<tr>
<td>▪ Lithologic reservoirs are identified in the Shawan Sag, Junggar Basin</td>
</tr>
<tr>
<td><strong>Exploration achievements</strong></td>
</tr>
<tr>
<td>▪ We newly proved 220 million tons of oil in place in the Ordos Basin and 170 billion cubic meters of gas in place in Jingbian and Shenmu-Qingjian areas</td>
</tr>
<tr>
<td>▪ New progress was achieved in exploring the Manan Slope in Junggar Basin, identifying six uncompartmentalized blocks with newly proven oil in place of 130 million tons</td>
</tr>
<tr>
<td>▪ Discoveries at the Kelasu tectonic belt in Tarim Basin add more than 150 billion cubic meters of proven gas in place</td>
</tr>
<tr>
<td>▪ A number of large-scale oil and gas plays were identified in the Sichuan, Qaidam, Songliao and Bohai Bay basins</td>
</tr>
</tbody>
</table>
The era of “Cloud” for upstream operations

Aiming at “integration and sharing”, the company has developed a collaborative research environment featuring unified data pool and unified PaaS cloud platform. The E&P Dream Cloud 1.0 platform was formally launched in November 2018. As CNPC's first intelligent information sharing platform for its core operations, it is intended to bolster connectivity for data, technology and research in upstream activities and promote the intellectualization of E&P.

Natural Gas Production

In 2018, the company’s natural gas output hit an all-time new high of 109.4 billion cubic meters. Our four major gas provinces, i.e. Changqing, Tarim, Southwest and Qinghai, have seen steady growth in natural gas production, as a result of reinforced measures for operations management, dynamic monitoring & analysis, wintertime scheduling, and enhanced gas recovery in mature fields. Capacity building in key projects in the Sichuan Basin (shale gas) and Tarim Basin (Kuche sag) has made headway. Natural gas output from smaller gas-producing fields like Daqing and Jilin was elevated to a higher level, making these fields an important alternative source of supply.

Underground Gas Storages

To cope with regional and seasonal imbalances in the domestic natural gas market and ensure market supply, we further tapped the potential of 10 existing storages with the total working gas capacity amounting to 9 billion cubic meters in 2018. The company also plans to build 10 new underground gas storages, preliminary evaluation and pilot testing are now under way.

Unconventional Hydrocarbon and New Energy

E&P of unconventional hydrocarbon and new energy development have proceeded progressively and achieved some positive results.

E&P of Unconventional Hydrocarbon

The company’s exploration efforts in unconventional hydrocarbon such as shale oil and gas, tight oil and gas and CBM delivered important results in 2018. Unconventional hydrocarbon, as an important alternative source of energy, are accounting for an increasingly larger share in our newly added proven reserves. The construction of unconventional hydrocarbon projects has gathered pace. A number of important producing blocks and pilot testing bases have taken shape as unconventional oil and gas production continues to grow.

Shale oil & gas: Major discoveries in the Ordos and Bohai Bay basins have pushed proven reserves of shale oil to a new high. Shale oil is becoming one of the realistic sources of the company’s domestic crude production growth. Shale gas exploration breakthroughs in the southern part of the Sichuan Basin provide a meaningful example for mining shale gas from depths of over 4,000 meters. Shale gas production capacity in two national demonstration projects in Changning-Weiyuan and Zhaotong has moved up steadily over the years, thanks to an integrated approach to geologic engineering, growing output per well and improved construction efficiency. We produced 4.26 billion cubic meters of shale gas in 2018, jumping 41.2% year-on-year.

Tight oil & gas: Focused on the Ordos, Junggar, Sichuan and Songliao basins, E&P efforts in tight formations have contributed to large-scale recovery of tight oil and gas resources. In Ordos Basin, tight oil and gas resources are becoming an essential driver of reserve additions and production is rising steadily. In Junggar Basin, tight oil production capacity is growing rapidly on a large scale across the Jimsar Sag. In Sichuan Basin, R&D of extraction techniques has picked up pace in the Jinhua-Zhongtai tight gas pilot area. In Songliao Basin, tight oil demonstration projects operated by Daqing Oilfield in the Longxi region are testing new tight oil production solutions.
CBM: As CBM exploration extends into new regions, high-quality coal formations with a thickness of more than 40 meters have been revealed in the Santanghu Basin, Xinjiang. As two major CBM producing fields, Qinshui (Shanxi) and Edong (Shaanxi) have seen a shift in development to enable gas recovery and steady growth in gas output. A breakthrough has been made in addressing technological bottlenecks and boosted gas production remarkably for mature fields in Qinshui Basin. International cooperation projects have posted high output, as gas production of Baode field remains stable at high levels and integrated management measures implemented at Hancheng field show results. The company produced 1.93 billion cubic meters of CBM for the full year.

New Energy
Striving to provide more high-quality, clean and low-carbon energy products to the society, the company has been pushing ahead with its new energy development plans and deployed a series of new energy projects closely related to its core operations. Areas of focus include geothermal energy, gas hydrate, biomass, energy storage, hydrogen fuel and uranium. A “green” growth pattern based on core oil and gas operations and a mix of alternative and renewable sources of energy is taking shape. Meanwhile, “green financing” in the form of “green loans” and “green funds” have been launched to facilitate the transformation to a “greener” growth model.

Geothermal energy: The company has been actively promoting the development and utilization of geothermal energy and supporting relative research efforts. We fund demonstration projects in the Huabei, Daqing, Liaohe and Jidong oilfields. So far, a number of geothermal projects have been completed and put into operation, leveraging the geophysical prospecting, well drilling and completion technologies for the evaluation and development of geothermal resources. Huabei Oilfield has started exploratory drilling of the first geothermal well in Xiong’an, Hebei province.

Joint E&P in China
The company has been working with international partners including Shell and Total in E&P activities in China around low-permeability reservoirs, heavy oil, shallow-water reservoirs, sour gas, high-temperature and high-pressure gas reservoirs, CBM and shale gas, etc.

The company’s foreign cooperation E&P projects have made new breakthroughs. These projects produced for the first time more than 10 million tons of oil equivalent for the full year, i.e. 10.12 million tons, including 2.39 million tons of crude oil and 9.7 billion cubic meters of natural gas. As of 2018, the company had 34 joint E&P projects in operation.

The company stepped up collaborative efforts and delivered a series of E&P achievements in 2018. The Changbei Project at Changqing Oilfield, with Shell as our partner, has completed the first bilateral horizontal well, with an initial daily output of 700,000 cubic meters. The Sulige South Project, with Total as our partner, has accelerated production ramp-up and achieved a sustained drop in costs while posting increases in its national gas output. The newly installed gathering station Su’nan-C3 has added 4 million cubic meters to the amount of natural gas processed on a daily basis. The Zhaodong Oil Project, with New XCL-China and Australia’s ROC Oil as our partners, is set to drill at least 24 wells within two years under an extension agreement to stabilize Dagang Oilfield’s crude oil production.
With a focus on strengthening the connectivity and coordination of production, transportation, marketing, storage and trade activities, the company’s natural gas and pipeline operations stabilized supply and achieved double-digit sales growth in 2018, thanks to the progress made in pipeline network optimization, intelligent pipeline system, pipeline connectivity projects and natural gas marketing network improvement.

Oil and Gas Pipelines

The company pushed ahead with its pipeline network optimization in 2018. Our crude transportation volume hit a new historical high through reinforced planning management on crude pipelines. The refined products pipelines have been upgraded to meet the demand for transporting National VI fuel oil. As to the natural gas pipelines, we enhanced flow allocation and inventory management to meet increased wintertime demand, ensuring adequate and stable supply.

By the end of 2018, CNPC-operated pipelines in China totaled 86,734 kilometers, including 20,736 kilometers for crude oil, 54,270 kilometers for natural gas, and 11,728 kilometers for refined products, accounting for 69.9%, 75.2% and 42.8% of the nation’s total respectively.

Key Pipeline Projects

The company’s key pipeline projects gathered pace and made significant headway in 2018. A number of key projects aimed at strengthening gas pipeline connectivity went on stream. The Jinzhou-Zhengzhou Refined Products Pipeline (trunk line) was completed; the Qinzhou-Nanning-Liuzhou Refined Products Pipeline, Kunming Branch of the Yunnan Refined Products Pipeline and Fushun-Jinzhou Refined Products Pipeline became operational; the Russia-China Gas Pipeline (Eastern Route) proceeded smoothly; and the Fujian-Guangdong Branch of the Third West-East Gas Pipeline started construction.

Natural Gas Pipeline Connectivity Projects

In view of bolstering the value chain of our natural gas operations, we proceeded with the gas pipeline connectivity projects, as well as underground gas storages and LNG terminals, to build a gas pipeline network that is well planned, wide-reaching, highly integrated, safe and efficient. We worked with Sinopec and CNOOC on 24 pipeline connectivity projects. These projects are designed to tackle connectivity issues in natural gas transportation and scheduling and optimize national and regional pipeline systems, in a bid to boost natural gas supply.

Under the national standards for motor vehicle gasolines and diesel fuels, National VI-compliant products have been available in the domestic market since January 1, 2019. National VI standards impose more rigorous sulfur content requirements, as compared with National V, in a bid to further reduce pollutant emissions.

Pipeline upgrading is a prerequisite for the implementation of the new fuel regulations. Necessary upgrades and replacements were made efficiently, thanks to coordinated efforts among member companies. The Lanzhou-Zhengzhou-Changsha, Lanzhou-Chengdu-Chongqing, and Yunnan refined products pipelines have been revamped. By the end of 2018, all of the company’s refined products pipelines had been ready for delivering National VI-compliant gasolines and diesel fuels to the market.
Qinzhou-Nanning-Liuzhou Refined Products Pipeline
Located in Guangxi, the pipeline runs 363 kilometers to deliver refined products from Guangxi Petrochemical to Liuzhou Oil Depot. The pipeline was put into operation in August 2018 with a design capacity of 5 million tons per year. It will enable better energy security for Guangxi’s economic development by improving the energy mix and refined products deliverability in the region.

Fushun-Jinzhou Refined Products Pipeline
The pipeline is designed to link four large refineries in Northeast China, i.e. Fushun Petrochemical, Liaoyang Petrochemical, Liaohe Petrochemical and Jinzhou Petrochemical. The pipeline runs 431 kilometers with a design capacity between 3 million and 7.5 million tons per year. Becoming operational in September 2018, the pipeline, together with the Jinzhou-Zhengzhou Pipeline and the Lanzhou-Zhengzhou-Changsha Pipeline, will create an important refined products pipeline network in China.

Natural Gas Sales
There was a surge in natural gas consumption in 2018, as a result of China’s heightened air pollution control, growing demand from natural gas-fueled power generation, headway made in implementing the "Natural Gas as An Alternative to Coal" Initiative and "2+26 Cities’ Clean Winter Heating Initiative. Leveraging these opportunities, we worked proactively with our clients in optimizing sales planning and resources allocation and managed to increase the supply of pipeline gas and imported LNG in response to market demand. In 2018, we sold 172.4 billion cubic meters of natural gas in China, up 13.6% year-on-year.

We continued to explore the market and expand our distribution network to optimize the overall value chain, effectively ensure smooth sales channel and enable integrated marketing throughout the upstream and downstream sectors. By the end of 2018, our gas distribution network covered 32 provinces, municipalities and autonomous regions and maintained a leading position in the northern, southwestern, northwestern, central and northeastern parts of China, while gaining a larger presence in the eastern and southern markets. We secured a total of 275 new clients in 2018, adding 2.1 billion cubic meters of natural gas sales.

In 2018, our end-user markets of natural gas grew rapidly, registering gas sales of 24.6 billion cubic meters, up 14.5% year-on-year. By the end of 2018, we owned and operated 445 CNG filling stations, 393 LNG filling stations and 411 LNG refueling points, ranking top in terms of the number of CNG and LNG filling stations in China.

Liquefied Natural Gas (LNG)
The company stepped up to strengthen its natural gas peak-shaving capability. Based on a holistic approach to LNG operation planning, we built new LNG facilities and expanded existing ones to create an offshore natural gas resource hub. Shenzhen LNG peak-shaving station, Tangshan and Jiangsu LNG Terminal expansion project were under construction. These peak-shaving systems have helped us ensure ample gas supply during peak consumption periods. In 2018, our three LNG terminals in Jiangsu, Dalian and Tangshan unloaded 15.13 million tons of LNG, up 45% from a year earlier.

The installed capacities of our 21 LNG plants in Hubei, Sichuan and Shaanxi, etc. amounted to 22.9 million cubic meters per day, accounting for approx. one-fifth of China’s total LNG capacity. We processed 1.06 million tons of LNG for the full year, up 16.9% year-on-year.
Refining and Chemicals

As the company continued to optimize production management and operational benchmarking and speed up upgrade and transformation, our refining and chemicals business remained a major source of earnings in 2018, with new headway in key projects and ongoing improvement in product mix.

Resource allocation was further optimized and earning estimation was conducted for each product category based on market demand and facility conditions, to ensure high-utilization rate of the company’s integrated refining-petrochemical complexes and high-performing refining facilities. In 2018, we processed 162.36 million tons of crude oil, and produced 112.91 million tons of refined products and 5.57 million tons of ethylene in China.

New progress was made in the restructuring of refining operations, with 14 key technical and economic indicators being improved. The diesel-gasoline ratio dropped by 0.09 unit from a year earlier. High-value products accounted for 66.6% in our refined product portfolio, with a 12-million-ton increase in jet fuel and a 225,000-ton decline in heavy-components oil products.

Construction and Operation of Large Refining & Petrochemical Bases

In 2018, we continued a refined approach to operational management, strengthened production control and process optimization, and improved profit-gaining capability, with 99.66% of our refining and chemical facilities maintaining steady running.

Refining and chemicals operating data (Domestic)

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<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
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<tbody>
<tr>
<td>Crude runs (mmt)</td>
<td>147.09</td>
<td>152.45</td>
<td>162.36</td>
</tr>
<tr>
<td>Utilization rate of refining units (%)</td>
<td>80.9</td>
<td>80.8</td>
<td>83.1</td>
</tr>
<tr>
<td>Refined products output (mmt)</td>
<td>99.32</td>
<td>103.51</td>
<td>112.91</td>
</tr>
<tr>
<td>Gasoline</td>
<td>37.97</td>
<td>40.98</td>
<td>45.90</td>
</tr>
<tr>
<td>Kerosene</td>
<td>9.32</td>
<td>10.18</td>
<td>12.54</td>
</tr>
<tr>
<td>Diesel</td>
<td>52.03</td>
<td>52.35</td>
<td>54.46</td>
</tr>
<tr>
<td>Lub oil output (mmt)</td>
<td>1.16</td>
<td>1.64</td>
<td>1.60</td>
</tr>
<tr>
<td>Ethylene output (mmt)</td>
<td>5.59</td>
<td>5.76</td>
<td>5.57</td>
</tr>
<tr>
<td>Synthetic resin output (mmt)</td>
<td>9.20</td>
<td>9.40</td>
<td>9.17</td>
</tr>
<tr>
<td>Synthetic fiber output (mmt)</td>
<td>0.06</td>
<td>0.06</td>
<td>0.05</td>
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<tr>
<td>Synthetic rubber output (mmt)</td>
<td>0.76</td>
<td>0.81</td>
<td>0.87</td>
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<tr>
<td>Urea output (mmt)</td>
<td>1.90</td>
<td>1.44</td>
<td>0.83</td>
</tr>
<tr>
<td>Synthetic ammonia output (mmt)</td>
<td>1.53</td>
<td>1.36</td>
<td>1.05</td>
</tr>
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</table>
We launched a number of key projects under the company's transformation and upgrading initiatives for refining and chemicals operations and won significant progress. Liaoyang Petrochemical’s revamp and expansion project for Russian crude processing went on stream; Huabei Petrochemical’s 10 Mt/a upgrading project was completed; an integration project kicked off at Guangdong Petrochemical; refining plant restructuring project started at Daqing Petrochemical; ethylene unit optimization and renovation started at Dushanzi Petrochemical and Lanzhou Petrochemical respectively. Alkylation projects advanced at an accelerated pace, with seven units being operational at Daqing Petrochemical, Harbin Petrochemical and Lanzhou Petrochemical, etc.

**Liaoyang Petrochemical’s Revamp and Expansion Project for Russian Crude Processing**

On the basis of its existing 9 Mt/a capacity, Liaoyang Petrochemical revamped five existing units and newly built 11 installations for residual hydrogenation and catalytic cracking to ensure the highly efficient use of Russian crude oil. The project became operational in September 2018 with a capacity to produce 2.6 million tons of gasoline and 3.3 million tons of diesel fuels per year. The project has contributed to a diesel-gasoline ratio down to 1.27, which can be further reduced to 1.06 by an increase in jet fuel output, and achieved a 570,000-ton increase in aromatic hydrocarbon production, with the technical indicators and energy efficiency further improved.

**Upgrading of Refined Products**

We complied and released the Guidelines for the Conversion to National VI-Compliant Vehicle Fuels in accordance with the national and local regulatory requirements, in a bid to bolster efforts in product mix restructuring and quality improvement. As of 2018, all of our refineries had been revamped and ready to produce National VI-compliant products.

**Development of New Chemicals**

We sped up R&D of new chemical products and kept enhancing market competitiveness. We launched 81 new types of product with a total output of 970,000 tons and sold 29.01 million tons of chemical products for the full year. R&D advances include the development of ultra-high fluidity polypropylene, certification of PE100 and PE-RT pipe materials, and long-cycle production of medium-MFR impact-resistant and low-MFR co-polymerized polypropylene.
Marketing and Sales

Watching market changes closely, the company continued to sharpen its marketing and sales strategies and boost profitability and market competitiveness in 2018 through coordinated planning for production and distribution and integrated marketing for oil products, fuel cards, non-fuel business, lubricants and natural gas.

Refined Products

The 2018 domestic refined product market has become increasingly competitive due to oversupply, the trend of clean energy consumption and a diverse mix of industry players. Based on a proactive, and sophisticated approach to product distribution, we heightened efforts in regional marketing, furthered integration of retailing and wholesale operations and innovated forms of sales promotion, achieving full-year sales of 117.36 million tons, up 2.8% year-on-year.

We pushed ahead with quality upgrading initiative in order to deliver cleaner and premium oil products. By the end of 2018, all of our oil depots and service stations had been revamped to ensure the supply of National VI-compliant oil products.

Marketing Network

We stepped up efforts in distribution network restructuring and quality improvement, with a focus on areas neighboring refineries, downtown areas, areas along highways and tourist destinations, serving and guaranteeing high quality development of refined oil sales. Among a total of 506 newly built service stations, 445 became operational, adding 2.92 million tons to our retailing capacity. By the end of 2018, we had 21,783 service stations in operation across the country.

Smart technologies-enabled, an “Internet +” approach to marketing is adopted to create the “People + Car + Lifestyle” ecosystem. Online shopping and payment options have been made available through our 95504.net, WeChat official account and retail apps to bolster marketing and sales in a holistic “Online + Offline” manner. Joint marketing campaigns with SAIC Motor, JD.com, China Bank of Communications and other partners continued to gain traction and forge the service stations from the oil sales platform into the comprehensive marketing platform.

Non-fuel Business

The company’s non-fuel business is centered on a targeted, professional and refined approach to the management of convenience stores. We enhanced development and marketing efforts for the own-brand offerings and boosted the competitiveness of flagship products. We launched our own premium brand “uSmile Premium+” in 2018. Meanwhile, we actively tapped into car services and imported products and worked with KFC and McDonald in launching drive-through restaurants in Hebei and Heilongjiang, etc. In addition, our diversification efforts in advertisement, packaging, insurance and e-commerce were gathering pace. The company’s non-fuel business has generated RMB 23.1 billion in revenue for the full year, up 24% year-on-year.

Lube Oil and Miscellaneous Refined Products

Leveraging its R&D, production and distribution capabilities, the company sold 1.63 million tons of lubricants for the full year. All eight lubricant categories, especially high-value products such as automotive lubricants and industrial fluids, posted remarkable growth in sales. In particular, sales from automotive lubricants and industrial fluids jumped by 14% and 11% respectively year-on-year. Meanwhile, new technology development efforts in converter transformer and gas engine lubricants have made progress.

In 2018, we sold 32.94 million tons of miscellaneous refined products for the full year, with sales of waterproofing film and naphtha products hitting all-time highs. In particular, we continued to top the domestic market as China’s largest asphalt supplier.
Oversea 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.
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.

**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
**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 FPF and second Daniela CPF facilities for the Chad Project Phase 2.2 became operational. In Mozambique, the Coral Gas Field (Phase II) 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. 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.
International Trade

In 2018, our trading activities in more than 80 countries and regions around the world maintained a focus on resource allocation and global deployment and achieved steady and robust results in trading and shipping of crude oil, refined products, natural gas and chemicals. Our three international operation hubs in Singapore, London and New York continued to improve operation management and enjoyed an increased presence in the international markets. We reported trading volume of 480 million tons, worth USD 236.7 billion, up 2.5% and 28.4% year-on-year respectively, with sales revenue standing for the first time above RMB 1 trillion, up 20% from a year earlier.

Crude oil trading amounted to 260 million tons for the full year, up 1.9% year-on-year. Leveraging our trading expertise and a global distribution network, we continued to boost the sales of overseas equity oil through a holistic approach to planning, market development, storage & transportation and distribution. Crude oil purchases have remained safe and stable, leveraging improved capabilities for the transportation of crude oil as well as the construction and operation of oil terminals and oil depots. After the debut of yuan-denominated crude oil futures contract in 2018, we have been actively engaging in oil-futures trading processes at Shanghai Futures Exchange, covering registration, buying and selling of warehouse receipts.

Refined product exports expanded for the first time into the Canada and US markets and long-term supply contracts were signed with clients in Australia, Japan, Vietnam, Mexico and the Middle East. We continued to tap into the retail market of refined products, with a steadily rising market share. Our full-year refined product exports hit the all-time high of 15.89 million tons in 2018.

The trade volume of natural gas reached 130.6 billion cubic meters, up 7% year-on-year. Further progress was made in the negotiations over the Central Asia-China Russia-China, Myanmar-China and LNG projects, etc. Long-term agreements were signed with KazTransGaz, Cheniere Energy and Qatargas, in a bid to ensure a secure supply of natural gas in the domestic market. We were gradually shifting from a natural gas importer to an exporter, with steady growth in trade volume in Japanese and Korean markets and a successful entry into markets in Southwest Europe, South America and South Asia, etc.

Consolidating resources and markets at home and abroad, we expanded imports and exports in chemical products, e.g. polyolefin, methanol and polypropylene, etc. Meanwhile, more lucrative items such as raw materials for polyester fibers, alcohol ether and carbon products generated good results.

Our freight shipping operations have refocused on a global network, optimized service offering and collaborative efforts to ensure continuous improvement in service capabilities and operational efficiency. We have partnered with 34 oil tanker and bulk carrier owners worldwide and deepened business ties with domestic shipping companies, including COSCO and China Merchants Group.

Overseas Operation Hubs

Our three overseas operation hubs in Singapore, London and New York are showing progress in bolstering operational efficiency and market presence. The Asian operation hub has proceeded with a fine-tuning strategy of its crude oil sales by introducing the concept of “crude oil supermarket” and offering “one-stop” solutions for end users. We gained a 20%+ share in emerging markets such as Sri Lanka and Myanmar, leveraging a targeted approach to credit extension and tailored schedules for time charter and gasoline-diesel LTL shipping. As a new breakthrough in natural gas trading, LNG resale to Japan, Korea, Thailand, Singapore, India and Pakistan amounted to 5.02 million tons, heralding a “boom in both oil and gas trading”.

The European operation hub continued to sell equity oil from Kazakhstan, Sudan, and Chad and spot LNG from Russia’s Yamal plant. The long-term sales contracts for crude oil from Nigeria and Chad provided a solid foundation for developing the African market. The operation hub traded 700,000 tons of biodiesel for the full year, ranking among the top 3 biodiesel suppliers in Europe.

The American operation hub has experienced fast-paced growth. The development of logistics routes linking the heavy oil project in Canada with the US market and the international markets contributed to a timely response to discount volatility and a significant revenue increase from Canadian crude oil in 2018. Natural gas sales expanded as a result of cross-region collaboration. The operation hub began to sell LNG cargos to the Latin American markets. The equity delivery document and a shareholder agreement with Brazil’s TT Work were signed to acquire a 30% stake in the company. The refined product marketing network is taking shape in Latin America.
Services Business

Leveraging its integrated capabilities and expertise, the company kept optimizing market layout and improving service quality. Its competences and operating results in oilfield services, engineering and construction, equipment manufacturing and financial services continued to improve in 2018.

Oilfield Services

The company’s oilfield services arm proceeded with its reform and restructuring initiatives in 2018 with a focus on the optimization of top-level design, streamlining of business processes and innovation of service offering. Domestically, we managed to achieve continuous improvement in quality, efficiency and earnings amidst a surge of workload by rationally deploying deep-well drilling rigs, fracturing units and coiled tubing units, boosting drilling and fracturing operations in winter months and introducing new techniques. Overseas, market development efforts were fruitful. In particular, the value of service contracts signed in traditional markets such as Algeria, Niger and Pakistan was doubled; and bids were awarded for a number of major geophysical prospecting and drilling projects in UAE, Saudi Arabia and Kuwait. By the end of 2018, the company had 8,176 service crews, offering geophysical prospecting, drilling, well logging, mud logging, downhole operation and offshore engineering services in 53 countries around the world.

Geophysical prospecting: Targeting technical bottlenecks in oil and gas exploration, we have pushed ahead with R&D efforts in velocity modeling and shear-wave data acquisition and facilitated the adoption of broadband wide-azimuth, high-density seismic techniques, GeoEast data processing and interpretation solution, and EV56 high-precision vibroseis. These technological advancements have contributed to major discoveries in Quilitage (Tarim), Mahu (Xinjiang) and Sulige (Changqing). Project management capabilities have been bolstered by optimized technical solutions, improved project coordination and wider adoption of digital seismic system and drones. The Shehong-Yanting 3D Seismic Acquisition Project in China and the deep-sea OBN Project in Indonesia were completed in a timely and efficient manner. In 2018, we deployed a total of 164 seismic crews, acquiring data of 105,739 kilometers of 2D lines and 76,702 square kilometers of 3D profiles, marking 8.5% and 8.6% of average efficiency increase on a daily basis for 2D and 3D seismic data acquisition respectively.

Drilling: The rate of penetration was increased by 5% as a whole, with impressive growth in the numbers of horizontal wells and deep wells as well as the amount of drilling footage, by optimizing drilling parameters and using aggressive drilling techniques. In particular, Well 202H13-6 in the Weiyuan Block set a drill time record of 27.6 days; Daqing Drilling
Engineering Company used hydraulic rotary percussion tools for the drilling of 21 wells, achieving a 129% increase in the average penetration rate. A number of difficult wells have been drilled successfully. In Tarim Basin, Well Keshen-21 was completed at a depth of 8,098 meters; in Sichuan Basin, Well Wutan-1 created a fresh record of 8,060 meters for risk drilling in the Sichuan-Chongqing region; in Uzbekistan, 23 technical troubles were solved when drilling Well M-15 and resulted in 8 proprietary techniques. In 2018, we deployed 1,183 drilling crews to spud 11,385 wells and completed 11,264 wells, with a total footage of 25.71 million meters. In particular, 816 wells are deeper than 4,000 meters, up 25.9% from a year earlier; 931 horizontal wells were drilled, up 22.2% year-on-year.

**Well logging and mud logging:** A range of state-of-the-art logging technologies have been developed and deployed. EIlog and LEAP800 logging systems have continued to improve. R&D achievements in such as Azimuthal gamma imaging while drilling and array induction imaging logging techniques have been put into use. New techniques and procedures for express logging were widely used to boost logging efficiency. In particular, the “Logging Kit” approach increased the logging efficiency for vertical wells by 48% on average; the express logging and through-pipe memorized logging techniques for horizontal wells made the logging process 30% and 60% more efficient respectively. In 2018, we deployed 817 well logging crews to complete 106,963 well-times of logging in 19 countries and 1,035 mud logging crews to complete mud logging at 14,256 well.

**Downhole operation:** R&D and deployment of improved downhole techniques and practices such as SRV fracturing for horizontal wells and multi-stage fracturing with dissolvable bridge plug contributed to a 23% increase in conventional fracturing and a 32% rise in factory fracturing. In 2018, our 1,839 crews completed 87,007 well-times of downhole jobs, including 11,969 layers of formation testing.

**Offshore engineering:** We offer offshore engineering services for well drilling, well completion, well cementing, formation testing and production testing, downhole operation as well as the design and construction of offshore projects in the South China Sea, Bohai Sea and Persian Gulf. In 2018, we had deployed a total of 12 offshore drilling rigs and production platforms, completing a total drilling footage of 72,000 meters for the full year.

### Oilfield services operations

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<tbody>
<tr>
<td><strong>Geophysical prospecting</strong></td>
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<tr>
<td>2D seismic data acquired (kilometers)</td>
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<td>3D seismic data acquired (square kilometers)</td>
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<tr>
<td><strong>Drilling</strong></td>
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<tr>
<td>Wells completed</td>
<td>9,328</td>
<td>11,687</td>
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<tr>
<td>Footage (million meters)</td>
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<tr>
<td><strong>Well Logging</strong></td>
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<tr>
<td>Well logging operations (well-time)</td>
<td>79,231</td>
<td>101,531</td>
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<td><strong>Downhole operations</strong></td>
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<tr>
<td>Downhole operations (well-time)</td>
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<tr>
<td>Formation test (layers)</td>
<td>8,515</td>
<td>9,237</td>
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</tr>
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</table>
Engineering and Construction

In 2018, heightened measures for project lifecycle management contributed to continuous improvement in the construction quality and project execution. R&D efforts on frontier technologies, especially on digital and intelligent applications, have picked up pace. As part of the efforts to create a global network, we entered into strategic partnerships or engineering service agreements with CSIC and Shell, etc. and secured a number of new contracts, e.g. a crude processing project at Garraf Oilfield in Iraq, a pipeline project linking Haradh with Hawiyah in Saudi Arabia and a refinery revamp project in Malaysia.

We executed 97 key projects in oil and gas field surface engineering, refining and chemicals, storage and transportation, and environmental engineering throughout the year, with positive advancements achieved.

Oil and gas field surface engineering: A range of overseas projects have been delivered or made operational, including the Halfaya Project Phase III (CPF3) in Iraq, the Jose Refinery for the MPE3 project in Venezuela, the Chad Project Phase 2.2, the Karakul Gas Field in Uzbekistan, the EGR Project at the Saman-Depe Gas Field in Turkmenistan, etc. Domestically, a number of projects designed to expand production and stabilize supply were well underway, such as the Changning-Weiyuan Shale Gas Project. The Belt and Road projects including the Amur Gas Processing Plant in Russia and the integrated facilities at the Bab Oilfield in UAE were making steady headway.

Storage and transportation: The construction of key pipelines in China accelerated. A number of refined products pipeline projects were completed, including the Kunming Branch of Yunnan Refined Products Pipeline, Qinzhou-Nanning-Luozhou Refined Products Pipeline, Fushun-Jinzhou Refined Products Pipeline, Jinzhou-Zhengzhou Trunk and Huabei Petrochemical-to-Beijing New Airport Jet Fuel Pipeline, etc. Key projects aimed at strengthening gas pipeline connectivity were completed.

Construction of the Fujian-Guangdong Branch of the Third West-East Gas Pipeline proceeded smoothly. LNG terminal projects (Tangshan, Shenzhen, Jiangsu and Jiangyin) advanced at a faster pace. The Russia-China Gas Pipeline (Eastern Route) gathered pace. The Haradh Gas Pipeline in Saudi Arabia and the single-point mooring (SPM) project in Bangladesh were making steady headway.

Refining and chemical facilities: Domestically, key refining and chemical projects saw new progress. Liaoyang Petrochemical's revamp project for Russian crude processing went on stream. The 10 Mt/a upgrading project was completed at Huabei Petrochemical. Alkylation projects at Qingyang, Jilin and Harbin were delivered and made operational. An integrated project was kicked off at Guangdong Petrochemical. Facility upgrading projects were moving forward as planned at Daqing Petrochemical and Dushanzi Petrochemical. Overseas, the Phase II renovation project became operational at the Shymkent Refinery in Kazakhstan and the refinery expansion project in Algiers, Algeria proceeded steadily.

Environmental engineering and others: Emission reduction, wastewater treatment, VOCs, and off-gas treatment projects were launched at Tarim, Daqing and Liaoyang. Aromatics projects were in full swing at Guangxi Petrochemical, Liaoyang Petrochemical and Urumqi Petrochemical. An Indian polypropylene project was ready for commissioning.

Petroleum Equipment Manufacturing

Undergoing a shift from traditional manufacturing to service-oriented manufacturing, our equipment manufacturing arm is gaining momentum with a substantial boost in profitability. Efforts were made to expand market share both at home and abroad, with an increasingly improved sales network. As of 2018, CNPC made petroleum equipment and materials were
sold in more than 80 countries and regions around the world. The production and operation management was more lean-oriented. Lean management proved successful two years after the start of its promotion and pilot across the company in 2016. Our equipment manufacturing sites enjoy increased capabilities for visualization and standardization, enabling IT-driven management of production processes and continuous improvement in productivity and product quality.

Centering on a “Manufacturing + Services” model, we continued to push ahead with the integration of R&D, manufacturing, marketing and service competences. We refocused our manufacturing business on the higher end of the value chain through product innovation, technological upgrading and customization. A range of new products have been developed and launched, including X80 steel pipes, 4000m low-temperature composite moving cluster drilling rigs, high-strength variable-thickness coiled tube CT110, etc. Our customer-centered services provide tailored products and solutions, 24H/7d technical support, leasing, maintenance & repair, testing and recycling throughout the entire life cycle of products.

New breakthrough was made in market development, with the number of new contracts increasing significantly year-on-year. Our “Electric pump leasing + Integrated services” entered many markets, taking a 50% market share in Sudan and South Sudan and a 100% market share in Chad and Niger. Low-temperature rigs were sold to Russia; coiled tubing products were exported to South America, South Asia and Europe. We were awarded major contracts for electric pump services in Iraq and line pipes in Egypt. In addition, marketing efforts broke ground in Nigeria and Djibouti.

Financial Services

In 2018, our financial service sector saw robust growth in key operation indicators and remarkable improvement in business agility, R&D and market development capabilities.

We furthered market research and analysis and accelerated business layout. We participated in the fundraising round of China Tower as a cornerstone investor, invested in US-China Green Fund and entered into strategic partnership with five commercial banks. A regional coordination mechanism was taking shape to align financial services with production needs in innovative forms and at a deeper level. Green financing has remained a priority for the company. Financial resources were directed into the green industry to boost the development of cleaner energy sources. The control and management of financial risks have achieved new results. We bolstered the risk mitigation framework of “two-tier management and three-line defense”, and reinforced total-process management for high-risk items. Our key financial risk indicators remained superior to CBRC’s thresholds in 2018, with the non-performing asset ratio standing at a very low level and no significant risk event reported throughout the year.
## Financial Statements

### Consolidated Balance Sheet

<table>
<thead>
<tr>
<th>Current assets</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and cash equivalent</td>
<td>402,825.97</td>
<td>412,637.17</td>
</tr>
<tr>
<td>Funds lent</td>
<td>20,625.50</td>
<td>29,298.75</td>
</tr>
<tr>
<td>Financial assets at fair value through profit or loss</td>
<td>17,995.07</td>
<td>54,908.94</td>
</tr>
<tr>
<td>Derivative financial assets</td>
<td>453.01</td>
<td>232.16</td>
</tr>
<tr>
<td>Notes and accounts receivable</td>
<td>136,607.81</td>
<td>124,881.88</td>
</tr>
<tr>
<td>Prepayments</td>
<td>220,613.45</td>
<td>202,177.11</td>
</tr>
<tr>
<td>Premium receivable</td>
<td>101.64</td>
<td>117.35</td>
</tr>
<tr>
<td>Reinsurance accounts receivable</td>
<td>332.73</td>
<td>626.58</td>
</tr>
<tr>
<td>Reinsurance reserves receivable</td>
<td>877.31</td>
<td>1,332.93</td>
</tr>
<tr>
<td>Other receivables</td>
<td>26,198.57</td>
<td>30,112.44</td>
</tr>
<tr>
<td>Financial assets purchased under resale agreements</td>
<td>30,717.84</td>
<td>30,669.47</td>
</tr>
<tr>
<td>Inventories</td>
<td>231,570.07</td>
<td>249,224.40</td>
</tr>
<tr>
<td>Non-current assets maturing within one year</td>
<td>207,152.29</td>
<td>183,889.10</td>
</tr>
<tr>
<td>Other current assets</td>
<td>61,717.83</td>
<td>71,255.17</td>
</tr>
<tr>
<td><strong>Total current assets</strong></td>
<td><strong>1,357,789.09</strong></td>
<td><strong>1,391,363.45</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-current assets</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans and advances issued</td>
<td>70,887.60</td>
<td>63,423.85</td>
</tr>
<tr>
<td>Debt investments</td>
<td>-</td>
<td>1,160.60</td>
</tr>
<tr>
<td>Available-for-sale financial assets</td>
<td>60,467.86</td>
<td>73,087.74</td>
</tr>
<tr>
<td>Held-to-maturity investments</td>
<td>50,541.17</td>
<td>48,768.81</td>
</tr>
<tr>
<td>Long-term accounts receivable</td>
<td>91,486.28</td>
<td>98,189.57</td>
</tr>
<tr>
<td>Long-term equity investments</td>
<td>108,663.90</td>
<td>116,130.71</td>
</tr>
<tr>
<td>Other investments in equity instruments</td>
<td>-</td>
<td>759.53</td>
</tr>
<tr>
<td>Investment properties</td>
<td>2,325.00</td>
<td>2,573.44</td>
</tr>
<tr>
<td>Fixed assets</td>
<td>895,114.93</td>
<td>891,506.56</td>
</tr>
<tr>
<td>Construction-in-progress</td>
<td>247,909.73</td>
<td>252,692.12</td>
</tr>
<tr>
<td>Productive biological assets</td>
<td>0.23</td>
<td>0.19</td>
</tr>
<tr>
<td>Oil and gas assets</td>
<td>935,508.24</td>
<td>930,672.37</td>
</tr>
</tbody>
</table>
### Consolidated Balance Sheet (continued)

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intangible assets</td>
<td>89,218.53</td>
<td>93,610.71</td>
</tr>
<tr>
<td>Development expenditure</td>
<td>1,654.67</td>
<td>1,274.99</td>
</tr>
<tr>
<td>Goodwill</td>
<td>42,029.89</td>
<td>42,363.05</td>
</tr>
<tr>
<td>Long-term deferred expenses</td>
<td>34,646.65</td>
<td>37,503.24</td>
</tr>
<tr>
<td>Deferred tax assets</td>
<td>35,070.20</td>
<td>32,653.68</td>
</tr>
<tr>
<td>Other non-current assets</td>
<td>75,407.14</td>
<td>54,729.24</td>
</tr>
<tr>
<td><strong>Total non-current assets</strong></td>
<td>2,740,932.02</td>
<td>2,741,100.40</td>
</tr>
<tr>
<td>Total assets</td>
<td>4,098,721.11</td>
<td>4,132,463.85</td>
</tr>
</tbody>
</table>

#### Current liabilities

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term loans</td>
<td>114,062.05</td>
<td>80,635.96</td>
</tr>
<tr>
<td>Borrowings from central bank</td>
<td>418.45</td>
<td>1,817.10</td>
</tr>
<tr>
<td>Deposits from customers and interbank</td>
<td>188,029.86</td>
<td>198,715.07</td>
</tr>
<tr>
<td>Borrowing funds</td>
<td>78,762.86</td>
<td>71,964.35</td>
</tr>
<tr>
<td>Derivative financial liabilities</td>
<td>750.00</td>
<td>362.53</td>
</tr>
<tr>
<td>Notes and accounts payable</td>
<td>363,894.04</td>
<td>389,558.49</td>
</tr>
<tr>
<td>Receipts in advance</td>
<td>98,645.24</td>
<td>36,584.48</td>
</tr>
<tr>
<td>Contractual liabilities</td>
<td>-</td>
<td>67,605.49</td>
</tr>
<tr>
<td>Funds from sales of financial assets with repurchase agreement</td>
<td>21,559.98</td>
<td>27,849.54</td>
</tr>
<tr>
<td>Handling charges and commissions payable</td>
<td>13.22</td>
<td>30.25</td>
</tr>
<tr>
<td>Staff remuneration payable</td>
<td>25,391.84</td>
<td>33,896.29</td>
</tr>
<tr>
<td>Taxes payable</td>
<td>69,252.86</td>
<td>94,303.92</td>
</tr>
<tr>
<td>Other payables</td>
<td>81,720.52</td>
<td>72,928.01</td>
</tr>
<tr>
<td>Reinsurance accounts payable</td>
<td>430.86</td>
<td>721.78</td>
</tr>
<tr>
<td>Reserve for insurance contracts</td>
<td>2,483.54</td>
<td>3,355.05</td>
</tr>
<tr>
<td>Funds arising from acting trading of securities</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Non-current liabilities due within one year</td>
<td>118,664.49</td>
<td>154,503.34</td>
</tr>
<tr>
<td>Other current liabilities</td>
<td>16,053.16</td>
<td>23,501.38</td>
</tr>
<tr>
<td><strong>Total current liabilities</strong></td>
<td>1,180,132.98</td>
<td>1,258,333.04</td>
</tr>
</tbody>
</table>
### Consolidated Balance Sheet (continued)

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-current liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term loan</td>
<td>18,542.25</td>
<td>21,264.60</td>
</tr>
<tr>
<td>Bonds payable</td>
<td>305,544.58</td>
<td>242,350.73</td>
</tr>
<tr>
<td>Long-term payables</td>
<td>5,344.23</td>
<td>9,359.01</td>
</tr>
<tr>
<td>Long-term employee remuneration payable</td>
<td>1,712.80</td>
<td>1,676.97</td>
</tr>
<tr>
<td>Accrued liabilities</td>
<td>139,505.72</td>
<td>158,536.50</td>
</tr>
<tr>
<td>Deferred income</td>
<td>15,597.93</td>
<td>16,982.99</td>
</tr>
<tr>
<td>Deferred tax liabilities</td>
<td>25,735.80</td>
<td>31,189.97</td>
</tr>
<tr>
<td>Other non-current liabilities</td>
<td>2,962.74</td>
<td>2,620.92</td>
</tr>
<tr>
<td><strong>Total non-current liabilities</strong></td>
<td>514,946.05</td>
<td>483,981.69</td>
</tr>
<tr>
<td><strong>Total liabilities</strong></td>
<td>1,695,079.03</td>
<td>1,742,314.73</td>
</tr>
<tr>
<td><strong>Owners’ equity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid-up capital (or share capital)</td>
<td>486,855.00</td>
<td>486,855.00</td>
</tr>
<tr>
<td>Other equity instruments</td>
<td>186,075.98</td>
<td>150,468.79</td>
</tr>
<tr>
<td>Capital reserve</td>
<td>295,063.03</td>
<td>282,572.87</td>
</tr>
<tr>
<td>Other comprehensive income</td>
<td>-33,092.57</td>
<td>-26,340.99</td>
</tr>
<tr>
<td>Special reserve</td>
<td>32,665.47</td>
<td>33,366.68</td>
</tr>
<tr>
<td>Surplus reserve</td>
<td>1,085,777.17</td>
<td>1,084,354.66</td>
</tr>
<tr>
<td>General risk provisions</td>
<td>10,534.12</td>
<td>10,946.07</td>
</tr>
<tr>
<td>Undistributed profit</td>
<td>-21,299.49</td>
<td>-22,940.87</td>
</tr>
<tr>
<td><strong>Total owner’s equity attributable to parent company</strong></td>
<td>2,042,578.71</td>
<td>1,999,282.21</td>
</tr>
<tr>
<td>Minority interest</td>
<td>361,063.37</td>
<td>390,866.91</td>
</tr>
<tr>
<td><strong>Total owners’ equity</strong></td>
<td>2,403,642.08</td>
<td>2,390,149.12</td>
</tr>
<tr>
<td><strong>Total liabilities and owners’ equity</strong></td>
<td>4,098,721.11</td>
<td>4,132,463.85</td>
</tr>
</tbody>
</table>

### Consolidated Profit Statement

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total revenue from operations</strong></td>
<td>2,340,299.33</td>
<td>2,739,011.50</td>
</tr>
<tr>
<td>Including: Operating income</td>
<td>2,319,333.16</td>
<td>2,713,819.61</td>
</tr>
<tr>
<td>Interest income</td>
<td>18,804.22</td>
<td>22,973.57</td>
</tr>
<tr>
<td>Premiums earned</td>
<td>277.40</td>
<td>329.92</td>
</tr>
<tr>
<td>Handling charges and commission income</td>
<td>1,884.55</td>
<td>1,888.40</td>
</tr>
</tbody>
</table>
## Consolidated Profit Statement (continued)

<table>
<thead>
<tr>
<th>Description</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cost of operations</td>
<td>2,294,970.86</td>
<td>2,610,837.75</td>
</tr>
<tr>
<td>Including: Operating cost</td>
<td>1,797,414.33</td>
<td>2,092,669.12</td>
</tr>
<tr>
<td>Interest expenses</td>
<td>7,604.12</td>
<td>9,509.95</td>
</tr>
<tr>
<td>Handling charges and commission expenses</td>
<td>153.74</td>
<td>188.46</td>
</tr>
<tr>
<td>Net expenditure for compensation payments</td>
<td>268.24</td>
<td>300.80</td>
</tr>
<tr>
<td>Net amount of provision for insurance contract</td>
<td>347.92</td>
<td>309.75</td>
</tr>
<tr>
<td>Reinsurance costs</td>
<td>-82.61</td>
<td>-67.05</td>
</tr>
<tr>
<td>Tax and surcharges</td>
<td>210,271.11</td>
<td>231,975.85</td>
</tr>
<tr>
<td>Selling expenses</td>
<td>75,764.03</td>
<td>78,649.64</td>
</tr>
<tr>
<td>Administrative expenses</td>
<td>89,549.82</td>
<td>97,589.36</td>
</tr>
<tr>
<td>R&amp;D expenses</td>
<td>13,238.65</td>
<td>15,968.93</td>
</tr>
<tr>
<td>Finance expenses</td>
<td>29,305.16</td>
<td>-1,001.12</td>
</tr>
<tr>
<td>Impairments loss of assets</td>
<td>45,969.00</td>
<td>65,890.33</td>
</tr>
<tr>
<td>Credit impairment loss</td>
<td>-</td>
<td>-554.24</td>
</tr>
<tr>
<td>Others</td>
<td>25,167.35</td>
<td>19,407.97</td>
</tr>
<tr>
<td>Add: Other gains</td>
<td>9,314.79</td>
<td>12,800.72</td>
</tr>
<tr>
<td>Gain from investment (Loss is represented by &quot;)&quot;)</td>
<td>12,914.02</td>
<td>14,141.84</td>
</tr>
<tr>
<td>Exchange gain (Loss is represented by &quot;)&quot;)</td>
<td>323.60</td>
<td>210.58</td>
</tr>
<tr>
<td>Gains from change in fair value (Loss is represented by &quot;)&quot;)</td>
<td>-18.16</td>
<td>250.53</td>
</tr>
<tr>
<td>Gain on disposal of assets (Loss is represented by &quot;)&quot;)</td>
<td>-1,643.38</td>
<td>1,384.13</td>
</tr>
<tr>
<td>Operating profit (Loss is represented by &quot;)&quot;)</td>
<td>66,219.34</td>
<td>156,961.55</td>
</tr>
<tr>
<td>Add: Non-operating income</td>
<td>6,655.01</td>
<td>11,743.52</td>
</tr>
<tr>
<td>Less: Non-operating expenditure</td>
<td>19,530.72</td>
<td>58,145.58</td>
</tr>
<tr>
<td>Total profit (Total loss is represented by &quot;)&quot;)</td>
<td>53,343.63</td>
<td>110,559.49</td>
</tr>
<tr>
<td>Less: Income tax expenses</td>
<td>35,777.15</td>
<td>67,757.04</td>
</tr>
<tr>
<td>Net profit (Net loss is represented by &quot;)&quot;)</td>
<td>17,566.48</td>
<td>42,802.45</td>
</tr>
<tr>
<td>Net profit attributable to owners of the parent company</td>
<td>-4,667.02</td>
<td>15,018.84</td>
</tr>
<tr>
<td>Minority interest income</td>
<td>22,233.50</td>
<td>27,783.61</td>
</tr>
<tr>
<td>Net income from continuing operation</td>
<td>17,566.48</td>
<td>42,802.45</td>
</tr>
<tr>
<td>Net amount of other comprehensive income after tax</td>
<td>-21,369.66</td>
<td>9,789.67</td>
</tr>
<tr>
<td>Total comprehensive income</td>
<td>-3,803.18</td>
<td>52,592.12</td>
</tr>
<tr>
<td>Total comprehensive income attributable to owners of the parent company</td>
<td>-20,568.76</td>
<td>21,770.42</td>
</tr>
<tr>
<td>Total comprehensive income attributable to minority interests</td>
<td>16,765.58</td>
<td>30,821.70</td>
</tr>
</tbody>
</table>
Notes to the Financial Statements

A. Description of Principal Accounting Policies and Estimates

1. Accounting standard and system
CNPC (hereinafter referred to as the Company) follows Accounting Standards for Business Enterprises–Basic Principles and the specific rules of accounting standards, guidelines for the application of accounting standards, interpretations of accounting standards and relevant regulations issued by the Ministry of Finance.

2. The fiscal period
The fiscal period of the company starts on January 1 and ends on December 31 each calendar year.

3. Standard accounting currency
The Company and most of its subsidiaries adopt RMB yuan as currency used in bookkeeping. The consolidated financial statement of the Company is listed in RMB yuan.

4. Accounting basis and valuation
Accounting is based on the accrual system. Unless otherwise specified, all assets are measured at historical cost.

5. Recognition of cash and cash equivalents
The cash presented in the Cash Flow Statement comprises cash in hand and the deposits available for payment from time to time. Cash equivalents presented in the Cash Flow Statement are short-term (mature within three months), highly liquid investments that are readily convertible into cash and almost have no risk of change in value.

6. Foreign currency accounting and translation of financial statements in foreign currency
(1) Foreign currency accounting
Our foreign currency transactions are converted into RMB yuan at the spot exchange rate on the days the transactions occurred; the monetary foreign currency items on the balance sheet date are converted into RMB yuan at the spot exchange rate on the balance sheet date. The exchange gains and losses arising from these transactions that occurred in construction preparation, production and operation are taken into financial expenses; those related to the acquisition and construction of fixed asset, oil and gas asset and other assets in line with the capitalization condition are handled according to relevant provisions on borrowing costs; and those occurred in the period of liquidation are taken into liquidation gain or loss.

A non-monetary foreign currency asset measured at historical cost is converted into RMB yuan at the spot exchange rate on the trading day, with its amount in RMB yuan unchanged. A non-monetary foreign currency asset measured at fair value is converted into RMB yuan at the spot exchange rate for the date when the fair value was determined, with the difference thus caused taken into the current profits and losses as a change in fair value.

(2) Translation of financial statement in foreign currency
All asset and liability items presented in Foreign Currency Balance Sheet are converted into RMB yuan at spot exchange rate on the balance sheet date; the owner’s equity other than “undistributed profit” is converted at spot exchange rate when occurred. Foreign incomes and expenses presented in the Income Statement are generally converted at the average of reference rates for RMB announced by PBC on a daily basis over the period of time covered by the income statement. The exchange difference of Foreign Currency Balance Sheet arising from the conversions mentioned above is separately listed in “Converted Difference in Foreign Currency Statement” under the owner’s equity. Foreign incomes and expenses are generally converted at the arithmetic average of reference rates for RMB announced by PBC on a daily basis over the period of time covered by the cash flow statement. The translation difference of cash flow statement arising from the conversions mentioned above is presented separately in Effect of the Change of Exchange Rate on Cash.

The opening balances of cash and cash equivalents in the Foreign Currency Cash Flow Statement are converted at statement’s initial exchange rate; and the closing balances are converted at the spot exchange rate on the balance sheet date. And other items are generally converted at the arithmetic average of reference rates for RMB announced by PBC on a daily basis over the period of time covered by the cash flow statement. The translation difference of cash flow statement arising from the conversions mentioned above is presented separately in Effect of the Change of Exchange Rate on Cash.

7-1. Financial instruments (old standards)
Financial instruments include financial assets, financial liabilities and equity instruments. Financial instruments, based on the purpose of obtaining a financial asset or assuming a financial liability are categorized into financial assets at fair value through profit or loss; loans and receivables; available-for-sale financial assets; held-to-maturity investments; and other financial liabilities etc. An assessment of carrying value of financial assets, except for financial assets at fair value through profit or loss, is made at the balance sheet date to determine whether there is objective evidence of impairment.
7-2. Financial instruments (new standards)

Financial instruments include monetary capital, non-long term equity investments, receivables, payables, borrowings, notes payables and share capital, etc.

(1) Categorization of financial assets

Financial assets are classified, upon initial recognition, by form of management and cash flow characteristics into: Financial assets measured at amortized cost, financial assets measured at fair value with changes in fair value recognized in other comprehensive income, and financial assets measured at fair value with changes in fair value recognized in profits or losses of the current period.

(2) Categorization of financial liabilities

Financial liabilities are classified into: Financial liabilities measured at fair value with changes in fair value recognized in profits or losses of the current period and financial liabilities measured at amortized cost.

(3) Impairment of financial instruments

For financial assets measured at amortized cost, contractual assets, and debt investments measured at fair value with changes in fair value recognized in other comprehensive income, impairment losses and provisions should be based on expected credit loss.

8. Inventories

(1) Categories of inventory

Raw materials, work in progress and semi-finished goods, finished goods, goods sold etc.

(2) Acquisition and sales valuation for inventory

Inventories are carried at the actual cost when acquired, using perpetual inventory method; actual cost of delivered or sold inventories are carried at weighted average.

(3) Amortization of low-value consumption goods and packing materials

Low-value consumption goods and packing materials are amortized using one-off amortization method when they are put into use.

(4) Year-end inventory valuation, impairment recognition and inventory provision

Year-end inventories are carried at the lower of cost and net realizable value. Based on wall-to-wall inventory at the end of the period, provision for inventory write-down is retained at the difference between cost and net realizable value of inventory on the individual item basis in the following circumstances, where the net realizable value is lower than the cost. For inventory of large quantity and low unit price, provision for inventory write-down may be recognized by category. The net realizable value is defined by selling price deducts estimated complete cost, selling cost and related tax.

a. The market price of inventory continues to fall with no hope of recovery in the foreseeable future;

b. The product using the raw material is manufactured at a cost higher than the selling price thereof;

c. The existing raw material fails to meet the needs of new products as a result of product upgrading and the market price of such raw material is lower than its carrying cost;

d. The goods or services are obsolete or there is a preference-driven change in market needs, resulting in a gradual decline in the market price thereof;

e. Other circumstances demonstrating a substantial impairment of inventory.

9. Long-term equity investment

(1) Determination of investment costs

For a long-term equity investment obtained through a combination of entities under common control, the carrying value of the owner’s equity in the combined entity stated in the ultimate controlling party’s consolidated financial statements should be recognized on the combination date as investment cost.

For a long-term equity investment obtained through a combination of entities not under common control, the combination cost should be accounted for the cost of the long-term equity investment.

For long-term equity investments obtained in a manner other than combination of entities, if a long-term equity investment is obtained through payment of cash, the actual purchase price thus paid should be recognized as initial cost of the long-term equity investment; if a long-term equity investment is obtained through issuing equity securities, the fair value of the equity securities being issued should be recognized as initial cost of investment.

(2) Subsequent measurement and profits & losses recognition

a. Long-term equity investments under cost method

The Company’s long-term equity investments in its subsidiaries are accounted for using the cost method. In addition to the cash dividends or profits declared but not yet paid as included in the price or consideration actually paid upon acquisition, the cash dividends or profits that the investee has declared to distribute and the Company’s is entitled to be recognized in investment income.
b. Long-term equity investments under equity method

Long-term equity investments in associates and joint ventures are accounted for using the equity method. For the positive difference between the initial cost of investment and the investor's share of the fair values of the investee’s net identifiable assets on acquisition of the investment, no adjustment to the initial cost of such long-term equity investment is made; for the negative difference between the initial cost of investment and the investor’s share of the fair values of the investee’s net identifiable assets on acquisition of the investment, such difference is recorded into profits or losses of the current period.

The investor’s share of the net profit/loss and other comprehensive income of the investee is recognized in investment income and other comprehensive income respectively, along with the adjustment to the carrying amount of the long-term equity investment, distributions of profits or cash dividends received from the investee reduce the carrying amount of the investment; adjustments in the carrying amount of the investment for the changes in the owner’s equity other than those arising from the investee’s net profit or loss, other comprehensive income and profit distribution are necessary and recognized as owner’s equity.

The investor’s share of the net profits or losses of the investee is based on the fair values of the investee’s net identifiable assets upon acquisition of the investment and recognized after adjustment to the investee’s net profit made in accordance with the investor’s accounting policies and fiscal periods. Accounting of investments held should be based on investor’s share of the amount of net profit, other comprehensive income and other changes in the owner’s equity listed in the investee’s consolidated financial statements.

For recognition of investment income, the investor’s share of the unrealized profits or losses from internal transactions with associates and joint ventures should be written off. Unrealized loss from internal transactions with the investee, if accounted for as part of asset impairment, should be recognized in full amount.

The investor’s share of the loss of the investee should be accounted for as follows: i) writing down the carrying value of the long-term equity investment, ii) in the event that the carrying value of such long-term equity investment is not enough for write-down, investment loss should be recognized as much as the carrying value of long-term interests that, in substance, form part of the net investment in the investee as well as the carrying value of the long-term equity investment should be restored with investment income recognized accordingly.

For disposal of long-term equity investments, the difference between the carrying amount and the actual purchase price is recorded into profits or losses of the current period.

Upon disposal of a long-term equity method investment, all amounts previously recognized in the Company's other comprehensive income in relation to that investment are accounted for on the same basis as would have been required if the investee had directly disposed of the related assets or liabilities. The changes in the owner’s equity other than those arising from the investee’s net profit or loss, other comprehensive income and profit distribution are transferred to profits or losses of the current period in proportion.

If the investor loses joint control or significant influence over an investee for reasons such as partial disposal of the equity investment, any retained interest should be recognized in profits or losses of the current period, and measured as a financial instrument at the difference between fair value and carrying value at the date when joint control or significant influence is lost. All amounts previously recognized under the equity method as other comprehensive income in relation to such equity investment are accounted for on the same basis as would have been required if the investee had directly disposed of the related assets or liabilities. The changes in the owner’s equity other than those arising from the investee’s net profits or losses, other comprehensive income and profit distribution are transferred to profits or losses of the current period.

In the event that the investor loses control over an investee for reasons such as partial disposal of the equity investment, when preparing separate financial statements, equity accounting is required for retained interest with joint control or significant influence over the investee, and adjusted on the basis of equity accounting as would have been required upon acquisition of such interest; retained interest without joint control or significant influence over the investee should be recognized in profits or losses of the current period and measured as a financial instrument at the difference between fair value and carrying value at the date when control is lost.

In the event that equity interest being disposed of has been acquired through a combination of entities for reasons such as additional investment, when preparing separate financial statements, all amounts previously recognized under the equity method as other comprehensive income and other owner’s equity in relation to such equity investment should be transferred in proportion, if retained interest is accounted for at cost or under the equity method, all amounts previously recognized as other comprehensive income and other owner’s equity should be transferred entirely, if retained interest is recognized and measured as a financial instrument.
(3) Determination of the basis for joint control and significant influence over the investee

Joint control means the contractually agreed sharing of control of an arrangement which exists only when decisions about the relevant activities require the unanimous consent of the parties sharing control. A joint venture is a joint arrangement whereby the parties that have joint control of the investee have rights to the net assets of the investee.

Significant influence means the power to participate in the financial and operating policy decisions of the investee but not control or joint control of those policies. For an investor with significant influence over the investee, the investee is considered an associate of the investor.

(4) Depreciation test and provisions for depreciation

At the end of the year, the long-term equity investment is reviewed and the provision for the depreciation of the long-term equity investment is retained against the difference between the recoverable amount and the carrying value. Once the provision for the depreciation of the long-term equity investment is retained, it should not be reversed during subsequent accounting periods.

For non-marketable long-term equity investment, depreciation is likely in the following circumstances:

a. There is a change in the political or legal environment of the invested business, such as an enactment of or amendment to the tax and trade regulations, which may result in huge losses of the invested business;

b. The goods or services of the invested business are obsolete or there is a change in market needs, resulting in a serious deterioration in the financial conditions of the invested business;

c. The invested business has lost its competitive edge due to a major technological change etc. in the sector, resulting in a serious deterioration in the financial conditions of the invested business such as clean-up or liquidation;

d. Other circumstances demonstrating a substantial failure of the invested business to generate economic benefits for the Company.

10-1. Revenue (old standards)

Revenue arising from sale of goods, rendering of services, royalties and construction contracts, etc. are recognized as follows:

(1) Sale of goods

The seller has transferred to the buyer the significant risks and rewards of ownership; the seller retains neither continuing managerial involvement to the degree generally associated with ownership, nor effective control over the goods already sold; the amount of revenue can be measured reliably; the economic benefits associated with the transaction are likely to flow into the seller, and the costs incurred or to be incurred in respect of the transaction can be measured reliably.

(2) Rendering of services

Revenue should be recognized by reference to the stage of completion of the transaction at the balance sheet date if the amount of revenue can be measured reliably.

(3) Royalties

Provided that the economic benefits are likely to flow into the enterprise and the amount of revenue can be measured reliably, revenue should be recognized in accordance with the time and method specified in the relevant contract or agreement.

10-2. Revenue (new standards)

Revenue should be recognized when a performance obligation in the contract is satisfied, i.e. control of goods or services is passed to the customer. Where a contract has multiple performance obligations, the transaction price should be allocated to these performance obligations upon the effective date of contract by reference to the relative proportion of standalone selling prices of promised goods or services and revenue should be measured accordingly.

11. Government subsidies

(1) Types of government subsidies

Government subsidies comprise mainly of treasury funding, interest subsidies, tax rebates and free allocation of non-monetary assets etc.

(2) Acknowledgment of government subsidies

The Company has acknowledged government subsidies that it is eligible for and granted.

(3) Accounting treatment of government subsidies

Asset-related governmental subsidies are recognized as deferred income which is taken into gains/losses of the current period appropriately and systematically during the lifespan of related asset. Income-related governmental subsidies used to recover relevant costs, expenses or losses in the subsequent period are recognized upon receiving as deferred income which is taken into gains/losses of the current period during the verification of related costs, expenses or losses, otherwise, recognized as non-operating income, or used to write down relevant costs, expenses or losses; those used to recover relevant costs, expenses and losses incurred by the Group are directly recognized as the gains/losses of the current period; otherwise, recognized as non-operating income, or used to write down relevant costs, expenses or losses.

(4) Measurement of government subsidies

Government subsidies in the form of monetary assets are measured at the amounts received or receivable. Government subsidies in the form of non-monetary assets are measured at fair value.
12. Deferred tax assets and deferred tax liabilities

Deferred tax assets and deferred tax liabilities are recognized at (temporary) difference between the carrying value of an asset or liability and the tax base of such asset or liability. Deductible losses and tax credits that are carried forward to reduce taxable income in future years under the tax provisions are deemed temporary differences and accounted for deferred tax assets. Deferred tax assets and deferred asset liabilities as of the balance sheet date are measured at the applicable rate for the period when such assets or liabilities are estimated to be recovered or settled.

Deferred tax assets are limited to the taxable income that is likely to be obtained to reduce temporary differences, deductible losses and tax credits. For recognized deferred tax assets, when it is unlikely to obtain sufficient taxable income to offset against deferred tax assets by the future period, a write-down of the carrying amount of deferred tax assets is necessary. If it is likely to obtain sufficient taxable income, the write-down amount should be reversed.

Deferred tax assets and deferred tax liabilities are presented on a net basis, provided that the following conditions are satisfied:

(1) Deferred tax assets and deferred tax liabilities are related to the income tax imposed by the same taxing authority on the same entity in the Company.

(2) Such entity in the Company has the legal right to offset current tax assets against current tax liabilities.

13. Changes in accounting policies


In addition, the Ministry of Finance announced in June and September 2018 the issuance of Directive on Model Financial Statements for Business Enterprises 2018 (CK [2018] No.15) and Interpretation of Model Financial Statements for Business Enterprises 2018 (collectively referred to as “New Model Financial Statements”).

(1) Implementation of new standards on revenue


(2) Implementation of new standards on financial instruments


Adoption of the new financial instruments standards at PetroChina has no significant impact on CNPC’s accounting policies. Meanwhile, CNPC has made no adjustment to comparative data.

(3) Implementation of new model financial statements

CNPC has prepared the consolidated statement of income and consolidated balance sheet for 2018 in accordance with the new model financial statements and made a retrospective restatement of items in these financial statements.
B. Main Taxes

1. Corporate income tax
The rate of corporate income tax applicable to the Company is 15% or 25%. In accordance with the Directive on Tax Policy Issues in Relation to the Further Implementation of the Western China Development Strategy (CS [2011] No.58) announced by the Ministry of Finance, the General Administration of Customs and the State Administration of Taxation, business establishments in the industries encouraged to develop in the western region are entitled to a reduced corporate income tax rate of 15% from January 1, 2011 to December 31, 2020. This preferential rate of 15% is applicable to the calculation and payment of corporate income tax of some of the Company’s branches and subsidiaries located in western China.

2. Value added tax
In accordance with the Directive on the Relevant Policies on the Streamlining and Combination of Value-added Tax Rates (CS [2017] No.37) announced by the Ministry of Finance and the State Administration of Taxation, value-added tax rates have been revised to 17%, 11% and 6%, with a 13% rate revoked, effective since July 1, 2017; the VAT rate on natural gas has been reduced from 13% to 11%; in accordance with the Directive on Modifications to Value-added Tax Rates (CS [2018] No.32) announced by the Ministry of Finance and the State Administration of Taxation, the new rates of 16% and 10%, instead of 17% and 11%, are applicable to taxable sales and imports respectively; effective since May 1, 2018, for leasing of tangible movable properties, a 16% rate is applicable; the tax rate for transportation services, postal services, construction services, leasing of real estate and sale of real estate is 10%; for modern services (except for leasing of tangible movable properties), the VAT rate is 6%; taxable services specified by the Ministry of Finance and the State Administration of Taxation are zero-rated.

3. Surtaxes and surcharges
The urban maintenance and construction tax rate is 1%, 5% or 7% of the amounts actually paid for value added tax and excise tax. The rate of education surcharge is 3% of the amounts actually paid for value added tax and excise tax.

4. Excise tax
The per unit excise tax is RMB 1.52 per liter for gasoline, naphtha, solvent oils and lubricants, and RMB 1.20 per liter for diesel and fuel oils. A suspension of excise tax remains unchanged for jet kerosene. In accordance with the Directive on Increases in Fuel Excise Tax (CS [2015] No.11) announced by the Ministry of Finance and the State Administration of Taxation, the per unit excise rate has increased from RMB 1.40 to RMB 1.52 per liter for gasoline, naphtha, solvent oils and lubricants, and from RMB 1.10 to RMB 1.20 per liter for diesel and fuel oils, effective since January 13, 2015. In accordance with the Directive on Excise Tax Exemption for Oil Consumption in the Production of Oil Products (CS [2010] No.98) announced by the Ministry of Finance and the State Administration of Taxation, the Company has been exempt from excise tax since January 1, 2009 on self-provided refined oils used as fuel, power and raw materials to produce oil products.

5. Resources tax
The resources tax rate is 6%. In accordance with the Directive on Adjusting Resources Tax Policies for Crude Oil and Natural Gas (CS [2014] No.73) announced by the Ministry of Finance and the State Administration of Taxation, the rate of mineral resources compensation fee has been reduced to zero and the rate of resources tax has been raised from 5% to 6% for crude oil and natural gas, effective since December 1, 2014. CNPC is eligible for resources tax exemption for crude oil and natural gas used for heating during the process of heavy oil transportation in oil fields and eligible for a resources tax reduction of 40% for heavy oil, high pour point oil and high sulfur natural gas, 30% for EOR operations, 20% for low abundance oil and gas fields (on a temporary basis) and 30% for deep-water oil and gas operations. In addition, in accordance with the Directive on Cutting Resources Tax on Shale Gas (CS [2018] No.26) announced by the Ministry of Finance and the State Administration of Taxation, resources tax on shale gas will be cut by 30 percent (from the standard rate of 6%) from April 1, 2018 to March 31, 2021 to boost shale gas production and increase gas supplies.

6. Special oil gain levy
The special oil gain levy is based on excess sales revenue from domestic crude oil prices exceeding the threshold of USD 65 per barrel and imposed at the five-level progressive ad valorem rates between 20% and 40%.

7. Personal income tax
The employees are responsible for their own income tax, which is withheld and remitted by the Company.
Major Events

January
Jan. 1 The Second Russia-China Crude Pipeline began commercial operation.

March
Mar. 15 The first offshore crude oil lifting from the Libra Project in Brazil was successfully completed.
Mar. 21 Offshore concession agreements with ADNOC for the Umm Shaif-Nasr Oilfield and the Lower Zakum Oilfield (Abu Dhabi Offshore Project) were signed. Under these agreements, CNPC enjoys a 10% interest in both offshore oilfields for a term of 40 years.

May
May 11 The first oil lifting from Abu Dhabi Onshore-Offshore Project was completed.

June
Jun. 8 The Agreement on Extension of Petroleum Contracts and Deepening Oil & Gas Cooperation was signed with the Ministry of Energy of Kazakhstan.
Jun. 8 The first oil lifting from Abu Dhabi Offshore Project was completed.

July
Jul. 19 CNPC affiliated BGP and ADNOC signed a contract on offshore and onshore 3D seismic data acquisition.
Jul. 20 The Strategic Cooperation Framework Agreement was signed with ADNOC. Under the agreement, the two sides will build on the existing cooperation, and carry out all-round cooperation in upstream, downstream, trade and marketing, and technical support, etc.
Jul. 20 CNPC signed the contract to become an official oil and gas partner of the Beijing 2022 Olympic and Paralympic Winter Games.
Jul. 21 The second train of the Yamal LNG Project in Russia went on stream.

August
Aug. 18 The Qinzhou-Nanning-Liuzhou Refined Products Pipeline was put into operation.
Aug. 29 The Karakul Gas Field in Uzbekistan entered full production.
Aug. 30 The Kunming Branch of the Yunnan Refined Products Pipeline was put into operation, thus completing the whole pipeline.
**September**

Sep. 12 An upstream cooperation agreement was signed between CNPC and Rosneft. Under this agreement, CNPC will partner with Rosneft in Russia’s exploration and development sector.

Sep. 12 A technical cooperation agreement was signed between CNPC and Gazprom. Under this agreement, CNPC will collaborate with Gazprom in the R&D and promotion of EOR technology, in an effort to jointly increase the production of mature oilfields in Russia.

Sep. 14 Six cooperation agreements were signed with Venezuela, including an Integrated Service Agreement for 300 Wells in the Ayacucho Blocks and a MOU on Cooperation in Development of Natural Gas.

Sep. 16 The Fushun-Jinzhou Refined Products Pipeline was put into operation.

Sep. 20 Liaoayng Petrochemical’s revamp project for processing Russian crude was completed and the plant started production.

Sep. 24 An agreement on China’s Climate Investment Fund was signed between CNPC Assets Management Co., Ltd. and OGCI Climate Investments (CI) to set up Climate Investments Chia (CIC).

Sep. 28 The Phase II renovation project of Shymkent Refinery in Kazakhstan was completed and the plant went on stream.

**October**

Oct. 15 A MOU on strategic cooperation with Equinor was signed.

Oct. 16 The Agreement on Integrated Project Business Model was signed with Petrobras.

Oct. 29 An enhanced gas recovery project for the Saman-Depe Gas Field, as part of the Amu Darya natural gas project in Turkmenistan, became operational.

**December**

Dec. 11 The third train of Yamal LNG project in Russia was completed and put into operation.

Dec. 12 The Halfaya Project Phase III (CPF3) in Iraq became operational.

Dec. 12 The prospecting efforts in Well Zhongqiu-1 in Tarim Basin led to the identification of a new gas-bearing structural belt in Qulitage.

Dec. 15 A lithologic reservoir was identified in Well Shatan-1 in the Shawan Sag, Junggar Basin.

Dec. 16 A significant progress was made in Well Yongtan-1 in the Sichuan Basin, which identified the new gas-bearing volcanic strata.
Glossary

Proven reserves
According to China National Standards, proven reserves are estimated quantities of mineral deposits. They can be recovered from reservoirs proved by appraisal drilling during the period of reservoir evaluation, with a reasonable certainty or a relative difference of no more than 20%.

Oil equivalent
Oil equivalent is the conversion coefficient by which the output of natural gas is converted to that of crude oil by calorific value. In this report, the coefficient is 1,255, i.e. 1,255 cubic meters of natural gas is equivalent to one metric ton of crude oil.

Recovery rate
The percentage of oil/gas in place that is recoverable from underground.

Decline rate
A decline in production occurs in an oil or gas field that has been producing for a certain period of time. The natural decline rate is defined as the negative relative change of production over a period of time, without taking into account an increase in production resulting from EOR (enhanced oil recovery) techniques. The general decline rate is defined as the rate of decline in the actual production of such an oil or gas field, taking into account an increase in production from the new wells and EOR techniques.

Water injection
The pressure of the reservoirs continues to drop after the oilfield has been producing for a certain period of time. Water injection refers to the method where water is injected back into the reservoir through the water injection wells to raise and maintain the pressure, increase oil recovery, and thereby stimulate production.

Tertiary recovery
Tertiary recovery is also called enhanced oil recovery and is abbreviated as EOR. It is a method to increase the recovery of crude oil by injecting fluid or heat to physically or chemically alter the oil viscosity or the interfacial tension between the oil and another medium in the formation, in order to displace any discontinuous or hard-to-tap oil in reservoirs. EOR methods mainly include thermal recovery, chemical flooding and miscible flooding.

ASP flooding
A flooding system is prepared with alkali, surfactant and polymer. It not only has a high viscosity but also can create ultra-low water-oil interfacial tension to improve the oil-washing capability.

LNG
Liquid Natural Gas is produced by dewatering, deacidifying, dehydrating and fractionating the natural gas produced from a gas field and then turning it into liquid under low temperatures and high pressure.

Horizontal well
A class of nonvertical wells where the wellbore axis is near horizontal, or fluctuating above and below 90 degrees deviation. A horizontal well may produce at rates several times greater than a vertical well, enhance recovery efficiency and prolong the production cycle, due to the increased wellbore surface area within the producing interval. Meanwhile, the environmental costs or land use problems that may pertain in some situations, such as the aggregate surface “footprint” of an oil or gas recovery operation, can be reduced by the use of horizontal wells.

HSE management system
The HSE management system provides a framework for managing all aspects of health, safety and the environment. It is defined as the company structure, responsibilities, practices, procedures, processes and resources for implementing health, safety and environmental management.

Occupational diseases
A disease or ailment caused due to excessive exposure to noxious fumes or substances in a working environment.

Internet+
China’s “Internet+” action plan refers to the application of the internet and other information technology in conventional industries. It is an incomplete equation where various internets (mobile Internet, cloud computing, big data or Internet of Things) can be added to other fields, fostering new industries and business development in China.

VOCs
Volatile organic compounds (VOCs) refer to organic compounds with saturated vapor pressure over 70 Pa under room temperature, and boiling point below 260°C under atmospheric pressure. VOCs also refer to all organic compounds that easily evaporate at temperature of 20°C and vapor pressure of 10 Pa or higher.
About this Report

In this report, the expressions "CNPC," "the corporation," and "the company" are used for convenience where references are made to China National Petroleum Corporation in general. Likewise, the words "we," "us" and "our" are also used to refer to China National Petroleum Corporation in general or to those who work for it.

This report is presented in Chinese, English, Russian, Spanish, and French. In case there is any divergence of interpretation, the Chinese text shall prevail.

Recycled/recyclable paper is used for this report.
Energize · Harmonize · Realize