2023 Annual Report

China National Petroleum Corporation

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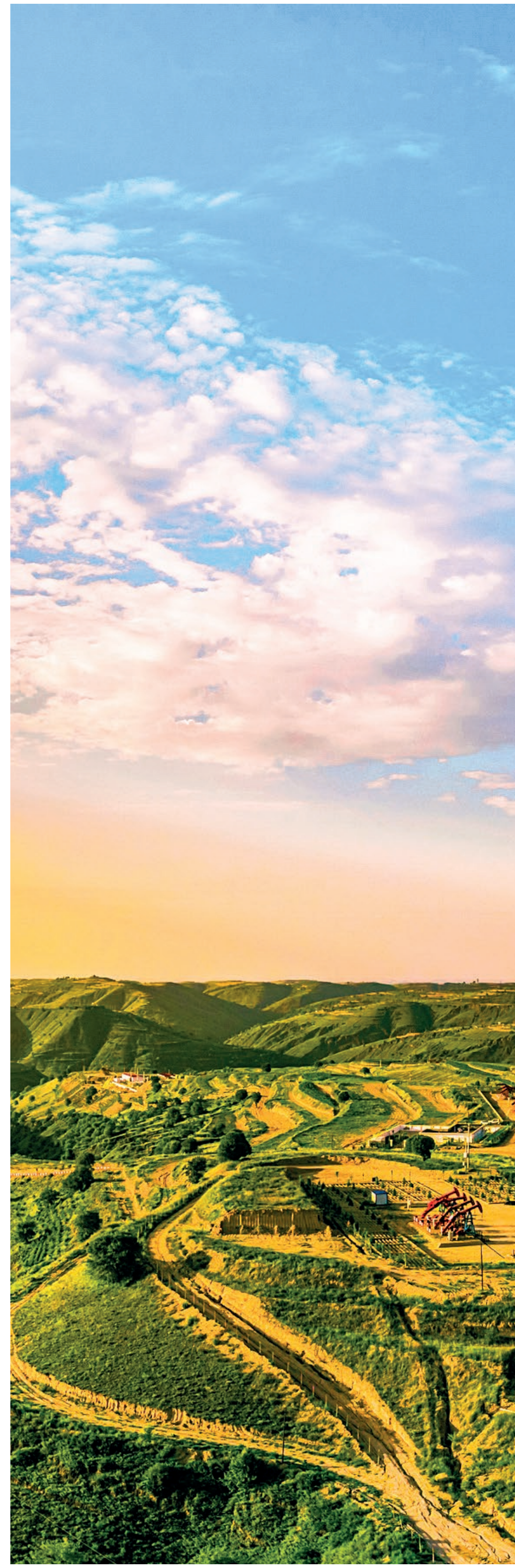


About Us

China National Petroleum Corporation (CNPC) is an integrated international energy company covering oil, gas & new energies, refining, chemicals, marketing & new materials, support & services, as well as capital & finance etc.

Our Vision

To become a world-class integrated international energy company built to last.

Our Strategies

Innovation, Resources, Market, Internationalization, Green & Low Carbon

Our Values

Pursuing green development and providing reliable energy supply to fuel our customers' growth and power people's happy life.

Board of Directors

Dai Houliang

Chairman

Hou Qijun

Director

Duan Liangwei

Director

Li Jianhong

External Director

Shi Yan

External Director

Yang Ya

External Director

Gao Yunhu

External Director

Yang Hua

Employee Director

Top Management

Dai Houliang

Chairman

Hou Qijun

Director & President

Duan Liangwei

Director

Zhou Song

Chief Financial Officer

Huang Yongzhang

Vice President & Chief HSE Supervisor

Qian Chaoyang

Chief of the Discipline Inspection and Supervision Office

Ren Lixin

Vice President

Xie Jun

Vice President

Zhang Daowei

Vice President

Message from the Chairman

In 2023, amid challenges from downward pressure on the economy, increasing risks, and demanding reform and development tasks, we followed President Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era and the guiding principles of the 20th CPC National Congress, surmounted difficulties and pushed forward the full and faithful implementation of the new development philosophy to promote high-quality development. Remarkable results were achieved on all fronts as operating performance reached record highs, and significant improvement in quality and sound growth in quantity. As the high-quality development scaled new height, we opened up a new horizon for building a world-class enterprise while making substantial contribution to the robust recovery of the Chinese economy.

CNPC continued to enhance its capability in efficiently supplying energy. We strengthened efficient domestic exploration and cost-effective production and pushed ahead with the construction of overseas energy production and supply bases. The reserve-production ratio continued to improve as domestic and overseas oil and gas output in oil equivalent terms hit new highs. The refining and chemicals business were on a faster shift towards the higher end of the industry chain consisting of refining, chemicals, bio-manufacturing, fine chemicals, and new materials. The world-class integration project of Guangdong Petrochemical was put into commercial operation. Domestic crude runs and refined product output reached historic levels as the share of high-end and high value-added products continued to increase. A sophisticated marketing system took shape as refined products, natural gas and chemicals registered growth in both sales volume and revenue.

CNPC sped up the green and low-carbon transition. We advanced a three-step overall approach of clean substitution, strategic replacement, and green development at a faster pace and continued to build a clean, low-carbon, safe, and highly efficient production and supply system supporting multi-energy complementarity. A number of key projects were completed, including a one-million-kilowatt photovoltaic power plant in Xinjiang. New energy production capacity, new materials production and CCUS CO_2 injection increased by 44%, 60% and 43%, respectively. Helium capacity exceeded one million cubic meters annually. Our business operations gathered pace, aiming to achieve carbon peaking and carbon neutrality through the development of new energies, new materials and new businesses. Natural gas production grew rapidly, accounting for 53.5% of the Company's domestic oil and gas output.

CNPC strived to build an innovation hub for energy and chemicals. We made plans for strategic emerging industries and industries of the future, aiming to build an industrial ecosystem and foster new-quality productive forces. Efforts have been stepped up to build strategic scientific and technological strengths. The national laboratory on green exploration and development of continental shale oil was approved. Major research and development projects such as "E&P for new oil and gas resources" made solid progress. The 10,000-meter deep earth exploration project progressed smoothly. New breakthroughs were achieved in the research and development of core technologies. The transition to "Digital CNPC" gained momentum; the Company's IT infrastructure was further improved; the Yunmengze Smart Platform was launched; the Digital Intelligence Research Institute was established. The Company entered the list of Boston Consulting Group's 50 Most Innovative Companies for the first time.

CNPC further improved governance efficiency. A new round of corporate reform was introduced with accelerated implementation of key reform tasks. The business division reform was in full swing. The natural gas sales reform was properly implemented. Kunlun Manufacturing was incorporated in Xiong'an. Substantive progress was made in the reform of the market-oriented business mechanism. Focusing on value creation and lean management, the "advanced version" of quality improvement and efficiency enhancement was implemented. All the four business segments and ten specialized companies registered profits and achieved quality improvement and efficiency enhancement.

CNPC remained committed to advancing high-standard opening-up. Upon the 10th anniversary of CNPC's participation in the Belt and Road Initiative and the 30th anniversary of the "Going Global" strategy, we leveraged our experience and insights to set goals for our overseas operations in the next 10 years and 30 years. We supported major national diplomatic events and hosted a series of international events. We deepened international energy cooperation, achieved new successes and improved our capacity for international operations.

CNPC demonstrated corporate citizenship as a Central SOE. In line with the national strategy and the people-centered development philosophy, we supported the post-disaster recovery and ensured energy supply in the flood-stricken areas in Beijing, Tianjin and Hebei and the earthquake-hit areas of Jishishan County, Gansu. We supported rural revitalization by leveraging our strengths in production, consumption and human resources. We implemented the "Go, Baby" healthcare campaign for children from underprivileged rural families and the Xuhang Scholarship Program. We ranked among "China's Top 100 ESG Pioneer Listed Companies" with a responsible corporate profile.

2024 marks the 75th anniversary of the founding of the People's Republic of China, the 10th anniversary of General Secretary Xi Jinping's New Energy Security Strategy, and is a critical year for CNPC to achieve our goals under the 14th Five-Year Plan. We will follow Xi Jinping's Thought on Socialism with Chinese Characteristics for the New Era and uphold the underlying principle of pursuing progress while maintaining stability. We will fully and faithfully apply the new development philosophy of promoting the high-quality development and serve and integrate into the new development paradigm. We will implement the new national energy security strategy and strive for quality and efficiency improvement of our business operations. We will map out strategic emerging industries and work for greater self-reliance and strength in science and technology. We will optimize operations and improve quality and efficiency, deepen reform and strengthen management, and ensure compliance and risk mitigation. We will strive to make new progress in the high-quality development, move faster to build a world-class enterprise and contribute to national energy security and the Chinese modernization.

Chairman 

Dai Houliang

President's Report

In 2023, amid challenges posed by increasing geopolitical risks, a global economic slowdown, and profound changes in the energy industry, CNPC thoroughly implemented the spirit of the 20th CPC National Congress and the important instructions of President Xi Jinping, and acted on the overall plan of the Board of Directors. A holistic approach was adopted to bolster business development, reform and innovation, quality and efficiency improvement, and risk management. Our oil and gas industry chains and business operations were running smoothly and efficiently with main production indicators growing steadily and operating results reaching fresh highs. In 2023, the Company registered RMB 3.2 trillion in turnover, RMB 288 billion in earnings before taxes and RMB 195.1 billion in net profit, making important contributions to the overall recovery of the Chinese economy.

CNPC achieved remarkable results in oil, gas and new energies operations. Domestic oil and gas reserves and production grew significantly. Eight 100-mmt oil plays and eight 100-bcm gas plays were discovered and confirmed. Newly proven oil in place totaled 773.86 million tons and newly proven gas in place stood at 754.2 billion cubic meters as the SEC reserve replacement ratio improved steadily. Crude oil production reached 105.8 million tons and natural gas reached 152.9 billion cubic meters. Overseas oil and gas operations remained steady and robust. A number of new cooperation agreements were signed with countries along the Belt and Road, and overseas equity production reached 103.82 million tons of oil equivalent for the year. New Energies operations embraced accelerated capacity expansion and upgrading. In 2023, newly added grid connection approval for clean electricity, wind and solar installed capacity, and green electricity generation were 2.6 times, 3.1 times, and 3.4 times of the previous year respectively. The capacity of new energies production increased by 44% to 11.5 million tons of coal equivalent. CO_2 injection reached 1.59 million tons, which produced 490,000 tons of oil.

CNPC made significant progress in the transformation and upgrading of Refining & Chemicals operations. The Guangdong Petrochemical project became fully operational and the key projects of Jilin Petrochemical and Guangxi Petrochemical advanced steadily. Leveraging the opportunities of market recovery, the Company processed 190.15 million tons of crude oil domestically, and produced 123.21 million tons of refined products, up 15.3% and 16.5% respectively and hitting historic highs. Production of petroleum coke and lubricant base stocks achieved double-digit growth. Ethylene production exceeded 8 million tons; PX production reached 3.53 million tons. As flagship products gained momentum, 137 new chemical products were launched, and the output increased 45% year-on-year to 1.22 million tons. New materials production rose 60% year-on-year to 1.37 million tons.

CNPC bolstered Support & Services operations and improved market competitiveness. Oilfield services leveraged core technologies and proprietary techniques to make new endeavors in boosting reserve and production growth and optimizing market layout. Engineering & construction operations completed a number of benchmark projects and three projects won the National Quality Engineering Gold Award. Equipment manufacturing operations provided integrated "high-end products + systematic services" solutions, which increased the share of high-end and high value-added revenue significantly.

CNPC continued to deepen industry-finance integration in Capital & Finance operations. CNPC Capital's industry-finance integration played a stronger role in supporting core operations and disposed of a number of high-risk projects. Kunlun Capital made new progress in facilitating the strategic transformation of the Company. It completed 8 investment projects that synergize strongly with existing business, launched an actively managed fund, and helped to enable the commercialization of two technological achievements within CNPC.

CNPC brought its Marketing operations to the next level. Refined products sales grew significantly in both volume and profits. The Company sold 123.62 million tons of refined products domestically, up 18.6%, and its market share rose 1.5%. Performance indicators such as earnings before tax, net profit and marketing cost per ton reached ten-year best. Specialty chemical and refining products saw significant growth in sales volume, exceeding 40 million tons and 20 million tons respectively. The full-year domestic natural gas sales totaled 229.9 bcm, with an increase of 5.6%, indicating an impressive role in ensuring natural gas supply and efficiency improvement. The missions to supply natural gas for major events were completed successfully. International trade operations achieved remarkable results in guaranteeing supply, reducing costs and increasing efficiency, and total trade volume rebounded to above 500 million tons. Breakthroughs were also made in the market development of Support & Services and Finance operations.

CNPC made substantial headway in reform, innovation and corporate governance. We deepened the institutional reform and set up business departments at two professional companies. Natural gas marketing reform was well implemented. Kunlun Manufacturing was incorporated. The advanced campaign on quality and efficiency improvement increased annual profits by RMB 22.9 billion. A three-year program was deployed to address issues in loss-making enterprises and streamline entities, and the number of loss-making subsidiaries, percentage of loss-making operations, and total losses all reached the lowest levels since 2010. Strategic scientific and technological strengths continued to build up with new breakthroughs in the debottlenecking research of core technologies. Developed by CNPC, the world's first automatic drilling rig for 12,000-meter borehole was included in the Top 10 advanced equipment of China's central SOEs. The Digital CNPC campaign advanced at a faster pace.

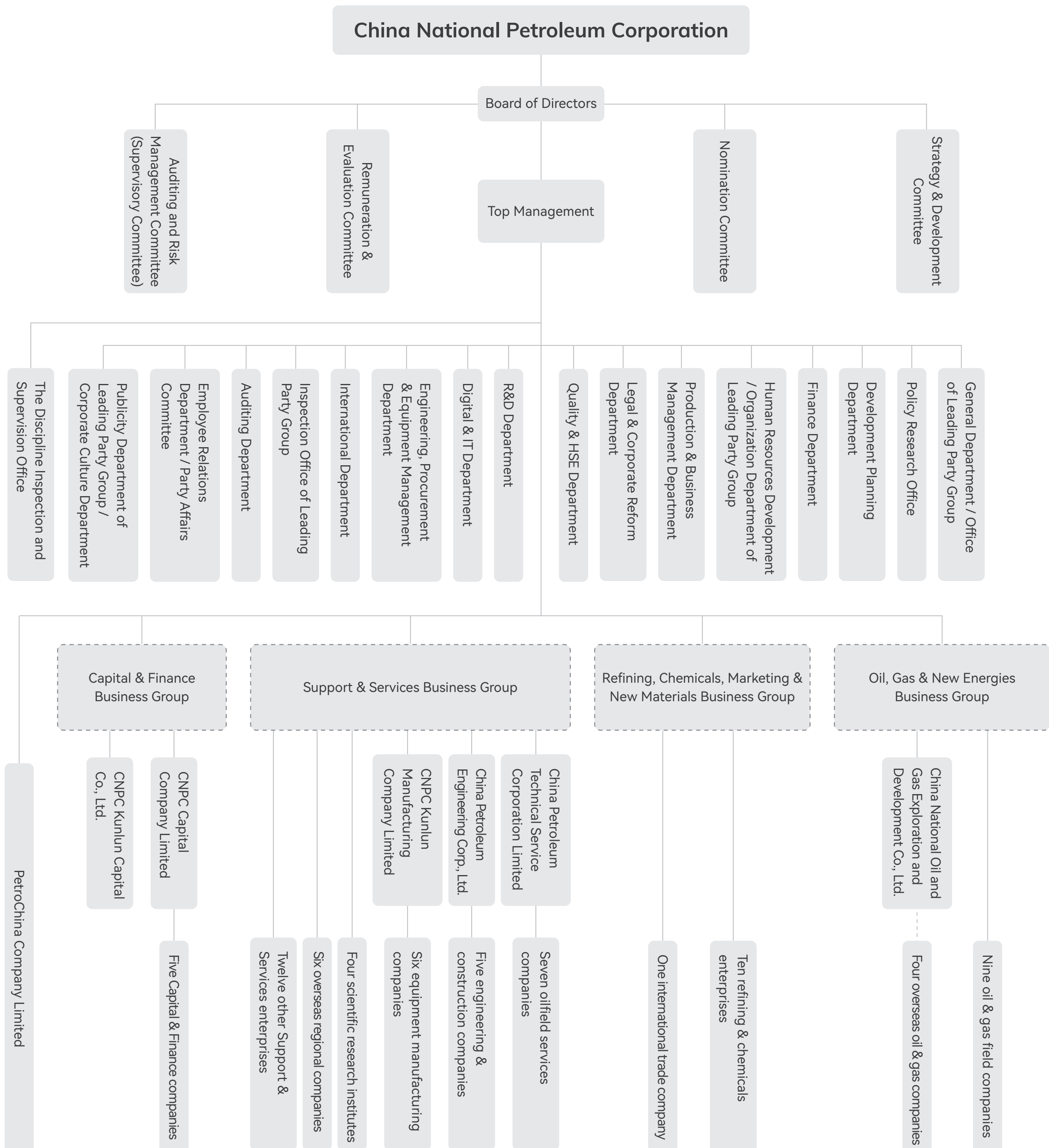
CNPC's QHSE performance remained sound and steady. Targeted measures were taken to address safety and environmental issues in key areas. No major QHSE incidents were reported. A coordinated approach was adopted to work on energy conservation, promote water saving, as well as cap both the intensity and total volume of greenhouse gas emissions. As one of China's Top Runners for Industrial Carbon Peaking recognized by China Federation of Industrial Economics, we reduced energy consumption by 860,000 tons of coal equivalent, water consumption by 8.54 million cubic meters throughout the year. As part of the ongoing effort to fulfill the Healthy Enterprise Action Plan, we continued to improve employee health management.

The year 2024 marks the 75th anniversary of the founding of the People's Republic of China, and is a crucial year to achieve our goals under the 14th Five-Year Plan. In view of the new circumstances, new changes and new requirements, we will seize the development opportunities and resolve various risks, fulfill our tasks and targets for production and operation, and make new progress in high-quality development. We will strive to build a world-class enterprise, contribute to national energy security and the Chinese modernization.

President

Hou Qijun

Organization Structure (as of December 31, 2023)



Operation Highlights

Financial Index	2021	2022	2023
Revenue (billion RMB yuan)	2,807.3	3,400.0	**3,160.8**
Earnings before taxes (billion RMB yuan)	166.5	266.9	**288.0**
Net income (billion RMB yuan)	100.3	180.4	**195.1**
Taxes and fees paid globally (billion RMB yuan)	398.0	530.5	**531.1**

Oil and Gas Production	2021	2022	2023
Oil production (mmt)	179.44	182.04	**184.35**
Domestic	103.11	105.00	**105.80**
Overseas (Equity)	76.33	77.04	**78.55**
Gas production (bcm)	169.24	177.20	**184.62**
Domestic	137.79	145.45	**152.90**
Overseas (Equity)	31.45	31.75	**31.72**

Refining and Chemicals	2021	2022	2023
Crude refining capacity (mmt)	227.89	247.89	**247.89**
Domestic	204.30	224.30	**224.30**
Overseas[1]	23.59	23.59	**23.59**
Crude runs (mmt)	200.81	203.46	**227.02**
Domestic	166.74	164.90	**190.15**
Overseas[2]	34.07	38.56	**36.87**
Domestic refined products output (mmt)	108.92	105.74	**123.21**
Domestic lube oil output (mmt)	1.89	1.68	**2.24**
Domestic ethylene output (mmt)	6.71	7.42	**8.00**

Marketing and Sales	2021	2022	2023
Refined products sales (mmt)	184.48	172.71	**186.14**
Domestic	111.26	104.23	**123.62**
Overseas	73.23	68.48	**62.52**
Domestic service stations	22,800	22,586	**22,755**
Domestic natural gas sales (bcm)	205.55	217.81	**229.91**

Notes: [1-2] The overseas crude refining capacity is calculated based on CNPC's share of equity, and the data on overseas crude runs is based on the total output of the plants.

Corporate Governance

As a solely state-owned enterprise, CNPC has built and continuously improved the corporate governance structure for sound decision-making, with transparent, coordinated and effectively balanced rights and responsibilities for the leading Party group, the Board of Directors and the top management. The Company is making steady progress toward the modernization of governance systems and governance capabilities to ensure appropriate decision-making processes and controls in place for compliance and surveillance, fulfill corporate responsibilities in the financial, political and social areas, and achieve high-quality development by improving corporate competitiveness, innovation, corporate control, corporate influence, business resilience and governance efficiency.

The Leading Party Group
guiding, overall planning, and implementing major decisions

Board of Directors
make decisions on major business and management matters

Top Management
business planning, implementation and management

The Leading Party Group

The Leading Party Group plays a leading role in guiding, overall planning, and implementing major decisions concerning important business activities, appointments, investments and financial management. It integrates the strengthening of the leadership of CPC with the improvement of corporate governance, and performs the decisive role in steering business management to ensure alignment between the Party's important guidelines and decisions and CNPC's strategic goals, employee behaviors and reform and development achievements. It oversees the implementation of the decisions of the CPC Central Committee and guides the direction of CNPC's reform and development to ensure corporate responsibilities in the financial, political and social areas.

In 2023, following Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era and the guiding principles set forth at the 20th CPC National Congress, the Leading Party Group resolutely implemented the decisions of the Party Central Committee and the State Council, upheld the underlying principle of pursuing progress, followed the new development philosophy, served and integrated into the new development paradigm. The Company, as a major central state-owned enterprise, made solid headway in accelerating green and low-carbon transition, deepening rural revitalization and agricultural assistance, supporting emergency response and disaster relief in key areas, underpinning oil and gas supply and making meaningful contribution to ensuring national energy security, stabilizing the macroeconomic market and maintaining social stability.

Board of Directors

The Board of Directors is entrusted with the power to make decisions on major business and management matters of the *Company in accordance with the Company Law of the People's Republic of China* and the *Articles of Association of CNPC*, including business strategy and risk mitigation. The Board of Directors has four affiliated committees, i.e., the Strategy & Development Committee, the Nomination Committee, the Remuneration & Evaluation Committee and the Audit & Risk Management Committee (Supervisory Committee), which serve to provide advice and suggestions for the decision-making process of the Board.

In 2023, the Board of Directors focused on its functions and roles, highlighting the strategic guidance to serve the overall strategic situation of the Party and the nation and the national energy security. The Board promoted the steady implementation of the Company's strategic planning for core businesses; its prudential decision-making process maintained a focus on legal and regulatory compliance, consistency with investors' requirements, compatibility with the Company's business strategy, and the balance of risks and returns to sustain the Company's high-quality development; risk management capabilities were enhanced by introducing measures to improve risk control, risk monitoring, risk assessment and risk mitigation. Procedures and mechanisms were improved to enable the Board to function efficiently and promote its competencies.

Top Management

The Top Management is responsible for business planning, implementation and management. It oversees the implementation of the Company's strategies, formulates schemes for improving production and operation, carries out board resolutions and achieves the Company's business plans and business objectives. The Top Management strengthens internal control, streamlines business processes, and prevents and mitigates risks to ensure compliance and efficiency of the Company's operations management system. The Top Management reports regularly to the Board of Directors on the implementation of the decisions and resolutions made by the Board of Directors to deliver on the Company's strategies.

In 2023, The Top Management followed the underlying principle of pursuing progress in stabilizing operations, strengthening management, mitigating risks, and improving efficiency with a focus on enhancing core competencies and bolstering core functions. The Company's operations in the oil and gas industry chains and other businesses were running smoothly and efficiently, and the new energies and new materials business grew rapidly. Significant progress was made in improving quality and efficiency, technological innovation, and the deepening of reform advanced steadily. The management of regulatory compliance continued to improve and the HSE performance remained stable. The Company's targets and tasks for the year were successfully achieved as the operating results reached all-time highs.

Key Topic

The 10th Anniversary of the Belt and Road Initiative

The Belt and Road Initiative proposed by President Xi Jinping in 2013 has provided a historic opportunity for better utilizing energy and sharing achievements in energy development with countries along the Belt and Road. Over the past 10 years, based on the principles of "Planning Together, Building Together and Benefiting Together", CNPC has been working with the host countries along the Belt and Road to achieve remarkable results, support the economic and social development in these countries, and promote cooperation on high-quality development under the Belt and Road Initiative.

Deepened oil and gas cooperation for shared benefits of development

By the end of 2023, CNPC has operated and managed 51 oil and gas projects in 19 countries along the Belt and Road, forming a complete industry chain integrating E&P, pipeline operation, refining and chemicals, engineering and oilfield services, as well as finance and trading etc.

In this process, CNPC has built a number of modern oil fields and refineries in cooperation with Iraq, Kazakhstan and other countries along the Belt and Road, with a focus on "five major oil and gas cooperation zones", i.e., Central Asia-Russia, the Middle East, Africa, the Americas and the Asia-Pacific. We continue to optimize the "four major oil and gas routes" running in the northwestern, northeastern, southwestern and eastern offshore parts of China and build a multi-dimensional and globalized oil and gas trading system. Through extensive cooperation on oil and gas E&P, trade, engineering and oilfield services as well as petroleum equipment, CNPC has helped these host countries turn rich resources into economic strengths at accelerated pace.

Since 2019, CNPC's equity production along the Belt and Road has remained above 80 million tons of oil equivalent for five consecutive years. Its annual hydrocarbon trade volume with more than 50 countries along the Belt and Road has averaged nearly 300 million tons per year. CNPC's engineering and oilfield service arm has also secured sizable market in more than 20 countries, including the United Arab Emirates, Iraq and Saudi Arabia, with contract value exceeding USD 100 million.

CNPC has operated and managed **51** oil and gas projects in 19 countries along the Belt and Road

CNPC's equity production along the Belt and Road has remained above **80** million tons of oil equivalent for five consecutive years

Enhanced communication and collaboration for industrial contribution

Over the past 10 years, CNPC has expanded its international cooperation and partner network in the spirit of openness, inclusiveness and win-win cooperation. Combining "bringing in" and "going global", we promote all-round communication and cooperation across the industry chain. CNPC has hosted a number of major international energy events, including Belt and Road Roundtable for Energy Cooperation, China-Russia Energy Business Forum, and CNPC International Cooperation Forum. As an active member of many cross-border industrial organizations, including BRICS Business Council (BRICS BC), World Petroleum Council (WPC), International Gas Union (IGU) etc., we continue to strengthen energy partnerships globally.

As the only Chinese member of the Oil and Gas Climate Initiative (OGCI), CNPC has been actively involved in international cooperation on climate change. As the president of the China Oil and Gas Methane Alliance, CNPC has signed the *Aiming for Zero Methane Emissions Initiative*, calling on oil and gas companies to fully engage in the cause to address methane emissions in a systematic approach.

Fulfilling social responsibility for common prosperity

Over the past 10 years, with a strong commitment to opening-up and win-win cooperation, CNPC has donated more than USD 700 million to public welfare programs in host countries along the Belt and Road. In our overseas operations, we strive to foster local suppliers and contractors, in an effort to grow together with local partners. Seeing the needs of host countries and local communities, we donate funds for education, build bridges and roads, support disaster relief, improve medical care, train local talents and build cultural facilities, to make positive contributions to the socioeconomic development of the host countries.

Under the Belt and Road Initiative, we take a market-based approach to train professional talents, increase local employment, and create jobs for the local community through high-quality industrial cooperation.

It has been a decade of magnificent development and fruitful cooperation. At the new starting point of a new decade, CNPC will continue to deepen practical energy cooperation with countries along the Belt and Road, so as to jointly translate the ambitious initiative to high-quality partnerships.

2023 Industry Review

Changes unseen in a century were unfolding at a faster pace across the world in 2023. The combined impact of multiple factors, e.g., a lack of momentum in global economic growth, the Ukraine crisis, the Palestinian-Israeli conflict, unilateral sanctions, trade barriers, climate change, and extreme weather, led to the misalignment of global energy resources and increased market volatility. The global political and economic landscape was increasingly divided into camps and regions and the competition between major countries resulted in decoupling of supply chains in the energy industry and, in turn, caused an enormous shock to the stability of the international energy market and the security of the industry chain. As the global energy environment experienced profound changes, energy security became a priority issue for the energy development in all countries. Amid changes of the world, of our times, and of the historical trajectory, the readjustment to energy mix picked up the pace in China, aiming to improve energy resilience, promote the complementarity between traditional energy sources and new energies, increase energy reserves and system backup and build a market-oriented, intelligent and coordinated energy governance system. With a new round of strategic prospecting getting under way, the energy demand-supply balance remained stable and orderly as a whole and the foundation for energy supply was further strengthened.

2023 Global Oil and Gas Industry

Global GDP growth fell to 3% in 2023, from 3.5% in 2022. Global energy consumption growth slowed down due to an economic downturn. Globally, primary energy consumption was 14.61 billion tons of oil equivalent, up 1.7% from 2022, with an increase of 0.5 percentage points.

Sustained rise in global E&P spending, oil and gas production.

Following a sharp increase in global E&P spending in 2022, oil companies were cautiously optimistic about upstream investment in 2023 as international E&P spending increased by 12% year-on-year to $575.1 billion, the growth of which is lower than the previous year. In particular, E&P spending in Central Asia - Russia regions registered negative growth, down 4.4% year-on-year. 242 oil and gas discoveries of 11.44 billion boe were made globally, averaging at 47.29 million boe. There was a remarkable drop in the average size of discovery as the number and volume of discoveries decreased, hitting a new low in the past five years. Four biggest discoveries in 2023 exceeded 500 million boe, three for natural gas and one for oil; two were onshore discoveries in Iran, one in Indonesian deep waters and one in Guyana deep waters.

Both oil and gas production rose in 2023 globally. Global oil production reached 4.45 billion tons, an increase of 70.9 million tons or 1.6% year-on-year; global natural gas production rose 0.8% year-on-year to 4.28 tcm. The United States, Russia and Iran remained the largest natural gas producers.

Global refining capacity continued to increase as ethylene prices remained subdued.

In 2023, global refining capacity rose to 5.18 Bt/a with a net increase of 59.425 Mt/a, which was slightly lower than the increase in 2022. Capacity additions were mainly found in the Middle East, North America and China. Global crude runs amounted to approx. 82.4 million b/d and returned to 2019 levels. Global refinery utilization rose to 80% from 78.6% in 2022. Refinery utilization rates in OECD countries declined to varying degrees in contrast to a significant increase in Asia and the Middle East. Global gasoline, diesel and fuel oil yields continued to fall as jet fuel yield increased.

Global ethylene capacity growth slowed down significantly and totaled 228 Mt/a, adding 5.323 Mt/a or up 2.2% year-on-year. Average utilization rates rose slightly for ethylene plants from 83.1% to 83.8% and ethylene production reached 189 million tons, up 5.5% year-on-year. Ethylene prices remained subdued as spot ethylene in North America, Northwest Europe and Northeast Asia fell by 29%, 14.6% and 18%, respectively, from the previous year.

Global natural gas prices receded from high levels.

In 2023, thanks to the fading effects from geopolitical premiums, international gas prices fell sharply and the natural gas market recovered slowly with an easing supply-demand balance. Global natural gas consumption growth picked up and reached approx. 3.96 trillion cubic meters, up 0.5% year-on-year. In particular, natural gas consumption recovered steadily in Asia Pacific at a rate of about 1.8%, while the growth rate slowed to 1.2% in North America and fell by about 6.2% in Europe. As the US production increased and Russian decreased, the global natural gas output grew by 0.8% to 4.28 tcm. The global natural gas trade volume stood at 1.25 tcm, a decrease of 1% year-on-year; the trading market continued to evolve, with more Russian pipeline gas off the European market and Asia leading the LNG growth. The total LNG capacity increased by 0.9% to 457 million tons per year, hitting a ten-year low. The three major natural gas markets all witnessed falling prices to the pre-Ukraine crisis levels; the average prices of European TTF spot, Northeast Asian LNG spot and US HH spot all went down to $12.9/MMBTU, $15.8/MMBTU and $2.54/MMBTU, by 65.8%, 54.4% and 60.5% year-on-year respectively.

Global energy mix changed with the green and low-carbon transition.

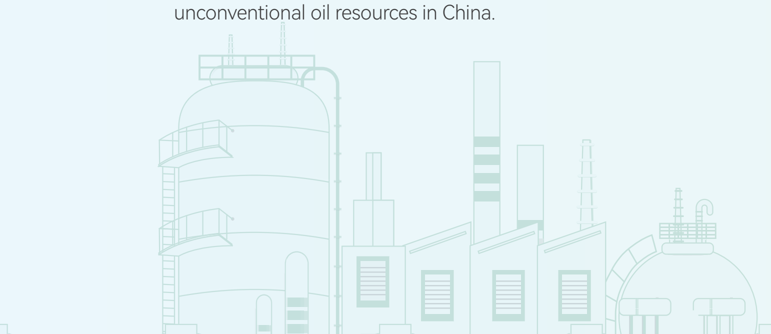
In 2023, global energy consumption witnessed a downward trend in fossil fuels and an upward trend in non-fossil fuels. Global coal demand hit another record high but the growth rate slowed, with demand growth mainly coming from emerging economies in Asia. Oil demand growth was slowing due to higher penetration of electric vehicles and the improvement in energy efficiency. Fossil energy consumption rose slightly by 1.1% with the share of fossil fuels in primary energy demand fell to 79.7%, below 80% for the first time, or 0.6 percentage points lower from the previous year. Non-fossil energy consumption increased by 4.1% as Asia Pacific and Europe led the global growth in non-fossil energy consumption. Non-hydro renewable electricity capacity (mainly wind and solar) increased rapidly by more than 430 million kilowatts and totaled more than 2.5 billion kilowatts, up 20% year-on-year. Electricity generation from non-hydro renewable sources exceeded 4,700 TWH. In 2023, global clean energy investment stood above $1.7 trillion, up more than 20% from 2021. This momentum was led by renewable power (mainly wind and solar) and EVs, with important contributions also from other areas such as lithium batteries, heat pumps and nuclear power.

2023 China's Oil and Gas Industry

In general, domestic energy supply and demand were stable and orderly in 2023. Coal production continued to grow; oil and gas reserves and production increased significantly with oil and gas production stood at 200 million tons; natural gas production exceeded 230 billion cubic meters, marking an over-10-billion-cubic-meter increase in gas production for the seventh consecutive year; crude oil production grew steadily; domestic energy prices remained generally stable. Meanwhile, China's energy transition was on the fast track. Renewable electricity capacity reached 1.47 billion kilowatts, accounting for more than 50% of the total power generation capacity in China and outrunning thermal power capacity for the first time in history. New energies such as wind and solar showed strong momentum.

Oil and gas reserve and production maintained growth and deep-water, deep-layer and unconventional resources emerged as a new growth driver.

In 2023, domestic oil and gas companies increased E&P efforts and delivered remarkable results in terms of reserve growth and efficient development. Newly proven oil reserves were approx. 1.3 billion tons and newly proven gas reserves were nearly 1 trillion cubic meters. Crude oil production and natural gas production reached 209 million tons and 235.3 billion cubic meters (including shale gas, coal-bed methane and coal-based synthetic natural gas) respectively. Advances in E&P theories, technologies and equipment supported major breakthroughs in deep-water and deep-layer exploration and production. Exploration: Exploration in deep and ultra-deep layer, offshore deep-water, and unconventional resources registered good results and a number of breakthroughs were made in new fields and plays, new sags in mature fields and new strata. A major breakthrough in deep coal-bed methane exploration opened up a new field of reserve growth. Production: Deep and ultra-deep layers became a new driving force for production growth; a number of large deep-layer oil and gas fields were developed efficiently; continental shale oil brought a revolution in the oil industry and reached a new high in production, indicating a good prospect for the development of unconventional oil resources in China.



Refining/chemical capacity in expansion with “increase in oil and decrease in chemical”.

Domestic oil refining capacity was on a slightly upward trend, adding 12 Mt/a in 2023. The total annual refining capacity rose to 936 million tons, ranking first in the world. Industrial concentration was higher and refinery sizes further expanded. The number of 10 Mt/a refineries nationwide rose to 36, from 35 in the previous year, amounting to 522 Mt/a in total and accounting for 55.8% of China's refining capacity. Driven by soaring demand for refined products and regulation of the market, a number of key production and operation indicators picked up significantly. In particular, crude runs reached 738 million tons, up 8.6% year-on-year; refinery utilization hit a record high at 78.9% with an increase of 5.3 percentage points; gasoline, diesel and kerosene production amounted to 444 million tons, up 11.1% year-on-year; the refinery margin increased by RMB 70 to around RMB 360 per ton.

In 2023, China's petrochemical feedstock capacity for ethylene, propylene and para-xylene and three primary synthetic materials ramped up for the fifth consecutive year, all ranking first in the world. Ethylene capacity totaled 51.95 Mt/a, adding 2.42 Mt/a. Propylene capacity added 7.29 Mt/a to reach 63.34 Mt/a. Para-xylene capacity added 5.7 Mt/a to reach 42.1 Mt/a. The capacity of synthetic resin increased 13.42 million Mt/a to 115 Mt/a; synthetic rubber capacity increased 350,000 tons/year to 7.2 Mt/a; Synthetic fiber capacity added 5.43 Mt/a. The rapid expansion of production capacity led to the overall loose supply and demand of most chemical products, with little profits for ethylene, propylene and synthetic resin and even losses for certain products.

Natural gas consumption recovered with fast growing supply.

In 2023, domestic natural gas consumption grew rapidly year-on-year, with the recovery of the economy, the falling LNG prices, and the demand for gas power supplements. Domestic natural gas production increased by 5.7% (12.6 bcm) to 235.3 bcm, a seven-year rise of more than 10 bcm. Natural gas imports also grew by 9.5% to 165.6 bcm. China's LNG receiving capacity reached 116 Mt/a, exceeding 100 Mt/a for the first time.

Energy consumption continued to increase as the green and low-carbon transition gathered pace.

In 2023, China's primary energy consumption totaled 5.72 billion tons of standard coal, up 5.7% year-on-year. In particular, non-fossil energy accounted for 17.7% of total energy consumption, up by 0.2 percentage points from the previous year. Driven by various factors such as policy, market and technology, new energies, e.g., wind and solar, grew significantly, marking a leading position in the world in terms of capacity, technology and cost. In 2023, photovoltaic capacity added 216.88 million kilowatts, up 148.1% year-on-year. Wind power capacity added 75.9 million kilowatts, up 101.7% year-on-year.

In 2023, China's energy consumption per unit of GDP was 0.45 tons of standard coal/RMB 10,000, basically flat from the previous year. China's carbon dioxide emissions per unit of GDP had fell significantly by 34.4% since 2012, and in 2022 the carbon emission intensity was significantly reduced by more than 51% from 2005; the forest coverage reached 24.02% in the country.

Source: *2023 Report on Oil and Gas Industry Development* by CNPC ETRI

Environment and Society

At CNPC, we have been committed to the principles of "people-oriented, quality-utmost, safety-first, and environment-prioritized" to achieve the goal of "zero accident, zero injury, zero pollution and zero defect". We pay close attention to people's livelihood and social progress and strive for harmonious relationship between energy industry and the environment, as well as between enterprise and the community.

Safe Operation

In line with the Company's overall reform and development plan, the 2023 Major Hazard Screening Program, Year of Safety Management Enhancement Program and the Special Campaign on Hazardous Chemicals were implemented to address tough issues in relation to well control, gas storage and key construction projects. Throughout the year, CNPC maintained a sound profile regarding safe production.

Management system

Measures for Production Safety Accident Management; *Management Measures for the Withdrawal and Use of Safe Production Fund*; *Measures for HSE Hazard Identification, Treatment and Monitoring*; and *Measures for Contractor Safety Monitoring and Management* were introduced to further improve the production safety management system.

Risk management

The Company strengthened risk assessment, issued timely warnings and risk reminders on typical accidents, seasonal weather changes, holidays and other special time periods, and oversaw the implementation of preventive measures. In 2023, the Company continued to conduct safety audits on key enterprises in key areas, and all problems identified in this process were rectified.

Emergency response capabilities

Benchmarking of in-house fire brigade was conducted in accordance with the national guidance to bolster emergency response capabilities. A number of emergency response drills were conducted and our ability to respond to emergencies continued to improve.

Supply chain safety management

The selection of strategic contractors was strengthened. Training courses for key employees from contractors were provided and the "zero tolerance" policy against incompetent contractors was implemented.

Environmental Protection

At CNPC, we make great efforts to reduce adverse impact on the environment and climate. We continued to improve resource utilization, promote green development, pollution control, energy conservation and emission reduction, so as to achieve the goals in the battle against pollution, and protect our blue skies, clear waters, and clean lands.

Environmental protection conference

The Company held a corporate-level environmental protection conference to review the achievements in green and low-carbon development and environmental protection since the 18th CPC National Congress, analyzed the current situation and existing problems, and identified the key tasks ahead.

Environmental protection management

The Management Measures for Online Pollution Source Monitoring System and *the 2023 Environmental Protection Technology Catalogue* were issued to ensure environmental compliance.

Environmental hazard management and risk control

Ecological and environmental hazards were identified and addressed on an ongoing basis. A hierarchical and categorized system to address environmental risks was implemented and our ability to prevent and control such risks further improved. In 2023, no major environmental incidents were reported.

Pollutant discharge standards

We strengthened the system of automated monitoring, early warning and forecasting, and made sure all wastewater and waste gas met the standards on major pollutants before discharged. In 2023, a network of 860 online pollution source monitoring systems was put in place, enabling full coverage of key pollution sources nationwide.

Soil pollution prevention and control

The Company identified key subsidiaries for soil pollution supervision and management, and launched major campaigns to minimize soil pollution from the source. Pilot projects were implemented to prevent and control soil pollution in the production process.

Environment protection in key river basins

Ecological and environmental hazards in key river basins were identified and addressed. The plans for protecting the ecological environment in the Yellow River Basin and the Yangtze River Economic Belt were improved. 111 pollution control projects were completed in the Yellow River Basin and the Yangtze River Economic Belt.

Management of key pollutants

Chemical oxygen demand, ammonia nitrogen, nitrogen oxides, and volatile organic compounds from refining and petrochemical operations released into the air were reduced by 0.33%, 9.16%, 2.93% and 6.25% respectively year-on-year.

Sustainable use of resources

Great importance was attached to the protection and rational utilization of resources to minimize resource consumption. We reduced energy consumption by 0.86 million tons of coal equivalent, water consumption by 8.54 million cubic meters throughout the year.

Conservation of biodiversity

The Company actively engages in biodiversity conservation and fully integrated such an endeavor into its business operations. *The CNPC Guidance on OECMs for Biodiversity Conservation* was issued, setting out the conditions, application procedures and supporting measures for building other effective area-based conservation measures (OECMs). The first three OECMs were launched at Daqing Oilfield and Huabei Oilfield.

Climate Change

Actions were taken in line with the *Paris Agreement* and the Chinese government's goals on carbon peaking and carbon neutrality. We doubled down on efforts to fulfill the Green Business Leader Initiative, and continued to improve the standard system of green business to enhance the management of carbon emissions and promote green and low-carbon transition.

In 2023, the Company was awarded Low-carbon Model by China News Weekly for the 12th consecutive year. It also received the title of "Top Runner of the Year for Industrial Carbon Peaking" from China Federation of Industrial Economics.

Carbon Emission Management

At CNPC, we continue to strengthen the management system for carbon emissions control, implement measures for carbon intensity-based emission reduction, participate in the National Carbon Trading Market actively and deepen cooperation on climate change in the global oil and gas industry to promote green and low-carbon transition. In 2023, the Company's domestic and overseas GHG emissions totaled 188 million tons, and methane emission intensity decreased by more than 10% year-on-year.

In 2023, the Company

- Participated in the formulation of *China's Methane Emissions Reduction Action Plan*.
- Implemented methane monitoring pilot projects, using satellite-based remote sensors to identify methane emissions of oil & gas fields.
- Built a data platform for methane leakage monitoring, promoted methane leakage detection and repair, and implemented methane emission reduction measures such as vent gas collection, flaring reduction and site retrofitting etc. to reduce methane emissions.
- Continued to improve energy efficiency, shift towards cleaner alternatives and minimize fuel consumption; promoted green technologies; reduced carbon emissions in production.

The Company supported and engaged in a number of programs and initiatives for GHG emissions reduction.

- The *Paris Agreement*
- *United Nations Framework Convention on Climate Change*
- *China's National Climate Change Program*
- *Action Plan for Carbon Dioxide Peaking Before 2030*
- Carbon Technology Strategic Alliance for Carbon Capture, Utilization and Storage (CTSA-CCUS)
- Oil & Gas Climate Initiative (OGCI)
- China Oil and Gas Methane Alliance
- *China Petroleum and Chemical Industry Carbon Peak and Carbon Neutrality Pledge*
- *Aiming for Zero Methane Emissions Initiative*

Cooperation on Climate Response

As the only Chinese member of OGCI, CNPC is actively involved in international cooperation to address climate change. The Company serves as the Secretariat of China Oil and Gas Methane Alliance, to promote technical exchanges on methane emission control. The Company participated in COP28 UAE and hosted a side event on methane emissions at the China pavilion to present CNPC's action plan for reducing methane emissions as a responsible central SOE.

Accelerated clean substitution

At CNPC, we endeavor to minimize the use of fossil fuels, reduce energy intensity, optimize the energy structure and accelerate the substitution with cleaner alternatives.

Jilin Oilfield produced China's first net-zero oil

In 2023, China's first net-zero barrel of crude oil was produced by Jilin Oilfield. Net-Zero means it was produced with zero carbon emission by using clean energy technologies such as wind and solar power generation, in-wellbore heat extraction, solar thermal system and CCUS-EOR etc. instead of fossil fuels.

Since the launch of the net-zero demonstration project, Jilin Oilfield has tackled production-related carbon footprint challenges one by one. For power supply, wind farms, photovoltaic power plants and energy storage systems were built to replace grid power with clean electricity. For gas heating, geothermal, solar thermal and aerothermal energies were used in place of hot water blending in annular and trunk pipelines to reduce gas consumption. CCUS measures were taken to enable oil displacement and carbon sequestration at the same time. As a result, these measures came together to produce crude oil with zero carbon emission.

Jilin Oilfield CCUS Project

Participation in the National Carbon Emissions Trading Market

At CNPC, we actively participate in carbon trading activities through the National Carbon Emissions Trading Market and enhanced the management of carbon allowance and carbon compliance. The Company engaged in the research on carbon market expansion and the reopening of the CCER trading market to promote the development of CCER projects.

Forestry Carbon Sink

At CNPC, we actively engage in building forestry carbon sinks and NbS (Nature-based Solutions) forests to promote carbon neutrality through carbon compensation. In 2023, the Company's participation in voluntary tree planting reached 1,014,700 person-times, planting 3,905,000 trees, with the existing green space amounting to 318 million square meters. In 2023, the Junggar NbS Forest of Xinjiang Oilfield was officially unveiled. At the end of 2023, the newly planted forestry carbon sinks and NbS forests reached 17,900 *mu*. In response to the national initiative, the Company launched the Afforestation Campaign for 10,000 Well Sites, planting 901,000 trees at 2,026 well sites and stations. CNPC continued to carry out the "Plant a Tree for Carbon Neutrality" program, which raised RMB 33.63 million from 1.096 million people. Four afforestation projects were completed, including Daqing Forest, with a total area of 3,550 *mu*.

3,905,000
trees planted

the Company's participation in voluntary tree planting reached 1,014,700 person-times

Junggar NbS Forest was unveiled

On April 21, 2023, the Junggar NbS Forest, Xinjiang Oilfield's first NbS forest, was officially unveiled in its afforestation and emission reduction zone. This is the second NbS forest of CNPC, following the first one named Ma'anshan at Daqing Oilfield. The Company received the Carbon Neutrality Certification from Tianjin Climate Exchange to recognize a total of 118,000 trees planted in the Junggar NbS Forest, which expanded its carbon sink assets.

318
million square meters

the existing green space

Ma'anshan Carbon Neutral Forest, Daqing Oilfield

Social Responsibility

At CNPC, we maintain a strong commitment to aligning our business growth with the sustainable development of the localities where we operate, with a focus on bolstering people's livelihood and social progress, supporting community agenda in various forms, and promoting harmonious socio-economic development of local communities.

Demonstration Projects for Rural Revitalization through Tourism

Wutongshan, CNPC's rural tourism project in Xishui, Guizhou, is a sustainability demonstration project seeking to reduce poverty with tourism. It upholds the overall rural revitalization strategy of "thriving businesses, pleasant living environments, social etiquette and civility, effective governance, and prosperity". In 2017, CNPC joined hands with China Foundation for Poverty Alleviation and Xishui County Party Committee and County Government to launch the project. Leveraging the beautiful landscape resources in Tianba Village, Xishui County, the high-end homestay accommodation brand Wutongshan was created to offer a rural tourism experience combining home stay, countryside lifestyle and nature-inspired art education. After its launch, the project delivered handsome dividends to more than 600 villagers in Tianba Village, created jobs for more than 30 households, increased the sales of agricultural products and improved the income of the local farmers.

Rural Revitalization

At CNPC, in response to the United Nations' 2030 Agenda for Sustainable Development and the Chinese government's guidance on promoting rural revitalization, we leverage our resources and cater to local needs and conditions in the assisted areas to facilitate the endogenous development of the local economy, and support the development in formerly impoverished areas and the comprehensive revitalization of rural areas. In 2023, the Company earmarked RMB 659 million for rural revitalization and public welfare and implemented 1,310 assistance projects.

- The Company provided RMB 200 million for 95 paired assistance projects.
- Sales of local products purchased and sold under the assistance programs amounted to RMB 1.76 billion.
- A total of RMB 35 million was provided to improve the living environment in Jimunai, Nilek, Balikun and Qinghe counties in Xinjiang, as well as Xishui County in Guizhou.
- 34 training sessions were carried out offline, covering 128,000 person-times.

RMB 659 million

for rural revitalization and public welfare

1,310

assistance projects

Education

At CNPC, we continue to support education through various student aid programs, including scholarships and grants. We explore new ways to raise awareness on education equality and help students from poverty-stricken areas get access to education and realize their dreams and values. The Company earmarked RMB 65.31 million to support education in 2023.

In 2023

- CNPC Scholarships provided RMB 4.47 million to 685 outstanding students.
- The Xuhang Scholarship Program provided RMB 11 million to 3,313 students from 24 high schools in 8 provinces.

Promoting Local Development

At CNPC, we adhere to the principle of open-up and cooperation for mutual benefit and keep expanding our joint-venture cooperation with local partners across the upstream, midstream and downstream sectors. During the process of developing and running our projects, we help foster local suppliers and contractors, thereby creating jobs and driving business growth in related sectors to achieve the city-based and industry-driven "city-industry integration".

The 10th anniversary of the natural gas project in southern Xinjiang

On August 19, 2013, the Happiness Pipeline, a 3,040 km natural gas pipeline surrounding the Tarim Basin, was completed to deliver natural gas to local households. Since then, people of various ethnic groups in 42 counties and 46 regimental farms have experienced a shift from the "sooted pot" way of cooking to an ecological, low-carbon and environmentally friendly lifestyle.

Over the past 10 years, lots of leading companies in southern Xinjiang came onboard this Economy Express of clean energy to promote industry-based revitalization, heading for the future of green and low-carbon development, and contributing to the Chinese path to modernization.

Contributions to the Development of Oversea Communities

At CNPC, we respect local cultures and customs where we operate, and are committed to building long-term and stable cooperative relationships with the host countries. Striving to be a good corporate citizen, we integrate our development into local socioeconomic growth and actively create socioeconomic value to promote local development and prosperity.

Managing Community Impact

At CNPC, we seek to exert a positive influence on community development through responsible operations. This is not only reflected in creating jobs, paying taxes, and providing business opportunities for local suppliers, but also in protecting the environment, safeguarding human rights of local residents and supporting public welfare.

Enhancing Communication with Local Communities

At CNPC, we set up liaison points for environmental protection and community relations in many overseas operations to strengthen communication and coordination with local governments, NGOs and community representatives in a variety of forms.

Open Day to Boost Communication with Local Communities

PetroChina Halfaya FZ-LLC hosts Open Day events from time to time. They invite local government officials, social organizations, media, community members and student groups, providing an opportunity to get to know this large modern oilfield and better understand how it is operated and managed. Visitors attending the Open Day events have expressed their appreciation for the achievements of the oilfield as well as for its contribution to local economic development and livelihood enhancement. As of now, Halfaya Company has become an education base for the local youth from colleges, secondary schools and primary schools to learn about the petroleum industry. Many college students have voiced their wish to work at the oilfield and become part of the big CNPC family.

Participating in Community Welfare Activities

At CNPC, we play an active role in helping local people improve their living conditions by supporting education, healthcare and environmental protection to facilitate sustainable development of the local communities.

In 2023, we carried out a wide range of community outreach activities overseas

Kazakhstan	A total of 27 donations were carried out in Kyzylorda and Almaty, to support public welfare projects including charity, education, art, and sports, with a total value of USD 970,000.
Iraq	Three projects were completed and handed over to the local government, including a substation, a lighting system and a power grid upgrade. Three other projects are under construction, including a painted road, two bridges and a road repair. Benefiting about 150,000 people, these public welfare projects had a total expenditure of USD 2.8 million in 2023.
Chad	A total of 129 water wells were built for the local community to provide reliable access to safe drinking water for 40,000 people from 47 villages (tribes) around the oilfield. The Company also donated school supplies and medicine to nearby schools and neighborhoods.
Peru	The Company engaged in a number of community development projects, including school renovation and book donation, afforestation and land restoration, as well as cultural events such as soccer games and concerts. In early 2023, the Company helped El Niño-affected communities restore roads, and provided them with safe drinking water and quarantine equipment.
Myanmar	A working group on social responsibility was set up to consult all stakeholders for suggestions, determine priorities in community development, and make sound project planning together. We donate funds and medical equipment, support education, repair welfare facilities and build infrastructure etc. By the end of 2023, we have conducted 327 public welfare programs in communities in Rakhine, Magwe, Mandalay and Shan.

Promoting Localization

At CNPC, we embrace the localization strategy, with a preference for local products and services, so as to create opportunities for local contractors, suppliers and service providers to participate in our projects. We also support the development of SMEs and community-based start-ups, creating employment opportunities whenever we can.

Human Resources

Upholding the people-first philosophy, we attach great importance to employees' legal rights and interests, build an effective platform for employees' career development, deepen the reform of the talent development system, work to build a competent workforce and maximize the value of talents. We pay close attention to the physical and mental health of employees, care about their lives, and ensure all employees can grow along with the Company while benefiting from the Company's development.

Employees' Rights and Interests

Strictly complying with international conventions on labor and human rights, we respect and safeguard employees' legal rights and interests, and advocate employment policies focused on equality and non-discrimination. We continue to perfect the compensation and benefits system, and improve workplace democracy, so as to create a fair and harmonious working environment for employees.

100%

labor contract coverage

100%

social insurance coverage

Employment Policies

We always value and safeguard the lawful rights and interests of our employees in line with the "people-first" principle. 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 for all employees regardless of nationality, race, gender, religion or cultural background. We resolutely prohibit child labor and forced labor. We endeavor to create jobs in minority areas and poverty-stricken areas. We uphold the rights and interests of women and ensure that female employees have equal remuneration, benefits and career development opportunities. A hundred percent of our employees are covered by labor contract and social insurance in line with the Social Insurance Law of the People's Republic of China.

Remuneration and Incentives

At CNPC, we continue to deepen the market-oriented salary reform and improve the mechanism for differentiated compensations, focusing on the tasks in reform and innovation, quality improvement and efficiency enhancement, and talent-driven corporate development. We continue to perfect a gross payroll coordination mechanism for merit-based compensation and performance-driven benchmarking and salary adjustments; optimize the incentive schemes to encourage scientific and technological innovation and introduce high-level talents; streamline salary structure, with priorities given to front-line workers, key and demanding positions and technical professionals; and increase incentives for high-end management talents, key R&D talents, and high-skilled talents.

Employee Engagement

At CNPC, we fully respect the democratic and legitimate rights and interests of employees, values the role of our employees in democratic management, democratic participation and democratic supervision. A democratic management system and an open bulletin system based on the labor union and workers' congress are in place to ensure employees' right to know, to participate, to express and to supervise. By clarifying the various powers, organizational systems, and work systems of the workers' congress, we will further standardize the content, procedures, and forms of the disclosure.

The Company has established various channels of communication with employees, adhering to democratic procedures, and conducting multi-level communication and exchange through employee representative groups and online interactions, encouraging employees to participate in the production and operation management of the Company.

Career Development Platform

At CNPC, we understand the needs for career development of our employees at different stages, stress the importance of career planning, promote innovation in the environment and mechanism for talent development and provide the necessary resources to support talent development. All this provides a great platform for employee self-realization.

Education and Training

At CNPC, based on the modern corporate training practices and focusing on building a world-class integrated international energy enterprise, we work to build a competent workforce and build up the ability to foster people with talent in accordance with the requirements for "setting standards, building systems and creating value". We continue to introduce innovative training methods and offer a wide range of differentiated employee training programs to unleash the potential of human resources through an "Internet + training" approach. We strive for positive interaction between employee development and business growth to provide the human resources and intellectual resources needed to build a world-class enterprise. In 2023, the Company spent RMB 2.84 billion in employee training, covering 53,000 training projects.

In 2023, focusing on the training of high-quality professional management personnel, the Company pushed ahead with the standardized training system for management positions and formulated the *Certification Management Measures on Standardized Training for Management Positions (Trial)* to further standardize work standards and improve management mechanisms. For administrative positions, professional and technical positions and skilled workers, training programs for building competencies were implemented to address the talent shortage in specialized areas and weak areas, thereby achieving a comprehensive improvement in employee competencies and supporting the Company's high-quality development.

53,000 training programs were implemented in 2023

100% training coverage for front-line employees

6.512 million employees participated in training

100% training coverage for employees in high-skilled positions and key operating positions

The total training time reached **57.15** million hours

Career Development

At CNPC, we attach great importance to career planning of employees, enhance their values and support their career development. The Company continued to build up its talent strength in 2023, covering top tech talents, technological innovation teams, young tech talents and excellent engineers etc. Meanwhile, the mechanisms for job rotation, evaluation, selection/appointment, and the remuneration incentives were further optimized to provide employees with a barrier-free and well-paced career path.

Job skill competitions, in combination with on-the-job training programs, helped improve skill excellence and professionalism and facilitate the career development of front-line employees. In 2023, the Company organized 4 Class II national competitions and 12

CNPC competitions; it also hosted the drilling skills category of the Second National Vocational Skills Competition and won all the golden and silver medals.

As of the end of 2023, the Company had 257 high-level experts and 353 skilled masters and skilled experts. The Company has established 128 corporate skilled expert workshops, including 34 national skilled master workshops.

The First Digital Operation & Maintenance Skills Competition, Southwest Oil & Gas field

The Second CNPC Innovation Competition successfully concluded

On April 7, 2023, the final Young Talent Tech Creativity and Production Innovation sessions of the Second CNPC Innovation Competition was rounded off in Beijing. Daqing Oilfield's R&D project "gate-type regulating agent for dynamic control of oil-water flows in high-water-cut fields", Bohai Drilling's "addressing low efficiency in rust removal from inner walls of oil pipes" were the winners of the Young Talent Tech Creativity and Production Innovation final sessions.

This competition symbolizes the Company's commitment to implementing the innovation-driven development strategy at a faster pace, giving full play to the technology and skill competencies of high-skilled talents and promoting the high-quality development in line with the national guidance on innovation-driven development.

Talent-Driven Corporate Development

The Company implemented the Talent-Driven Corporate Development Program – Year of Enhancement comprehensively in 2023, formulated the *Guidelines on Implementation of National Talent Development Plan for the 14th Five-Year Plan Period* and issued the *Talent-Driven Corporate Development Casebook*. An annual assessment of the Talent-Driven Corporate Development Program was conducted; the conference for review and commendation of the Advancement Year and launch of the Enhancement Year was held; the annual action plan and progress chart were formulated to ensure the fulfillment of key tasks under the Talent-Driven Corporate Development Program.

CNPC National Graduate College for Engineers was inaugurated

On March 28, 2023, the inauguration of CNPC National Graduate College for Engineers was held in Beijing. Dai Houliang, Chairman of CNPC, attended the ceremony. According to Dai, CNPC will leverage its financial and intellectual resources and work closely with colleges and universities to build, use and promote the development of the Graduate College for Engineers effectively as part of CNPC's ongoing contribution to building China into a great modern socialist country.

The Young Tech Talent Program continued to develop. There were two new academicians coopted in 2023, bringing the total number of academicians to 24. One expert and one team received the first "National Engineer Award"; CNPC National Graduate College for Engineers was established, and the onboarding program for the first group of employees holding a master's or doctorate degree in engineering was completed. The work plan for high-skilled talents further advanced. The Petroleum Master Program used an "engineer + technician" approach to train more than 2,700 inter-disciplinary participants.

Localization and Diversity

At CNPC, we embrace a culture of respect, openness and inclusiveness and take a profession-based and market-driven approach to local employment. We continue to improve our HR procedures for recruitment, employment, performance review and reward/punishment under the applicable laws and regulations of the host country. Meanwhile, we encourage innovation and best practices in the management of locally hired employees, and attract and retain top talents from the local community by providing them with a career development platform.

Promoting Local Employment

83.29%

The share of international and local employees in the Company's total overseas employees

At CNPC, we create job opportunities, employ and train local people, and promote local employees to management positions. Our overseas operations are hiring professional talents in E&P, refining and chemicals, pipeline operation, international trade, finance, accounting and human resources management etc. In 2023, international employees and local employees accounted for 83.29% of the Company's overseas employees.

Youth Training Program in Iraq

On May 11, 2023, PetroChina Halfaya FZ-LLC launched the Fourth Youth Training Program in Iraq. 151 local college graduates received training for mechanical engineers, instrumentation engineers, reservoir engineers or electrical engineers in the oil and gas industry through an 18-month training program.

In response to the Belt and Road Initiative, PetroChina Halfaya FZ-LLC's highly acclaimed training program has trained more than 260 local young people in recent years to promote youth employment in the local community and support the talent training and capacity building strategy of Iraq's oil and gas sector.

Respecting Cultural Diversity

At CNPC, we give full accommodation to the personality, ability and background of employees, and cherish their varied talents. We take a firm stand against the employment and occupational discrimination, create a relaxing and inclusive working environment, and promote the mutual respect and understanding among employees from different ethnic groups, nationalities and cultural backgrounds.

Employee Health

At CNPC, we attach great importance to employees' health. We continue to improve working conditions and roll out a series of policies and measures to provide a favorable working environment and ensure our employees can work in good physical conditions with positive attitudes.

Occupational Health

At CNPC, we give priority to improving occupational health of our employees and scale up efforts to build a "Healthy Enterprise" and build awareness through the publicity week of the *Law of the People's Republic of China on the Prevention and Control of Occupational Diseases*. In 2023, 99.41% of our employees received occupational physical examinations, the screening rate of occupational hazard factors was 100%, and occupational health files were prepared for 100% of our employees.

99.41%

coverage in occupational physical examinations

100%

coverage in occupational hazard factors screening

100%

coverage in occupational health files

Mental Health

At CNPC, we take measures to continuously improve the employee recuperation and vacation system. We offer the overseas employee assistance program (EAP) and promote positive and healthy attitudes in our employees through psychological counseling hotline and website, as well as various forms of training on mental well-being to encourage professional fulfillment and improve the quality of life. A mental health volunteer service team is in place to provide cross-regional and organization-wide mental health counseling.

Technology and Innovation

Focusing on self-reliance in state-of-the-art technologies, we embrace innovation as the key driving force for development, promote the construction of incubators for home-grown technologies, and strengthen independent research and commercialization of core technologies to support high-quality development.

Technological Innovation System

At CNPC, aiming at technological self-reliance and self-strengthening at higher levels and emphasizing the ability of independent innovation, we continue to deepen the reform of the framework for innovation governance and strengthen top-level design and overall planning to improve our technological innovation management system. Technology platform programs make further headway. The CNPC-led national key laboratory on green development of continental shale oil was approved for construction. The national key laboratory on deep oil and gas resources in partnership with China University of Petroleum (East China) was also approved. As of the end of 2023, the Company has more than 60,000 R&D personnel and 16 national innovation bases, including national key laboratories on enhanced oil recovery, oil and gas drilling, production, and transportation equipment, as well as multi-resource collaborative green development of continental shale oil.

Reform of Innovation Governance Framework

- Improve the top-level design for innovation governance
- Improve the three-tiered system for technological innovation management
- Maximize the role of Science and Technology Committee
- Build world-class research institutes and innovation-oriented enterprises
- Issue the *Management Measures for Innovation-oriented Enterprises* and introduce a mechanism of regular evaluation and dynamic management

Research personnel at work

Major R&D Achievements

At CNPC, we actively implement an innovation-driven strategy, focusing on major bottlenecks in key areas. Debottlenecking in core technologies and forward-looking, basic and strategic research are strengthened and commercialization of new technologies for productivity gains is accelerated, which achieved fruitful results in E&P, refining, petrochemicals and new materials, as well as low-carbon and new energies, as represented by the Top 10 Technological Achievements.

Top 10 Technological Achievements in 2023

Clay shale oil enrichment theory and key technical breakthroughs for the development of Gulong Shale Oil Demonstration Zone

The Gulong shale is a typical mudstone shale characterized by the highest clay content, lowest hardness and smallest porosity in the world, with no successful exploration and development examples reported at home and abroad. Daqing Oilfield's original in-situ self-sealing and enrichment theory of shale oil has revealed the cross-scale exploitation mechanism of nanoscale reservoirs. Its novel double-sweet-spot identification technique for high clay shale oil has turned the traditional "out-of-bounds area" into a new frontier of production replacement, increasing single-well production and EUR by three times and proving 204 million tons of shale reserves. As a national demonstration zone, it is expected to become the largest continental shale production base in China.

Deep coal-bed methane enrichment theory and key technological innovation for industrial development

It reveals the unique occurrence characteristics and production mechanism of deep coal-bed methane with "high gas content, high saturation and rich free gas" and forms an accumulation and enrichment model featuring "extensive development, rich hydrocarbon generation, self-sealing, strong preservation and micro-adjustment". The Company developed "five-in-one" differentiated well pattern design, targeted large-scale volume fracturing technology to form extensive fracture networks, and full life cycle drainage techniques, which tackled the world class challenge of commercial development of deep coal-bed methane, and increased single-well production significantly. It has supported CNPC to add a proven reserve of over 200 billion cubic meters in the eastern margin of Ordos Basin and build an annual capacity of 1.5 billion cubic meters. As of now, the project has been approved as a national demonstration base for its pioneering role.

Amine deep regeneration technology for high-efficiency treatment of sulfurous natural gas

Compared to similar technologies overseas, CNPC's innovative deep-regeneration technology for amine solution can remove 8 times as many types of metamorphic byproducts and reduce the loss rate of active agent from 98% to less than 2%. Challenges in ensuring the stable operation of natural gas purification plants, such as the deterioration of desulfurization performance due to metamorphic amine and the foaming related production disruption, are solved for the first time in the world. Such a breakthrough brought the amine deep-regeneration technology to the next level globally. This technology has supported the safe and efficient treatment of 27.9 billion cubic meters of sulfurous natural gas since it was applied at Southwest Oil and Gas Field and Tarim Oilfield.

A technology package for solution-based production of high-performance ethylene-octene copolymerized elastomer (POE)

POE is essential for green energy and high-end manufacturing. Focusing on the core needs of the industry and leveraging its R&D, design, engineering and production resources, CNPC has solved many common technical challenges, such as high-temperature, high-activity metallocene catalyst, mass and heat transfer and devolatilization in high-viscosity systems, as well as oligomer clogging in 1-octene production, which created a complete production process from monomer 1-octene to POE products, breaking foreign technical barriers.

China's first technology package for PETG copolyester

PETG copolyester is an advanced chemical material of national priority. CNPC has developed 5 series of 48 key technologies, a full set of 10 PETG products and the complete technology package for PETG production. We built China's first 100,000 t/a PETG production plant, and became the third company in the world and the first in China to produce a full range of PETG products, disrupting the dominance of American and Korean manufacturers. Leading the high-quality development of China's polyester industry, this technology was included in the technological innovation achievements of China's central SOEs and CNPC's key proprietary innovations in 2022.

A novel technology for high-performance SSBR for tires

CNPC's proprietary technology for the production of high-performance polymerized, end-functionalized, high-styrene

and high-Mooney-viscosity SSBRs has received 21 invention patents. The technology is used to produce 4 SSBR products and adopted by a number of well-known tire enterprises to enable performance improvement in rolling resistance, wet skid resistance and wear resistance that meet the requirements of A/B under the EU labeling scheme. Such a breakthrough ensures technological self-reliance in key basic materials for tires and supports the industrial upgrading and high-quality development of domestic tire enterprises.

Intelligent seismic operation system for high-efficiency seismic acquisition

CNPC has launched GISeis, the industry's first intelligent seismic operation system, with features such as intelligent navigation of vibroseis operation, digitalized active safety, two-tier ad hoc network for real-time data interaction and AI-driven management based on total-element big data analysis. This system reshapes geophysical exploration and boosts efficiency by more than 15%. The technology heralds an era of intelligent seismic acquisition and improves the core competitiveness of CNPC in the field of petroleum geophysical exploration.

Domestic substitution of through-bit imaging and logging equipment and processing software for horizontal wells

CNPC has developed its own through-bit imaging and logging equipment set and processing software for horizontal wells, tackling challenges in relation to high-reliability and temperature and pressure resistance in narrow space, intelligent and controllable pumping and recovery, and 3D phase-controlled heterogeneous reservoir modeling etc. This achievement improves data acquisition in horizontal well logging and integrated geological evaluation for unconventional oil and gas resources. As an import substitution of foreign equipment and software, it saves more than RMB 200 million. Two sets of such equipment have been sold to Halliburton. The temperature and pressure parameters of the equipment reach 175 °C and 140 mpa respectively, and the continuous working time is not less than 20 hours. The equipment and software have been used 1,100 well-times in logging operation, with time efficiency rising by 53% and sweet spot identification accuracy increased to 90%. They play an important role in supporting the large-scale and cost-effective development of five national shale oil demonstration zones in Longdong, Changqing Oilfield and Gulong, Daqing Oilfield etc.

A major breakthrough in passive magnetic ranging technology

Passive magnetic ranging is essential for drilling emergency rescue wells and plugging underground gas storage. China has long been dependent on imported tools in this area. Through years of continuous efforts, CNPC has innovated a high-precision magnetic positioning technique to locate the borehole of target wells, and developed an engineering software integrating magnetic signal acquisition, positioning calculation, as well as trajectory measurement and control. The Company has also launched four series magnetic ranging tools with temperature and pressure parameters increased to 175 °C and 140 mpa respectively. Such a breakthrough marks the shift from active magnetic ranging to passive magnetic ranging, and reduces the total error in directional trajectory measurement from meter-level to centimeter-level.

A technology package for 1,000-cubic meter flexible-load, low-energy-consumption hydrogen production based on alkaline water electrolysis

CNPC's technology package for 1,000-cubic meter flexible-load, low-energy-consumption hydrogen production based on alkaline water electrolysis has been applied successfully in one of its petrochemical parks in China, marking a breakthrough in electrolytic hydrogen production. As the first of its kind to be designed in accordance with petrochemical standards, the system uses electrodes with a 3D multi-element alloy skeleton to enable operating reliability over a wide operating window from 20%–120% of nominal capacity. We also achieved the breakthrough in lye flow field structure and the optimization of flow channel, which enables low-energy-consumption operation at 4.37 KWH/standard cubic meter. An intelligent control system was developed to realize unmanned and intelligent production process. These technologies form a complete proprietary process package with DC power consumption and load adjustment capacity indicators reaching advanced levels internationally.

E&P

Innovative geological theories of multistage hydrocarbon generation and accumulation in superimposed basins provided a theoretical basis for exploring 10,000-meter-deep oil and gas resources and supported the deployment of 10,000-meter-deep wells in Tarim Basin and Sichuan Basin. Based on the theories of reservoir/reserve controlling in Cratonic strike-slip faults, the "faults + facies + fissures" three-element reservoir formation and the "source rocks-faults-reservoirs-preservation" four-element coupled theoretical model for reservoir controlling were established to support the E&P breakthroughs in Fuman and central Sichuan. The proprietary clay shale oil enrichment theory and high-efficiency E&P techniques supported the development of shale oil demonstration zones. The deep coal-bed methane enrichment theory and exploitation techniques helped achieve a major breakthrough in deep coal-bed methane E&P in the eastern margin of Ordos Basin. EOR techniques such as finely-controlled water flooding, chemical compound flooding ensured the stable production and high-efficiency development in Daqing and other mature oilfields. The research and testing of the intelligent layered injection-production engineering technology led to an integrated technological system for intelligent injection-production in oil reservoir engineering. The amine deep-regeneration technology supported the high-efficiency treatment of sulfurous natural gas.

Refining, Chemicals & New Materials

CNPC's proprietary technology package for PETG copolyester was applied to build a 100,000 t/a production plant, which supports the high-quality development of the polyester industry. A complex raw material to catalytic pyrolysis (CTP) catalyst was developed to support the Company's efforts in reducing refined products production and increasing new chemicals production. The technology package for high-performance ethylene-octene copolymerized elastomer (POE) by a solution process was put into use to support the transformation and upgrading of the industry. The 1-octene / 1-hexene process package completed commercial tests with performance indicators of its products comparable to imported ones. R&D on the new process for high-carbon α-olefin copolymerized polyethylene made steady headway to provide a solid foundation for the development and commercialization of high-end polyethylene products. A novel technology for producing high-performance SSBR for tires was developed and put into use to ensure technological self-reliance in key materials for tires. CNPC's carboxyl nitrile butadiene rubber technology has already begun commercial production.

Oilfield Services

A 12,000-meter automated drilling rig was developed to support deep-Earth scientific exploration. A rotary steerable drilling system for up to 175℃ completed maximum temperature test with results comparable to its foreign peers. The CG STEER-150 rotary steerable drilling system made a new breakthrough in commercialization. A major breakthrough was also made in passive magnetic ranging and CNPC's high-sensitivity transducer for acoustic logging showed performance comparable to foreign products. GISeis, the industry-first intelligent seismic operation management system for high-efficiency seismic acquisition, was developed, heralding a new era of intelligent seismic acquisition. Our proprietary through-drill pipe imaging and logging equipment (FITS) and processing software (CIFLog-HW) for horizontal wells was independently developed, putting an end to the long-term dependence on imported tools.

Low-carbon & New Energies

The large-scale demonstration projects based on full-industry chain CCUS key technologies made great progress. The CO_2 injection capacity reached 1.59 Mt/a in 2023, supporting the all-round quality and efficiency improvement of the Company's CCUS demonstration projects. A proprietary 1,000m^3 system for hydrogen production using alkaline water electrolysis was launched in a commercial demonstration project. The demonstration and application of core technologies for the exploration and comprehensive utilization of geothermal resources made significant progress to support the business expansion in the geothermal heating market.

"China's first 10,000-meter borehole for deep-Earth exploration starts drilling" selected among 2023 Top Ten Scientific and Technological Developments news stories in China

On May 30, 2023, CNPC's Shendi Take 1 ultra-deep well began drilling in Tarim Basin. It aims to study the geological and engineering theories at 10,000-meter ultradeep levels, marking a major breakthrough in China's deep-Earth exploration technologies and heralding the "10,000-meter era" of our drilling capability.

CNPC developed a series of key equipment, including automated 10,000-meter drill-rod handler and 12,000-meter automated drilling rig, to provide equipment and technical support for the 10,000-meter deep-Earth scientific exploration.

Shendi Take 1 Well

Digital Transformation and Intelligent Operation

At CNPC, digital transformation is a strategic measure to promote the modernization of corporate governance system and governance capabilities. The Digital Intelligence Research Institute was set up. *The Guidelines for Digital Transformation* have been released, leveraging digital technologies such as cloud computing, Internet of Things, 5G, big data and artificial intelligence to support a digital, network-based and intelligent approach to business development. We promote in-depth integration of digital technologies into our products, services and processes along the oil and gas value chains, to facilitate a shift from the capacity-driven model to the innovation-driven model and create a new momentum and a strong growth engine for high-quality development.

Goals and Progress in Digital Transformation and Intelligent Operation

Mainline	Annual Progress
Business Development	• The construction of production and operation platform is advancing robustly; production sites are undergoing a digital transition; production and operation processes are becoming more visible, controllable and manageable to enable total-element, total-process real-time perception, dynamic analysis, intelligent control and adaptive optimization. • The optimization of oil and gas value chains delivered remarkable results in coordinated management of market forecast, plan optimization, profit estimation, and comprehensive analysis to support the Company's production and operation decision-making. • *The Guidelines for Digital Transformation* was released, covering standards for business scenario design, data, cloud computing resource requirements, production private network, network security, and Internet of Things, as well as setting forth the path and schedule for digital transformation. • Intelligent Oil and Gas Fields: A unified template for digital transformation in eight business areas, e.g., exploration, production and oilfield services, was formulated. Tarim Oilfield completed a pilot project to achieve downsizing and efficiency improvement at production sites, coordinated operation management from various points, as well as knowledge sharing and joint studies; Southwest Oil and Gas Field created three integrated collaborative operation environments and introduced new business management models in areas like well engineering and gas production. • Intelligent Refining & Chemicals: The *Technical Guidelines for Digital Transformation and Intelligent Operation of Refining and Chemicals Business* was formulated. We adopted the Intelligent Refining & Chemicals program that enhanced risk mitigation, accuracy in operation management, and dynamic optimization of production process. The Changqing ethane-to-ethylene project launched an integrated plant using 3D digital twins from design to handover, reducing the energy consumption per unit of output value (RMB 10,000) by 5%. Dushanzi Petrochemical and Guangdong Petrochemical were recognized by the Ministry of Industry and Information Technology as Intelligent Manufacturing Demonstration Factories of 2023. • Intelligent Sales & Marketing: We completed all scenario construction and continued to optimize functions for provincial and regional smart logistics scheduling, membership services, intelligent marketing, and cross-sector cooperation. • Intelligent Natural Gas Sales: We improved capabilities in relation to sales forecast, household safety check, station management etc.
Management Reform	• An integrated office automation platform is under construction. Based on the model of "platform + applications + services", we are carrying out an all-round upgrade on the comprehensive office management platform, to build six major capabilities on multi-terminal business integration, creations of visualization applications, systematic service management, intelligent utilization of data, sharing and collaboration ecosystem, as well as integrated operation and maintenance, so as to enable one-click login and integrated to-do list of 14 different office systems. • A global shared service system supporting financial shared services and HR shared services was generally set up. The financial shared services system supports unified management of accounting, statement preparation and fund settlement within China, and the HR shared services system covers six operations under three categories. • The Integrated ERP program was launched to support the optimization of the Company's resource planning system, integration of operations and finance, and coordination of business management and production, as well as to facilitate the integration of logistics flow, capital flow, information flow and value flow. Such an endeavor aims to improve the Company's ability to standardize business processes, consolidate resources and create more value.
Technology Empowerment	• Based on its four data centers, the Company continued to promote cloud-based applications and improve its cloud resources for computing capabilities and storage capabilities. • A special data governance program was implemented for data lifecycle management, as well as the co-construction, co-governance, and sharing of data. It will fully tap the value of data, improve data governance and propel the construction of data lake systems.

Kunlun Dream Cloud 4.0 was launched

In April 2023, Kunlun Digital Technology Company launched Dream Cloud 4.0, marking a key step in building an Industrial Internet platform for the oil and gas industry.

Since its R&D started in 2016, Dream Cloud has gone through four iterative upgrades and evolved into an 8-tier distributed architecture to support eight business areas including E&P and collaborative research, so as to empower the digital transformation and intelligent operation of the oil and gas industry.

Technological Exchange and Cooperation

Pursuing mutually beneficial and win-win cooperation, the Company works closely with energy companies, associations and research institutes at home and abroad to carry out S&T exchange and R&D cooperation, in a bid to promote technological progress and innovation across the industry.

Domestically

Cooperation on basic research together with Peking University, China University of Petroleum (Beijing), China University of Petroleum (East China), Southwest Petroleum University further deepened to achieve new breakthroughs and new progress in a number of areas, including deep and ultra-deep hydrocarbon generation, accumulation, reservoir formation mechanism and characterization technology, shale oil enrichment theory and evaluation technology, multivariate automatic vertical drilling equipment and technology for deeper structures, key technologies for efficient drilling in weakly consolidated hydrate reservoirs, EOR techniques for tight oil and shale oil, key supporting technology for multi-component thermal fluid process for heavy crude production, as well as catalysts for green production of specialty chemicals and R&D of relevant process etc.

Internationally

As a member of the IEA Enhanced Oil Recovery technical collaboration program (IEA EOR TCP), CNPC showcased a leading position in the field of EOR technology on behalf of Chinese companies. As a senior associate member of International Gas Union (IGU), the Company actively pushes for the development and technological progress of the gas industry. CNPC also works with TotalEnergies on the Albion project, achieving headways in multi-scale, multi-disciplinary and multi-physical field reservoir characterization techniques based on carbonate rock outcrops.

Leveraging its overall strengths in upstream technologies, the Company carries out exchanges and cooperation with academic organizations such as the Society of Petroleum Engineers (SPE) and recommends a number of its industry experts to serve as technical committee members as well as speakers and presenters at major industry and academic conferences.

S&T Awards and Intellectual Properties

The Company continued to strengthen its standardization system. CNPC's proposal on behalf of China to set up a green and low-carbon working group under the ISO Technical Committee on oil and gas industries (ISO/TC67) was approved. The Company's new Energy Standard Committee and Natural Gas Marketing Standard Committee were set up to support the green and low-carbon development and business transformation and upgrading. The Company also worked harder on the revision and research of key international standards. In 2023, CNPC led the efforts to enact 3 new international standards, 2 advanced standards from overseas, and 6 relevant amendments.

Throughout the year, the Company filed **10,071** patent applications, including **263** PCT applications, and was granted **2,933** patents.

The Company received **one silver prize** and **7** excellence prizes from the 24th China Patent Award.

In 2023, the Company made it to the list of Boston Consulting Group's **50 Most Innovative Companies** for the first time.

Annual Business Review

The overall synergy of the Company's four business segments in efficient coordination, resource sharing, integrated planning and overall profitability continued to build up. Oil and gas operations were running smoothly and efficiently across the industry chain. Main production indicators improved steadily, highlighting a number of major breakthroughs and discoveries in oil and gas explorations as well as record-high domestic production. Significant breakthroughs were made in strategic planning, transformation and upgrading of the Refining, Chemicals and New Materials business. Support & Services segment played an effective role and industry-finance integration continued to deepen.

Oil, Gas & New Energies

In 2023, the Company made a range of E&P discoveries and breakthroughs, which effectively supported the steady rise in crude oil and natural gas production. The upstream landscape based on "three 100-mmt", namely 100-mmt of domestic crude production, domestic gas output, and total hydrocarbon equity production overseas, was bolstered up at home and abroad, and the at-scale development of new energies picked up pace.

Domestic Exploration and Production

The Company secured a number of major breakthroughs and discoveries in exploration, with domestic oil and gas production hitting new highs.

Exploration

Focused on risk exploration and preliminary prospecting, the Company's exploration activities in new fields and plays brought about 6 major breakthroughs and 11 important discoveries. Concentrated exploration in key regions and areas led to the identification of eight 100-million-ton and eight 100-billion-cubic-meter hydrocarbon plays. Domestically, CNPC's newly proven oil in place totaled 773.86 million tons and newly proven gas in place reached 754.2 billion cubic meters.

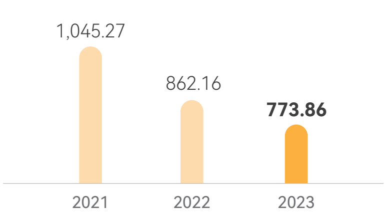
eight 100-million-ton hydrocarbon plays

eight 100-billion-cubic-meter hydrocarbon plays

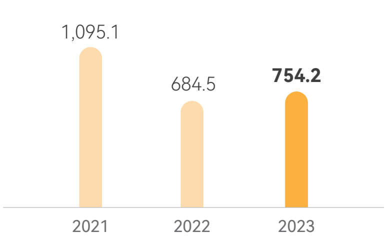
Domestically, CNPC's newly proven oil in place totaled **773.86** million tons

newly proven gas in place reached **754.2** billion cubic meters

Newly proven oil in place (mmt)



Newly proven gas in place (bcm)



Reserves and Operating Data (Domestic)

	2021	2022	**2023**
Newly proven oil in place (mmt)	1,045.27	862.16	**773.86**
Newly proven gas in place (bcm)	1,095.1	684.5	**754.2**
2D seismic (km)	7,264	8,618	**3,604**
3D seismic (sq km)	14,379	20,236	**25,078**
Exploratory wells	1,496	1,325	**1,356**
Preliminary prospecting wells	776	658	**684**
Appraisal wells	720	667	**672**

Major Discoveries and Achievements in 2023

Oil	The exploration at Tabei Uplift in Tarim Basin and Cangdong Sag in Bohai Bay Basin secured major breakthroughs. A number of 100-mmt hydrocarbon plays were identified, including the Longdong Area in Ordos Basin, Fuman Oilfield in Tarim Basin and Fengcheng Formation in the Mabei Slope of Junggar Basin.
Natural Gas	The exploration at Kuqa Depression in Tarim Basin and Permian-Triassic reef-beach zone in Sichuan Basin led to major breakthroughs. The multi-strata natural gas exploration at Maokou Formation in central Sichuan, multi-type exploration at the syncline area of Maokou Formation in southern Sichuan, exploration at the Carboniferous-Permian structure of Well Qiatan 1 in the piedmont southwestern Tarim Basin, and natural gas exploration of Well Wantan 1 in western Junggar Basin all enabled important discoveries. A number of 100-bcm gas plays were identified, including deep coal-bed methane at coal seam 8# in Ordos Basin, limestone structure of the Taiyuan Formation, and tight sandstone structure of the Benxi Formation in central and eastern Ordos Basin.
Shale Oil	The exploration at Jimsar Depression achieved an important discovery and strategic breakthroughs were made in the exploration at Gulong Sag in Daqing Oilfield and Cangdong Sag in Dagang Oilfield.
Shale Gas	The deep shale gas exploration at Cambrian Qiongzhusi Formation in Sichuan Basin led to an important discovery.

Oil and Gas Production

Domestically, the Company produced 105.8 million tons of crude oil and 152.9 billion cubic meters of natural gas, up by 0.80 million tons and 7.45 billion cubic meters year-on-year respectively. The total petroleum production hit a record high of 227.64 million tons of oil equivalent, up by 6.74 million tons year-on-year.

Domestic oil and gas production in total
227.64 million tons of oil equivalent

Domestic crude production
105.8 million tons

Domestic natural gas production
152.9 billion cubic meters

Development of Key Oil and Gas Fields

The Company achieved steady output growth in major domestic oil and gas fields by strengthening the coordination of production, transportation, marketing and storage activities. In 2023, oil and gas production of Chanqing Oilfield was on the rise and stood above 66 million tons of oil equivalent. Daqing Oilfield continued to maintain crude output at around 30 million tons. Tarim Oilfield produced more than 33 million tons of oil equivalent with steady growth. Natural gas production at Southwest Oil and Gas Field reached a new level, hitting 40 billion cubic meters. Xinjiang Oilfield achieved steady growth in production by strengthening the management of mature fields and production ramp-up in new blocks. Liaohe Oilfield boosted its E&P efforts, and saw production increase versus the previous year.

Stable Production from Mature Fields

CNPC introduced a campaign to turn mature oil and gas fields into the ballast of its overall production. Following a "5-Focus" technical route, it strives to build high-efficiency injection/production systems for various reservoirs, work on comprehensive transformation of development systems, and carry out significant cost cutting. The Company aims to form a sound development order, and build an integrated oilfield development system combining fundamental concepts, technical management, talent teams, as well as standards and protocols, so as to promote the transition from piecemeal fixes to a holistic approach to capacity re-planning. Over the past year, CNPC reshaped its concepts and methods to revitalize mature fields and enable constant growth of oil and gas production. By debottlenecking complex wells, working on water injection wells, addressing unproductive wells, and building carbon-negative wells, the Company turned mature fields into a new "growth driver".

Production Capacity Building

As CNPC continued to improve its professional management of capacity building, relevant projects progressed as planned and key projects delivered robust results as a whole. The year 2023 saw an additional 10.445 million tons in its crude production capacity and 28.76 billion cubic meters in natural gas.

Unconventional Hydrocarbons

In line with the strategic planning of "deepening E&P in the East and accelerating E&P in the West to boost both oil and gas production and tap both conventional and unconventional resources", CNPC boosted the E&P of unconventional resources, and enhanced relevant R&D. These efforts enabled the accelerated and cost-effective development of shale oil and gas, fast expansion of tight gas reserve and production, together with strong momentum in coal-bed methane growth, supporting the speedy development of unconventional operations.

Shale oil

The shale oil capacity building project at Changqing Oilfield made steady headway. Progress was made further to build on the 1 Mt/a Qingcheng shale oil field. Two shale oil national demonstration areas in Gulong (Daqing Oilfield) and Jimsar (Xinjiang Oilfield) respectively are under construction. The Company produced 3.92 million tons of shale oil in 2023.

Tight gas

Changqing Oilfield continued to expand the scope of tight gas development while pushing ahead with production adjustment in mature fields and cost-effective capacity building in new ones. E&P activities for tight gas at Southwest Oil and Gas Field delivered early results. The Company produced 45.1 billion cubic meters of tight gas in 2023.

Shale gas

Mid-and-deep shale gas production stood above 10 billion cubic meters for four years. Deep shale gas fields in areas like Luzhou are under construction. The Company produced 14.81 billion cubic meters of shale gas in 2023.

Coal-bed methane (CBM)

Development adjustment and rolling capacity building made orderly progress at mature fields in medium and shallow structures, such as Fanzhuang and Baode. Pilot testing and mature field production tests for deep CBM gathered pace in the Ordos Basin. Capacity building at cooperation blocks such as Mabi was further enhanced. The Company produced 4.31 billion cubic meters of CBM in 2023.

Gas Storage Facilities

The Company continued to expand the capacity of existing gas storage facilities and made headways with the evaluation and building of new ones. In 2023, there were 4 capacity expansion projects for existing facilities, and 9 new gas storage projects under construction. By the end of the year, 18 gas storage facilities have been completed and put into operation.

In 2023, the total gas injection stood at 17.17 billion cubic meters, with a cumulative peak-shaving capacity of 19.60 billion cubic meters.

Domestic E&P Projects with International Partnership

The Company deepened cooperation with international partners, including Shell, TotalEnergies and Chevron, on E&P in China regarding low-permeability reservoirs, heavy oil, shallow-water reservoirs, sour gas, high-temperature and high-pressure gas reservoirs, CBM, and tight gas, steadily advancing joint E&P projects.

In 2023, the total oil and gas output of CNPC's E&P operations in China with international partnership reached a record high of 12.69 million tons of oil equivalent, including 2.32 million tons of crude oil and 13 billion cubic meters of natural gas. On December 19, 2023, annual gas output of Changqing Oilfield's South Sulige Project reached 4 billion cubic meters, marking a new milestone for CNPC's international cooperation in upstream operations. The gas production in Changbei project grew steadily. Southwest Oil and Gas Field's Chuandongbei (CDB) project also registered rapid growth in gas production.

Overseas Oil and Gas Operations

In 2023, the Company continued to bolster its global operations in Central Asia-Russia, Middle East, Africa, the Americas, and Asia Pacific, aiming to maintain 100 million tons of oil equivalent for its overseas equity production. Its exploration efforts achieved a number of major discoveries, with overseas equity output standing at 100 million tons of oil equivalent for five consecutive years. By the end of 2023, the Company had a globalized oil and gas presence in 32 countries and regions around the world.

Oil and Gas Exploration

In 2023, the Company's efficient and concentrated exploration efforts led to a number of major discoveries overseas. A major breakthrough was made in Aram, Brazil. The 100-million-ton hydrocarbon play in Chad was further confirmed. Important progress was achieved in the Amu Darya project in Turkmenistan, the Aktobe project in Kazakhstan, and the Oman project.

1-mmcm industrial gas flow at the Amu Darya River project

On October 26, 2023, Well Aga-101D of CNPC's Amu Darya natural gas project at Turkmenistan's Aguere Gas Field yielded over one million cubic meters of stable industrial gas flow during testing, producing 1.11 million cubic meters a day.

The Amu Darya Project in Turkmenistan is CNPC's largest overseas gas venture with 100% equity. Over the past 16 years, 45 gas fields have been discovered during the two phases of project development, forming six 100-bcm gas plays that produce 14 billion cubic meters annually.

Amu Darya Natural Gas Project

103.823
million tons of
oil equivalent

In 2023, the Company's overseas equity production

Oil and Gas Production

The Company adopts a project-specific decision-making approach to strengthen management throughout the project lifecycle and promote the R&D and application of new technologies. In 2023, the Company's overseas equity production totaled 103.823 million tons of oil equivalent, including 78.551 million tons of crude oil and 31.72 billion cubic meters of natural gas.

- Arrow Energy's new Harry Inlet Processing Facility (IPF) was successfully put into operation.
- A floating production storage and offloading (FPSO) vessel operating for Búzios 5 Project in Brazil became operational.
- The Mero-2 of Libra Project in Brazil started production.
- The Abu Dhabi Al Yasat Project Phase-II and the gas processing plant for the Halfaya Project in Iraq are ready to come online.
- The Niger Phase II integration project is technically ready for production.
- Phase I of LNG Canada project and the North Field Expansion project in Qatar progressed steadily.
- The Yamal LNG project also maintained stable operation.

Pipeline Construction and Operation

The Company's pipelines overseas maintained safe and stable operation. The transnational routes to northwest and southwest China delivered 22.677 million tons of crude oil and 48.86 billion cubic meters of natural gas throughout the year. The Niger-Benin Crude Pipeline and the Coastal Gas Link Pipeline (CGL) in Canada are mechanically complete and ready for production.

Refining and Chemicals

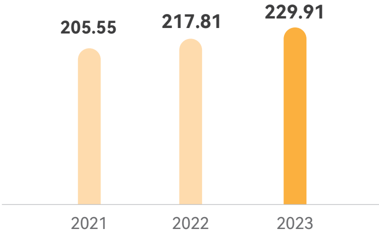
The production and operation of CNPC's refining and chemicals projects overseas remained steady and orderly, processing 36.869 million tons of crude oil throughout the year. The refinery in Chad and the Shymkent Plant in Kazakhstan achieved remarkable results in management and operation performance.

Assets Management

In 2023, the Company's overseas portfolio continued to optimize with new breakthroughs in a number of major oil and gas cooperation projects. We successfully signed the agreements for North Field Expansion project in Qatar, the operatorship transfer of West Qurna 1 oilfield, and the extension of Contract 76 of CNPC Aktobemunaygaz in Kazakhstan. The equity assignment agreement on Bokhtar Project in Tajikistan was also signed. Much progress was made on asset transfer regarding joint venture cooperation in Indonesia and Kazakhstan, further enhancing the quality of overseas assets.

Natural Gas Marketing

Domestic natural gas sales (bcm)



Driven by economic recovery and the trend of domestic and international gas prices, gas demand continued to pick up in 2023. Amid unexpected challenges posed by extreme weathers, geopolitical conflicts and uncertainties in gas imports, the Company improved its market-oriented marketing system and strengthened market research to achieve steady growth in natural gas sales. The full-year domestic sales totaled 229.91 billion cubic meters, up by 5.6% year-on-year.

229.91 billion cubic meters

The full-year domestic sales

5.6%

year-on-year increase

By the end of 2023

the Company's natural gas marketing network has covered 31 provinces, municipalities and autonomous regions across the country. Throughout the year, end-user sales totaled

54.22 billion cubic meters

up by

9.3% versus 2022

Natural Gas Market Expansion

The Company pursued market expansion in a high-quality manner, with a focus on coastal markets such as Bohai Rim, Yangtze River Delta and Pearl River Delta, and also on key sectors such as new materials, steel, building materials, ceramics and glass. We strive to propel the integration of wind and solar power with gas-fired power generation, and push for further marketization of the natural gas industry. Marketing efforts also worked on business development among end users, adding about 890,000 new end users throughout the year.

LNG

The Company further optimized its planning for LNG terminals and paced up the preliminary work on a number of LNG terminals, such as the Fujian Terminal, and Jiangsu Terminal Phase III including jetty & tank expansion projects. The distribution pipeline for the Fujian LNG Terminal has started construction. The Company worked to enable offshore LNG refueling for ships, striving to provide regular bonded refilling at Shenzhen Port. It also performed the first ever ship-to-ship bunkering for bulk carriers at the outer anchorage of Zhoushan Port in Ningbo, making it one of the few energy enterprises in the world capable of STS bunkering operations.

As of the end of 2023, the Company has two LNG terminals in Jiangsu and Tangshan respectively, with annual gasification and loading volume totaling 16.33 billion cubic meters. In 2023, the Company has 15 LNG plants in operation, with a total processing volume of 2.83 billion cubic meters.

Jiangsu LNG terminal at night

New Energies

The Company continued to build a development model for deep integration of oil and gas E&P and new energies. With a focus on shifting its role in marketing, fast-paced project construction, and collaborative efforts with business partners, the Company seeks to achieve the transition towards an integrated energy company covering oil, gas, heat, electricity and hydrogen energy. New energies capacity has reached 11.5 million tons of coal equivalent per annum.

Hydrogen Energy

In line with the market demand for hydrogen energy, the Company rolled out hydrogen purification projects and increased the supply of high-purity hydrogen. Throughout the year, CNPC's high-purity hydrogen capacity increased by 3,600 t/a to 6,600 t/a. In 2023, the hydrogen purification project of Sichuan Petrochemical began to deliver up-to-standard high-purity hydrogen, and the hydrogen pilot project based on alkaline water electrolysis of Dushanzi Petrochemical was also put into operation.

Geothermal Energy

In 2023, the coverage of CNPC's geothermal heating services grew by 10.45 million m^2 and added up to more than 35 million m^2 in total. The first medium-and-deep geothermal heating project in Beijing was completed and brought online.

Wind and Solar Power Generation

As of the end of 2023, CNPC's total installed capacity has exceeded 5 million kilowatts. A 1.1-million-kilowatt photovoltaic plant of Tarim Oilfield was completed in Kashgar. Another 100,000-kilowatt photovoltaic plant of Tarim Oilfield was connected to the grid in Qiemo County. The Meizi Wind Farm of Jilin Oilfield became fully operational.

CNPC's first wind power project became fully operational

On March 17, 2023, with the successful grid connection of Meizi Wind Farm in Jilin Oilfield, CNPC's first large-scale wind power project became fully operational.

The project, comprising 18 wind turbines with a total installed capacity of 78,000 kilowatts, is designed to generate 260 million kilowatt-hours of electricity annually based on 3,395 equivalent full-load hours. All the electricity generated will be consumed by Jilin Oilfield to produce oil and gas, reducing CO_2 emissions by 202,000 tons a year and facilitating Jilin Oilfield's low-carbon production.

Beihu wind farm, Jilin Oilfield

Refining, Chemicals, Marketing & New Materials

In 2023, the Company stepped up the transformation and upgrading of its refining and chemicals operations, and further optimized the business structure. Leveraging production ramp-ups, the Company processed 190.15 million tons of crude oil, and produced 123.21 million tons of refined products and 8.00 million tons of ethylene throughout the year, as its supply capacity for high-quality energy and chemical products continued to increase. CNPC enhanced its efforts to produce and develop new materials. The new materials output reached 1.37 million tons, growing more than 50% for two consecutive years. Based on in-depth market research, we focused on retail, wholesale & direct sales, and non-fuel business, with domestic sales of refined products totaling 123.619 million tons.

190.15 million tons of crude oil

123.21 million tons of refined products

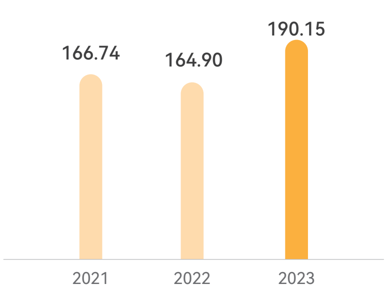
8.00 million tons of ethylene throughout the year

1.37 million tons of new materials

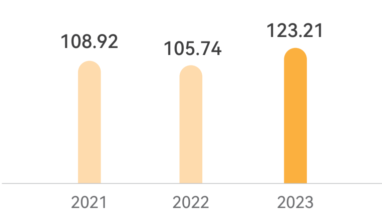
Refining and Chemicals

Following a market-oriented approach, the Company continued to push ahead with production ramp-up, optimize its product portfolio, improve the operational stability of its refining and chemical plants, and propel the transformation and upgrading campaign with the construction of key projects. New materials project was accelerated, which ensured a steady growth in output.

Crude runs (mmt)



Refined products output (mmt)



Refining and Chemicals Operating Data (Domestic)

	2021	2022	**2023**
Crude runs (mmt)	166.74	164.90	**190.15**
Utilization rate of refining units (%)	81.6	80.8	**85.6**
Refined products output (mmt)	108.92	105.74	**123.21**
Gasoline	49.39	43.51	**49.78**
Kerosene	11.29	8.58	**15.04**
Diesel	48.25	53.65	**58.40**
Lube oil output (mmt)	1.89	1.68	**2.24**
Ethylene output (mmt)	6.71	7.42	**8.00**
Synthetic resin output (mmt)	10.90	11.62	**12.55**
Synthetic fiber output (mmt)	0.02	0.03	**0.03**
Synthetic rubber output (mmt)	1.04	1.04	**0.97**
Urea output (mmt)	2.42	2.55	**2.30**
Synthetic ammonia output (mmt)	2.00	2.05	**1.88**


Refining-chemical Integration Project, Guangdong Petrochemical

Optimization of Product Portfolio

Seizing the opportunities of market recovery, the product portfolio of refining and chemical operations continued to optimize, with a focus on increasing high-end, high-value products and maximizing profitability across the industry chain. 20 of the 28 key technical and economic indicators for the Company's refineries improved from a year earlier.

In response to the sulfur limits of the International Maritime Organization (IMO), the Company ramped up R&D and production of low-sulfur marine fuels, producing 6.60 million tons of low-sulfur fuel oil in 2023. We also made active endeavors to increase the output of specialty products. Production of petroleum coke and lube oil achieved fast growth.

CNPC continued to push for the R&D and production of new chemical products and specialty chemicals. In 2023, 137 new chemical products were developed, with a total output of 1.22 million tons.

Guangdong Petrochemical was fully operational

On February 27, 2023, the world's largest single set of styrene plant came online, producing 800,000 tons per annum. It marked the moment when Guangdong Petrochemical's integrated project became fully operational across all processes and began to produce up-to-standard products after a successful commissioning. With an annual capacity of 20 million tons of crude runs, 1.2 million tons of ethylene production, and 2.6 million tons of para-xylene output, the plant has entered full production.

As a national key project under the Guangdong-Hong Kong-Macao Greater Bay Area strategy, Guangdong Petrochemical is the largest integrated refining and petrochemical project in China designed to produce a full range of petrochemical products. The project will help create a new opening-up paradigm for Guangdong Province under the Belt & Road Initiative and reduce dependency on imported chemical feedstocks in the home appliance and electronics sectors. It will improve the petrochemical industry chain in eastern Guangdong with a positive impact on the local mid-and-downstream sectors, worth approximately RMB 560 billion. It will also push China's refining and petrochemical industry towards the middle and higher end of the industry chain and value chain.

Construction of Large Refining & Chemical Bases

By the end of 2023, the Company has eight large integrated refining and chemical complexes and fourteen 10 Mt/a refineries in China.

A number of key petrochemical projects made significant progress. Guangdong Petrochemical has entered commercial operation after successful commissioning. Two large ethylene projects of Jilin Petrochemical and Guangxi Petrochemical made steady headways. And Dushanzi Petrochemical's Tarim ethane-to-ethylene project (Phase II) was approved and began construction.

Development and Application of New Materials

The Company continued to increase its efforts in the planning, R&D and capacity ramp-up for new materials. The full-year production of new materials was 1.37 million tons, covering a number of flagship products such as, etc. The α-olefin, ABS, nitrile butadiene rubber, SSBR Company's metallocene-based polyolefins, medical-grade polyolefin, PETG copolyester and petroleum needle coke enjoyed a leading position in China. New materials acceleration program delivered remarkable results.

Dushanzi Petrochemical's functionalized SSBR project started production

On July 18, 2023, a 25,000 t/a functionalized SSBR project started production successfully at Dushanzi Petrochemical, which is its key project of the year to improve quality and efficiency. Dushanzi Petrochemical is capable of producing dual end-functionalized SSBR on a continuous and steady basis, marking a new breakthrough in China's high-performance rubber sector.

As a key research topic in the area of new materials under the 14th Five-Year Plan, functionalized SSBR is of great significance for the development of green tires, upgrading tire performance, energy conservation and environmental protection. The successful start-up of the project symbolizes that Dushanzi Petrochemical has already obtained the technology to produce dual end-functionalized SSBR. In the future, it is poised to supply various high-end functionalized SSBR products of even greater performance to domestic tire manufacturers, and contribute to the upgrading of domestic tire products.


Dushanzi Petrochemical plant

A mechanism for development & advancement of new materials has been put in place to support technological breakthroughs. The proprietary 1,000 t/a solution-process POE pilot unit was successfully commissioned with key product indicators comparable to those of foreign products. The commercial test of a 1,000 t/a combined 1-octane/1-hexene production project has achieved initial success. And our carboxylated nitrile butadiene rubber project has also completed commercial test.

Marketing and Sales

In 2023, the Company strengthened market expansion, and bolstered the quality and efficiency of its marketing business to write new chapters for the high-quality development of marketing operations.

In line with the principle of maximizing efficiency of the industry chain, the management of shipment, distribution, marketing and transportation plans was strengthened to improve the coordination between production and sales, enhance alignment of production and marketing, boost synergy between fuel & non-fuel business, and enable tiered and categorized account management. The full-year domestic sales of refined products reached 123.619 million tons.

The Company improved its marketing & sales system and promoted digital marketing and specialty product sales based on market research. In 2023, the Company sold 40.51 million tons of chemical products, up 8.4% year-on-year.

In view of the changes in market demand, the Company seized the opportunities in electric vehicle and hydrogen energy sectors and leveraged its marketing network to push ahead with the charging stations and the demonstration projects for hydrogen refueling stations. In this way, it endeavors to build an integrated energy service provider of oil, gas, hydrogen, electricity and non-fuel products, with world-wide recognition and a leading position in China. In 2023, 93 new service stations started construction, and 188 new service stations became operational. Also, 10 hydrogen refueling stations and 507 battery charging/swapping stations were completed. As of the end of 2023, the Company operates a total of 22,755 service stations across the country.

Based on a coordinated approach to "in-store sales, direct sales, online sales and branching out" and the integrated marketing for fuel & non-fuel products, the Company boosted the synergy between fuel and non-fuel sales, consolidated online and offline channels, developed a “convenience store +N” business model based on realities on the ground, improved the appeal of non-fuel products and promoted transparency in procurement. Catering to the needs of customers, we seek to further polish service quality and enhance customer experience throughout the whole process, thus raising customer satisfaction. The sales revenue from non-fuel products totaled RMB 36.83 billion in 2023.

CNPC completed the Potevio New Energy deal

On September 7, 2023, CNPC acquired 100% of the equity interest of Potevio New Energy, an electric vehicle charging firm through China Beijing Equity Exchange. As part of the effort to build an integrated energy service provider of oil, gas, hydrogen, electricity and non-fuel products, this deal will help improve the new energy network of service stations and create a “charging+” ecosystem. CNPC will contribute to the development of high-quality national charging infrastructure by improving its charging network, expanding facility capacity and building up service capabilities.

In the next three years, the Company will seize the window of opportunity in the new energy sector to complete the strategic deployment of charging business nationwide and become a leading company in charging infrastructure and battery swapping. We will further improve the business ecosystem of “people, vehicles and life” based on service stations, making it easier to power cars, travels, and people’s happy lives.

International Trade

Faced with challenges posed by geopolitical conflicts, complex macroeconomic situation and wild volatility in international oil prices, the Company worked with national oil companies from major petroleum producing countries to establish long-term partnerships, which ensures high-quality and efficient access to oil and gas resources from the four strategic channels and secures the stable operations of our industry chain and supply chain. The Company's three international operation hubs for oil and gas trading continued to improve and a 3D marketing network connected by air, land and sea was put in place to build a world-class global energy trader. The Company traded 500 million tons with sales revenue of USD 280.4 billion in 2023.

CNPC's LNG fleet gained new momentum

On July 25, 2023, PetroChina International, COSCO Shipping Energy Transportation and Hudong-Zhonghua Shipbuilding (Group) signed the Shipbuilding & Charter Contract (Phase III) for the construction of two 174,000m^3 LNG vessels in Shanghai. CNPC's LNG fleet will add new capacity for energy imports from the sea.

In recent years, PetroChina International has worked with its business partners in building eight 174,000 m^3 LNG vessels. Among them 4 vessels, namely Shao Lin, Wu Dang, Kun Lun and E Mei, have already been delivered. These LNG vessels are supporting CNPC's maritime transportation needs and providing a guarantee for LNG imports.

Crude Trading

The Company bolstered its capabilities to ensure crude imports by optimizing the allocation of resources, developing an unimpeded trading system, and diversifying access to crude oil resources. The Company's cross-regional benchmark oil trading reached a record high as the coordination among its global trading teams strengthened.

Refined Products Trading

The Company ensured unimpeded access to export markets and fulfilled its export plan efficiently. The marketing network continued to improve as a consolidated approach to the management of its global jet fuel trading teams. CNPC actively pushes forward the technological transformation and upgrading of its refineries, and carries out the long-term planning for overseas refineries in a systematic manner.

Natural Gas Trading

The Company watched international natural gas markets closely and reduced procurement cost by seizing the opportunities in LNG spot trading, and optimizing the shipping schedule. CNPC's trade resources continued to diversify to ensure the smooth operation of the natural gas industry chain.

Chemicals Trading

As market expansion for chemicals exports advanced actively and the overseas marketing network continued to build up, new breakthroughs were made in the export of many chemical products such as polypropylene and o-xylene.

Maritime Shipping

CNPC formed a shipping company to build a world-class cargo owner fleet, so as to secure maritime oil and gas transportation across oceans.

Support & Services

The Company maximized its expertise and implemented the “dual-driver” (management + technology) approach to bolstering service quality and market competitiveness in areas like oilfield services, engineering & construction, equipment manufacturing and research & consulting, in a bid to support high-quality corporate development.

Oilfield Services

In 2023, in line with the guidelines of "safety, compliance, efficiency and profitability", CNPC’s oilfield service segment continued to deepen reforms, and upgrade operation management, which improved its value creation capabilities, and facilitated the building of a modern engineering and technological system. A number of important and impactful wells, e.g., Shendi Take 1 ultra-deep well in the Tarim Basin, were drilled with high efficiency, demonstrating new endeavors in boosting reserve and production growth as well as strengthening strategic support.

Oilfield Services Data

		2021	2022	**2023**
Geophysical Prospecting	2D seismic data acquired (kilometers)	34,565	37,837	**18,789**
	3D seismic data acquired (square kilometers)	86,496	80,376	**83,335**
Drilling	Wells completed	12,019	12,440	**9,452**
	Drilling footage (million meters)	28.60	31.47	**24.90**
Well logging	Well logging operations (well-times)	88,017	99,460	**94,205**
Mud logging	Mud logging operations	10,334	11,241	**9,609**
Downhole operations	Downhole operations (well-times)	121,330	106,844	**112,898**
	Formation test (layers)	11,291	12,256	**13,258**
Offshore engineering	Offshore drilling footage (meters)	217,000	309,000	**422,000**

In 2023, CNPC acquired data of

18,789

kilometers of 2D lines

83,335

square kilometers of 3D profiles

Geophysical Prospecting

Based on the wide adoption of “broad band, wide azimuth and high density” seismic prospecting techniques, the Company continued to innovate key technologies for data acquisition, promote the use of vibroseis and nodal exploration systems, and build a stronger seismic team of intelligent operations. In this way, it seeks to embrace a new era of intelligent nodal acquisition and provide solid guarantee for high-efficiency exploration.

In 2023, CNPC acquired data of 18,789 kilometers of 2D lines and 83,335 square kilometers of 3D profiles.

Drilling

The Company continued to upgrade and promote acceleration models, deepened integrated geological engineering, and strengthened R&D to debottleneck engineering and technical difficulties hindering efficient exploration and cost-effective production, which achieved great results.

In 2023, the Company spudded 9,129 wells and completed 9,452 wells, with a total drilling footage of 24.90 million meters.

Well Logging and Mud Logging

In 2023, the Company completed 94,205 well-times of logging. Its through-drill pipe logging operations were able to replace imported products with home-produced ones, and the proprietary CPLog equipment was employed in commercial operations overseas.

Based on in-depth geological research and targeted technological debottlenecking on mud logging, the Company adopted an integrated approach to geological engineering to optimize the trajectory design for various reservoir properties. In 2023, the Company completed mud logging operations for 9,609 wells.

Downhole operations

In 2023, the Company completed 113,000 well-times of downhole operations, including 75,000 sections/intervals of fracturing.

Electric fracturing was applied more widely to enable a more cost-effective and eco-friendly fracturing process and deliver significant improvements in efficiency and performance.

A number of high-yield oil and gas wells were identified as risk exploration and formation testing for ultra-deep wells continued to improve, leading to a number of major discoveries. Services capabilities required for snubbing operations were strengthened and 1,868 new wells were successfully commissioned.

Offshore Engineering

In 2023, CNPC Offshore Engineering spudded 148 wells and completed 134 wells, with a total drilling footage of 422,000 meters.

Further exploring external markets, the Company signed a three-year extension contract for platform operations with CNOOC and achieved a new breakthrough in market cooperation with Sinopec.

Shendi Chuanke 1 Well

Engineering and Construction

Throughout the year of 2023, China Petroleum Engineering Corporation performed 157 major projects in oil and gas field surface engineering, refining & petrochemicals, and storage & transportation, both at home and abroad. It ranked No.4 on the ENR's Top 10 Global Oil and Gas Contractors List, and No.31 on the ENR's Top 250 Global Contractors List (measured by revenue generated globally) in 2023.

2023 Ten Projects Built

Ten Projects Built by CNPC in 2023

- Integrated refining and chemical project of Guangdong Petrochemical
- Surface engineering and supporting facilities for Xinghua block (Xinghua 1) in Bayan field of Huabei Oilfield
- Bozi natural gas processing plant of Tarim Oilfield
- Yecheng 500,000 kw photovoltaic power plant of Tarim Oilfield
- Bidirectional gas pipelines for Shuangtaizi gas storage of Liaohe Oilfield
- Jiaozhou Bay offshore natural gas pipeline in Qingdao
- Nan'gang LNG Phase I in Tianjin
- Single-point mooring with double pipelines installation in Bangladesh
- Halfaya gas processing plant in Iraq
- Refining-chemical transformation and upgrading projects
    - Integrated refining-chemical transformation and upgrading project of Guangxi Petrochemical
    - 1.2 Mt/a ethylene plant of Jilin Petrochemical
    - Tarim 1.2 Mt/a ethylene plant (Phase II) of Dushanzi Petrochemical

Tarim Ethane-to-ethylene Project

Oil and Gas Field Surface Engineering

Projects like surface engineering for Bozi natural gas processing plant, Jia County block capacity building in Shenmu gas field, and Xinghua block in Bayan field were completed and put into operation on schedule. The Niger Phase II integrated project is ready for production. The gas processing plant for Halfaya Project in Iraq is mechanically complete. And the upgrading of Halfaya CPF1 & CPF2 gas compression system is under construction.

Storage & Transportation

The Eastern Russia-China Natural Gas Pipeline (Nantong - Luzhi Section) and the Shenzhen LNG Peak-Shaving Station are under construction. The LNG terminal, storage tanks (Phase I) and distribution pipeline for Nan'gang Contingency Reserve Project in Tianjin were put into operation, with the second phase progressing smoothly.

Refining & Chemicals Engineering

The integrated refining and chemical project of Guangdong Petrochemical is fully operational after a successful start-up. The 1.2 Mt/a ethylene plant project of Jilin Petrochemical made steady headway. The integrated refining and chemical project of Guangxi Petrochemical and the Tarim ethane-to-ethylene project Phase II (1.2 Mt/a) of Dushanzi Petrochemical have begun construction.

Overseas Market Development

The Company optimized its global portfolio, delivered good results in overseas market expansions, and broadened the horizon for business growth. CNPC signed the contracts for a number of projects worth more than RMB 1 billion, including the East African crude oil export pipeline, the EPC contract for propane dehydrogenation unit and polypropylene unit of Sonatrach, ADNOC's Bab Line 9 production and processing facilities, and also the external facilities for its Bab and Bu Hasa P5 station. A diversified combination of core markets, e.g., Iraq and Algeria, solved the problem of over-dependence on any single market.

CNPC received National Quality Engineering Gold Award

The EPC projects of CNPC for Bab oilfield facilities and Halfaya oilfield surface facilities received the 2022-2023 National Quality Engineering Gold Award (Overseas). The Sinochem Quanzhou Petrochemical 1 Mt/a ethylene and refining renovation and expansion project with CNPC participation also received the 2022-2023 National Quality Engineering Gold Award.

In addition, CNPC's EPC projects for Karamaili Gas Field pressurization and cryogenic refrigeration, as well as the Hua'neng 400 MW offshore wind power project in Dafeng, Jiangsu, which the Company participated in, all received the National Quality Engineering Award.

In the field of engineering and construction, the National Quality Award is a state-level honor intended to commend quality engineering projects across industries and disciplines. The Gold Award is the highest honor to recognize quality of engineering and construction in China.

more than

90

countries and regions around the world

As of the end of 2023, the Company's energy equipment has been sold to

Energy Equipment Manufacturing

The Company deepened the reform of its equipment manufacturing management system and set up Kunlun Manufacturing (Equipment Manufacturing Business Department) to strengthen professional management and integrated planning, optimize lean manufacturing, and bolster R&D debottlenecking in core technology and key equipment, so as to move towards the mid and high end of the industry. The Company's supply chain and marketing network continued to improve, with a strong overseas presence in key oil and gas producing regions in Central Asia, Latin America, the Middle East, Africa, and Asia Pacific. As of the end of 2023, the Company's energy equipment has been sold to more than 90 countries and regions around the world.

Focusing on technological debottlenecking and commercial application of R&D results, the Company strives to tackle challenges in new technologies, new energies and new materials, and further strengthens the research and development of core technologies and key equipment.

The world's first automatic drilling rig for 12,000-meter borehole was included in the Top Ten Mega-Projects of China's central SOEs, providing important support for the exploration and development of 10,000-meter deep and unconventional oil and gas resources.

Electrochemical energy storage and CO_2 supercritical injection compressor units for CCUS operations were put into use to facilitate the low-carbon transformation and upgrading of oil and gas fields.

A dozen of products including titanium alloy drill pipes and high-temperature butterfly valves filled the gap in the domestic market.

Alkaline electrolysis plants with a capacity of 1,200 standard cubic meters of hydrogen production, high-pressure hydrogen storage tanks, hydrogen compressor, and steel pipes for the transportation of hydrogen mixture were developed for real-world scenarios to support the entire hydrogen industry chain from production, storage, and transportation to utilization.

The Company continued to explore the international market of energy equipment. In the Middle East market, 10 hybrid power fast desert moving drilling rigs were exported to the United Arab Emirates, the largest order in five years, and another order for 10 fast moving drilling rigs was secured from Saudi Arabia. Mud pumps were exported to Egypt, Niger and Romania for the first time. Great progress was made for transportation pipelines in Mongolia, Colombia, the Netherlands, and Argentina. Compressors won the bids in Turkmenistan and Brazil. In a word, equipment manufacturing business expanded overseas markets and added new customers.

Capital & Finance

The Company has a complete set of financial licenses, with business operations covering in-house financial services, banking, financial leasing, trust, insurance and insurance brokerage etc. Centered on the alignment of financial services with production needs, the Company's capital & finance business continued to innovate marketing model, strengthen fundamental management and improve risk management, so as to serve CNPC's core business with better performance.

CPF Performance

Functions such as cash concentration, settlement, fund monitoring and financial services are performed through China Petroleum Finance Company, to support the centralized fund management and the efficient utilization of funds. CPF facilitates the transition to green and low-carbon development by promoting green credit such as PV Power Loan to prop up emerging sectors of strategic importance. It also offers tailored financing products like Gas Storage Loan, Exchange Connect and Commercial Paper Finance to back the high-quality development of the Company's core operations.

Banking

Bank of Kunlun serves the core business of energy operations in line with the ideals of "becoming a professional, efficient and customer-centered financial caretaker". Sticking to the business path of exploring the "smaller-sized, difficult, specialized and in-depth" areas of financing, the Bank launched Cloud Counter services, as well as developed and optimized feature products like Tax E-Connect and CNPC E-Connect. Targeting clients along the industry chain, the Bank continued to strengthen its capabilities in financial services and improve the quality and efficiency of development.

Trust

Kunlun Trust continued to explore the road of reform and innovation in energy trust. Leveraging its cross-market resources, it plays an active role in raising funds to support upstream and downstream projects across the industrial chain. Kunlun Trust's industry-finance integration portfolio accounts for 37.2% of its total trust assets under management.

Financial Leasing

Kunlun Financial Leasing deepened marketing efforts for its core leasing business with a strong commitment to industry-finance integration. The LNG vessel, electric fracturing and other equipment leasing projects were launched to support the green and low-carbon development. The credit rating model, financing capacity evaluation model, and regional risk monitoring model were developed to enable intelligent risk management, as well as improve the analysis, evaluation and identification of risks. A total of RMB 18.4 billion was provided throughout the year.

Insurance

The overseas captive insurance business expanded to 55 projects in 23 countries. The number of banking partners of Generali China Life Insurance increased to 25. Generali China Insurance launched the PV Value Chain Risk Solution and the Solar Irradiation Index Insurance to support the healthy growth of the photovoltaic industry with high-quality products and services, providing a "CNPC Solution" to new energy insurance.

Insurance Brokerage

With a mission to mitigate risks and create value for its clients, Kunlun Insurance Brokerage Company further streamlined, standardized and digitalized its insurance management. The gas insurance business was launched successfully. Looking into the needs of new energy operations, we also provided green insurance services for a number of clean energy projects.

Industrial Capital Investment

Based on the dual approach of "fund investment + direct investment", Kunlun Capital Company focuses on emerging sectors of strategic importance and industries of the future. In 2023, it signed and delivered 8 investment projects that synergize strongly with existing business. An actively managed fund was launched and began to invest in external business, with a number of new fund offers in the pipeline. A "R&D + Industry + Capital" model is taking shape, which facilitated the commercialization of two internal technological innovations.

Financial Statements

Consolidated Balance Sheet

million RMB yuan

Item	2021	2022	2023
Current assets			
Cash and cash equivalents	271,391.44	321,339.30	355,058.62
Funds lent*	231,062.05	296,316.59	287,486.71
Financial assets held for trading	106,791.43	113,037.23	123,562.59
Derivative financial assets	398.49	21,594.03	17,154.37
Notes receivable	452.16	67.09	551.28
Accounts receivable	84,149.57	102,591.20	96,854.06
Receivables under financing	2,540.43	3,940.97	10,643.63
Prepayments	153,383.54	118,387.67	85,000.14
Premium receivable*	101.22	116.43	120.69
Reinsurance accounts receivable*	797.39	1,030.42	861.60
Reinsurance reserves receivable*	1,771.00	1,547.59	1,485.42
Other receivables	57,579.58	68,112.21	49,217.73
Financial assets purchased under resale agreements*	62,059.09	28,615.78	8,751.04
Inventories	189,004.94	215,332.50	225,305.68
Contract assets	74,258.89	65,603.92	53,672.19
Assets held for sale	-	34.71	4.59
Non-current assets maturing within one year	197,170.16	130,274.67	146,588.82
Other current assets	111,857.78	129,953.99	165,008.12
Total current assets	1,544,769.16	1,617,896.30	1,627,327.28
Non-current assets			
Loans and advances issued*	101,454.52	117,241.62	97,892.28
Debt investments	70,676.25	77,621.50	87,343.63
Other debt investments	21,161.19	26,054.85	35,193.12
Long-term accounts receivable	47,579.43	52,776.95	59,321.07
Long-term equity investments	317,945.69	323,209.26	334,681.53
Other investments in equity instruments	8,213.47	18,547.03	24,128.34

Consolidated Balance Sheet (continued)

million RMB yuan

Item	2021	2022	2023
Other non-current financial assets	33,662.27	31,244.04	26,550.30
Investment properties	2,467.83	2,837.77	2,979.87
Fixed assets	583,336.40	631,236.74	636,009.99
Construction in progress	259,819.94	257,651.66	261,925.00
Oil and gas assets	952,596.50	976,946.05	1,009,852.25
Right-of-use assets	45,834.09	44,262.86	43,239.18
Intangible assets	105,979.60	108,299.30	107,859.08
Development expenditure	1,145.53	1,286.39	1,314.47
Goodwill	8,077.95	7,411.60	7,563.81
Long-term deferred expenses	35,756.12	35,194.49	39,078.66
Deferred tax assets	21,694.34	29,525.14	32,406.82
Other non-current assets	30,263.90	35,810.14	40,935.90
Total non-current assets	2,647,665.02	2,777,157.39	2,848,275.30
Total assets	4,192,434.18	4,395,053.69	4,475,602.58
Current liabilities			
Short-term loans	69,037.11	72,993.90	86,327.09
Borrowings from central bank*	7,887.49	6,179.35	7,570.25
Borrowing funds*	49,055.04	57,188.75	33,341.28
Trading financial liabilities	-	3,357.53	3,592.26
Derivative financial liabilities	3,640.25	14,837.45	14,527.82
Notes payable	68,562.99	55,649.38	64,256.72
Accounts payable	362,295.11	413,950.62	420,976.33
Receipts in advance	2,718.61	1,942.26	1,166.51
Contractual liabilities	105,583.80	109,490.50	114,313.63
Funds from sales of financial assets with repurchase agreement*	32,748.93	24,777.59	36,504.33
Deposits from customers and interbank*	204,244.40	237,020.14	263,512.57
Funds arising from acting trading of securities*	1	1	1

Consolidated Balance Sheet (continued)

million RMB yuan

Item	2021	2022	2023
Employee benefits payable	46,203.38	63,875.37	79,426.38
Taxes payable	88,123.36	67,435.27	87,623.26
Other payables	78,730.86	78,390.59	67,310.86
Handling charges and commissions payable*	27.59	25.58	18.30
Reinsurance accounts payable*	592.40	777.90	711.55
Non-current liabilities due within one year	94,871.38	132,384.76	124,462.45
Other current liabilities	54,875.37	92,909.43	52,084.69
Total current liabilities	1,269,198.08	1,433,186.38	1,457,726.29
Non-current liabilities			
Reserve for insurance contracts*	5,651.65	5,437.47	5,317.75
Long-term loan	91,473.65	49,876.70	61,372.32
Debentures payable	244,297.40	146,277.92	71,402.50
Lease liabilities	28,321.54	24,684.80	20,799.71
Long-term payables	12,611.61	13,202.98	12,606.98
Long-term employee remuneration payable	1,481.84	1,526.17	1,480.23
Accrued liabilities	150,091.81	160,990.04	162,761.72
Deferred income	10,500.30	9,453.51	10,422.60
Deferred tax liabilities	44,285.11	39,887.35	50,385.48
Other non-current liabilities	2,808.28	1,594.26	12,499.00
Total non-current liabilities	591,523.19	452,931.20	409,048.29
Total liabilities	1,860,721.27	1,886,117.58	1,866,774.58
Owners' equity			
Paid-up capital (or share capital)	486,855.00	487,055.00	487,055.00
Other equity instruments	102,994.08	66,656.79	30,205.15
Capital reserve	269,023.34	268,251.84	271,687.99
Other comprehensive income	-53,658.65	-10,146.26	-5,027.98
Special reserve	16,243.69	15,742.84	14,210.80
Surplus reserve	1,085,311.85	1,088,939.42	1,094,905.96
General risk provisions*	12,585.14	12,580.37	12,531.91

Consolidated Balance Sheet (continued)

million RMB yuan

Item	2021	2022	2023
Undistributed profit	70,812.45	189,686.57	291,785.57
Total equity attributable to CNPC	1,990,166.90	2,118,766.57	2,197,354.40
Minority interest	341,546.01	390,169.54	411,473.60
Total owners' equity	2,331,712.91	2,508,936.11	2,608,828.00
Total liabilities and owners' equity	4,192,434.18	4,395,053.69	4,475,602.58

Consolidated Income Statement

million RMB yuan

Item	2021	2022	2023
1. Revenue	2,807,275.07	3,400,008.13	3,160,827.04
Including: Operating revenue	2,781,399.49	3,372,646.46	3,127,804.49
Interest income*	22,740.06	24,698.03	30,202.56
Premiums earned*	1,520.17	1,178.39	1,402.54
Handling charges and commission income*	1,615.35	1,485.25	1,417.45
2. Total cost of operations	2,629,728.10	3,065,508.23	2,863,074.67
Including: Operating cost	2,142,204.38	2,532,026.58	2,300,998.91
Interest expenses*	8,398.94	9,945.67	11,891.17
Handling charges and commission expenses*	1,566.51	1,939.33	1,756.54
Net expenditure for compensation payments*	577.28	958.74	1,247.64
Net amount of provision for insurance contract*	1,011.95	-30.40	-100.19
Reinsurance costs*	158.54	166.58	155.00
Tax and surcharges	239,683.39	294,490.81	312,750.54
Selling expenses	79,404.47	74,816.95	76,825.23
Administrative expenses	84,406.40	93,580.35	98,362.23
R&D expenses	25,291.79	30,824.36	33,849.82
Finance expenses	22,442.15	-458.40	4,402.05
Other	24,582.30	27,247.66	20,935.73
Add: Other gains	15,585.58	19,150.64	23,065.78

Consolidated Income Statement (continued)

million RMB yuan

Item	2021	2022	2023
Gain from investment (Loss is represented by "-")	46,223.07	4,438.50	18,219.93
Exchange gain (Loss is represented by "-")*	46.95	99.96	-52.89
Net exposure gains (Loss is represented by "-")	-	-	-
Gains from change in fair value (Loss is represented by "-")	6,397.71	-7,967.70	5,401.36
Credit impairment loss (Loss is represented by "-")	-5,773.76	-8,458.10	-5,880.89
Impairments loss of assets (Loss is represented by "-")	-36,561.29	-44,771.93	-34,602.01
Gain on disposal of assets (Loss is represented by "-")	1,501.47	1,494.89	1,637.44
3. Operating profit (Loss is represented by "-")	204,966.70	298,486.16	305,541.09
Add: Non-operating revenue	7,976.85	5,949.31	5,102.55
Including: Government grants	4,029.28	1,578.45	1,139.60
Less: Non-operating expenses	46,466.81	37,569.61	22,682.85
4. Earnings before taxes (Loss is represented by "-")	166,476.74	266,865.86	287,960.79
Less: Income tax expenses	66,213.42	86,510.38	92,854.01
5. Net income (Net loss is represented by "-")	100,263.32	180,355.48	195,106.78
(1) Classified by continuity of operations:			
Net income from continuous operation	100,263.32	180,355.48	195,106.78
Net income from discontinued operation	-	-	-
(2) Classified by ownership			
Net income attributable to CNPC	62,165.26	141,798.36	150,750.05
Minority interest	38,098.06	38,557.12	44,356.73

Note: Those with the * symbol are line items for financial companies.

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 the 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 of each calendar year.

3. Standard accounting currency

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

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 on hand and the deposits available for payment at any given time. Cash equivalents presented in the Cash Flow Statement are short-term (mature within three months), and 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 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 at the spot exchange rate on the balance sheet date. The exchange gains and losses arising from these transactions that occurred in the production and operation period are recognized as financial expenses; those related to the acquisition and construction of fixed assets, oil and gas assets 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 recognized as liquidation gain or loss.

A non-monetary foreign currency asset measured at historical cost is converted into RMB at the spot exchange rate on the trading day, with its amount in RMB unchanged. A non-monetary foreign currency asset measured at fair value is converted into RMB at the spot exchange rate for the date when the fair value is determined, with the difference recognized in profit or loss for the current period 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 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. The exchange difference arising from monetary foreign currency items materially invested in foreign operation due to the change in exchange rate is also separately listed in the owner's equity when preparing consolidated financial statements. When disposing foreign operation, the related exchange difference is carried, in proportion, into profit or loss for the current period during which the operation is disposed.

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. Financial instruments

Financial instruments include cash at bank and on hand, equity securities other than those classified as long-term equity investments, receivables, payables, borrowings, debentures payable and share capital, etc.

(1) Classification 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 profit or loss for the current period.

(2) Classification of financial liabilities

Financial liabilities are classified into: Financial liabilities measured at fair value with changes in fair value recognized in profit or loss for 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. Inventory

(1) Classification of inventory

Inventories include raw materials, work in progress and semi-finished goods, finished goods, and goods sold, etc.

(2) Measurement method of cost of inventories

Inventories are carried at the actual cost when acquired, using perpetual inventory method; the 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 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 the 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. Contractual asset

The right to receive consideration for goods transferred to the customer that depends on factors other than the passage of time is recognized as a contract asset. The unconditional right (that is, only dependent on the passage of time) to receive consideration from the customer is presented separately as a receivable.

10. Long-term equity investments

(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 the investment cost.

For a long-term equity investment obtained through a combination of entities not under common control, the combined cost should be accounted as 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 the payment of cash, the actual purchase price thus paid should be recognized as the 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 the initial cost of investment.

(2) Subsequent measurement and profit or loss recognition

a. Long-term equity investments by cost method

The Company's long-term equity investments in its subsidiaries are accounted by the cost method. Except for cash dividends or profit distributions declared but not yet distributed that have been included in the price or consideration paid in obtaining the investments, the Company recognizes its share of the cash dividends or profit distributions declared by the investee as investment income for the current period.

b. Long-term equity investments by equity method

Long-term equity investments in associates and joint ventures are accounted by the equity method. When the initial cost of investment is bigger than the proportionate share of the fair value of the investee's identifiable net assets at the time of investment, no adjustment to the initial cost of such long-term equity investment is made; When the initial cost of investment is smaller than the proportionate share of the fair value of the investee's identifiable net assets at the time of investment, the gain in profit is recognized.

The investor's share of the net profit or 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 the owner's equity.

The investor's share of the net profit or loss of the investee is based on the fair value of the investee's net identifiable assets upon the 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 the investor's share of the net profit, other comprehensive income and other changes in the owner's equity listed in the investee's consolidated financial statements.

The investor's share of the loss of the investee should be accounted 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 to write down the carrying value of long-term receivables, etc.; and iii) additional obligations assumed by the investor under the investment contract or agreement should be recognized as estimated liabilities and taken into investment loss of the current period. If the investee makes a profit in subsequent periods, the carrying amount of estimated liabilities should be written down in reverse sequence after deduction of the share of unrecognized loss, and 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 the investment income recognized accordingly.

c. Disposal of long-term equity investments

In the disposal of long-term equity investments, the difference between the carrying amount and the actual purchase price is accounted as profit or loss for the current period.

Upon the 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 profit or loss for 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 profit or loss for 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 profit or loss, other comprehensive income and profit distribution are transferred to profit or loss for 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 profit or loss for the current period and measured as a financial instrument at the difference between the fair value and carrying value on the date of loss of control.

In the event that the 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 the 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) Impairment test and provisions for impairment

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

Non-marketable long-term equity investment may be impaired 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 serious deterioration in the financial conditions of the invested business;

c. The invested business has lost its competitive edge due to major changes in production technology in the sector, resulting in 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.

11. Right-of-use assets

The right-of-use asset is initially measured at cost, including: the initial measurement of the lease liability; the lease payments paid on or before the commencement date of the lease term, if there is a lease incentive, minus the amount of the lease incentive received; initial direct costs incurred by lessee; costs that are expected to be incurred to dismantle and remove the leased asset, restore the site on which the leased asset is located, or restore the leased asset to the condition agreed upon in the terms of the lease; excluding costs incurred to produce inventory.

After the start date of the lease term, the use right asset is subsequently measured using a cost model. The principle for determining the depreciation period of the right to use assets: if the lessee can reasonably determine that they will acquire ownership of the leased asset at the end of the lease term, depreciation shall be accrued within the remaining useful life of the leased asset. If it is impossible to reasonably determine that ownership of the leased asset can be obtained at the end of the lease term, depreciation shall be accrued during the shorter of the lease term and the remaining useful life of the leased asset. If the remaining useful life of the right to use asset is shorter than the first two, depreciation shall be accrued during the remaining useful life of the right to use asset.

12. Revenue

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

13. Government grants

(1) Types of government grants

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

(2) Acknowledgment of government grants

The Company will acknowledge the government grants that it is eligible for and has received.

(3) Accounting treatment of government grants

Asset-related government grants are recognized as deferred income which is taken into profit or loss for the current period appropriately and systematically during the lifespan of related asset.

Income-related government grants used to recover relevant costs, expenses or losses in the subsequent period are recognized upon receiving as deferred income which is taken into profit or loss for the current period during the verification of related costs, expenses or losses, or used to write down relevant costs, expenses or losses; those used to recover relevant costs, expenses and losses incurred by the Company are directly recognized as profit or loss for the current period, or used to write down relevant costs, expenses or losses.

(4) Measurement of government grants

Government grants in the form of monetary assets are measured at the amounts received or receivable. Government grants in the form of non-monetary assets are measured at fair value.

14. 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 tax 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.

15. Lease

A lease is a contract whereby the lessor transfers the right to use the asset to the lessee for consideration within a certain period of time. On the contract inception date, assess whether the contract is a lease or contains a lease. A contract is or contains a lease if a party to a contract transfers its right to control the use of one or more identified assets for a period of time in exchange for consideration. To determine whether a contract transfers the right to control the use of an identified asset over a period of time, the following assessments should be made:

a. Whether the contract involves the use of the identified asset. An identified asset may be specified explicitly by the contract or implicitly when the asset is available to the customer and the asset is physically distinguishable, or if some part of the capacity or other part of the asset is physically indistinguishable but substantially represents the full capacity of the asset, so that the customer obtains almost all the economic benefits arising from the use of the asset. An asset is not an identified asset if the supplier of the asset has a substantial right to substitute the asset throughout the period of use;

b. Whether the lessee is entitled to almost all the economic benefits arising from the use of the identified assets during the period of use;

c. Whether the lessee has the right to direct the use of the identified assets during the period of use.

If the contract contains multiple separate leases at the same time, the lessee and the lessor shall split the contract and conduct accounting treatment for each separate lease. If the contract contains both lease and non-lease components, the lessee and the lessor will split the lease and non-lease components. When splitting the lease and non-lease components included in the contract, the lessee allocates the contract consideration according to the relative proportion of the sum of the stand-alone prices of the lease components and the stand-alone prices of the non-lease components.

(1) The Company as the lessee

On the commencement date of the lease term, a right-of-use asset and a lease liability are recognized for the lease. The right-of-use asset is initially measured at cost, including the initial measurement of the lease liability, lease payments made on or before the commencement date of the lease term (net of any amount related to the lease incentives received), initial direct costs incurred, and costs that are expected to be incurred to dismantle and remove the leased asset, restore the site on which the leased asset is located, or restore the leased asset to the condition agreed upon in the terms of the lease.

Right-of-use assets are depreciated using the straight-line method. If it can be reasonably determined that the ownership of the leased asset will be obtained when the lease term expires, depreciation will be accrued over the remaining useful life of the leased asset. Otherwise, the leased asset is depreciated over the shorter of the lease term and the remaining useful life of the leased asset.

The lease liability is initially measured at the present value of the unpaid lease payments at the commencement date of the lease term, discounted at the interest rate implicit in the lease. If the interest rate implicit in the lease cannot be determined, the incremental borrowing rate is used as the discount rate.

(2) The Company as the lessor

On the lease commencement date, the Company classifies leases into finance leases and operating leases. A finance lease is a lease that transfers substantially all of the risks and rewards associated with ownership of the leased asset, regardless of whether the ownership is ultimately transferred. Operating leases refer to leases other than finance leases.

16. Changes in Accounting Policies

From January 1, 2023, the Company has implemented the relevant provisions of "Accounting Treatment for Deferred Income Taxes Related to Assets and Liabilities Arising from Individual Transactions Not Subject to the Exemption from Initial Recognition" under the *Interpretation of Accounting Standards for Enterprises No.16* (CK [2022] No.31), and recognized deferred income tax on lease liabilities, taxable temporary differences and deductible temporary differences arising from right-of-use assets recognized in a single transaction, and adjusted the opening data of deferred income tax liabilities and other items.

B. Main Types of Taxes

1. Corporate income tax

Corporate income tax shall be calculated on the basis of taxable income at the applicable tax rate of 15% and 25%.

The Ministry of Finance and the State Taxation Administration jointly issued the *Announcement on Further Improving the Policy of Adding Deductions for R&D Expenses before Tax* (Announcement No.7, 2023 of the Ministry of Finance and the State Taxation Administration), clarifying that, the actual R&D expenses incurred by the enterprises in carrying out R&D activities, which are not translated into intangible assets in the profit and loss of the current period, shall be deducted in accordance with the provisions on the basis of actual deduction, and followed by a pre-tax deduction of 100% of the actual amount incurred, starting from January 1, 2023; if intangible assets are formed, they will be amortized before tax in accordance with 200% of the cost of intangible assets from January 1, 2023 onwards.

According to the *Announcement on Further Implementation of Preferential Policies on Income Tax for Small and Micro Enterprises* by the Ministry of Finance and the State Taxation Administration, from January 1, 2022 to December 31, 2024, the portion of the annual taxable income of small and micro enterprises between RMB 1 million and RMB 3 million will be reduced by 25% of the annual taxable income, and the enterprise income tax rate will be 20%.

In accordance with the *Announcement on Continuing the Corporate Income Tax Policy for the Western Development Strategy* ([2020] No.23 the Ministry of Finance, the State Taxation Administration and the National Development and Reform Commission) jointly issued by the Ministry of Finance, the State Taxation Administration and the National Development and Reform Commission on April 23, 2020, business establishments in the encouraged industries in the western region are still entitled to the reduced corporate income tax rate of 15% from January 1, 2021 to December 31, 2030.

Under the *Corporate Income Tax Law*, *Implementing Regulations of the Corporate Income Tax Law*, *Administrative Measures for the Determination of High and New Technology Enterprises* (GKFH [2016] No.32) and *Guidelines for Eligibility Management of High and New Technology Enterprises* (GKFH [2016] No.195), the corporate income tax rate applicable to a high and new tech company is 15%. The Company's subsidiaries with the High and New Technology Enterprise Certificate are eligible for the preferential tax rate of 15%.

The Ministry of Finance and the State Taxation Administration jointly issued the Announcement on *Further Improving the Policy of Pre-Tax Super-Deduction of Research and Development Expenses* (Announcement No.13, 2021), stipulating that, for manufacturing companies, the super deduction ratio of R&D expenses increases from 75% to 100% from January 1, 2021 to reduce the tax burden of manufacturing enterprises.

The Ministry of Finance and the State Taxation Administration have issued the *Announcement of the Ministry of Finance and the State Taxation Administration on Tax Preferential Policies for Enterprises to Invest in Basic Research* (Announcement No.32, 2022). Starting from January 1, 2022, for the expenses invested by enterprises to non-profit scientific and technological research and development institutions, higher education institutions, and state natural science funds for basic research, the actual amount incurred can be deducted before tax when calculating taxable income. And it can be deducted at a rate of 100% before tax. Non-profit scientific research institutions, higher education institutions, enterprises, individuals, and other organizations are exempt from corporate income tax on their income from basic research funds.

The Ministry of Finance, the State Taxation Administration, the National Development and Reform Commission and the Ministry of Ecology and Environment have jointly issued the *Announcement on Issues Concerning Income Tax Policies for Third-Party Enterprises Engaged in Pollution Prevention and Control* (Announcement No.38, 2023), specifies that, starting from January 1, 2024, to December 31, 2027, qualified third-party enterprises engaged in pollution prevention and control shall be subject to a reduced 15% tax rate for corporate income tax.

The overseas investment projects and subsidiaries of CNPC are subject to the applicable local tax rates in accordance with the contracts and relevant tax regulations of the host country.

2. Value-added tax (VAT)

The taxable amount in calculating the VAT is based on the value added. The VAT payable is calculated by multiplying the taxable sales amount by the applicable tax rate and deducting the input tax deductible in the current period. The applicable tax rates are 6%, 9%, or 13%.

According to the *Notice on the Import Tax Policy for the Exploration, Development and Utilization of Energy Resources during the 14th Five-Year Plan Period* (CGS [2021] No.17) issued jointly by the Ministry of Finance, the State Taxation Administration, and the General Administration of Customs, from January 1, 2021 to December 31, 2025, for the construction of cross-border natural gas pipelines and imported LNG receiving, storage and transportation facilities approved by the National Development and Reform Commission, as well as the natural gas (including pipeline gas and liquefied natural gas) imported from the expansion projects of imported LNG receiving, storage and transportation facilities approved by the provincial government, a certain proportion of the import value-added tax will be refunded. Self-operated projects of oil (natural gas) exploration and development in specific onshore areas of China, the import of equipment, instruments, spare parts and special tools in conformity with the regulations, shall be exempted from import tariffs; Sino-foreign cooperative projects of oil (natural gas) exploration and development operations in onshore oil (natural gas) bidding blocks approved by the State, oil (natural gas) exploration and development operations in the sea of China, offshore oil and gas pipeline emergency rescue projects, and projects of coalbed methane exploration and development operations in China, the import tariffs and import linkage VAT shall be exempted.

In accordance with the *Notice on Printing and Distributing VAT Management Measures for Oil and Gas Enterprises* (CS [2009] No.8) and the *Supplementary Notice on VAT-related Issues for Oil and Gas Enterprises* (CS [2009] No.97) jointly issued by the Ministry of Finance and the State Taxation Administration, the Company is subject to VAT on production-related services provided in the process of producing oil and gas and exempt from VAT on the transfer or supply of taxable goods and services for production between the oil and gas field companies and the non-independent accounting units.

According to Article 3 of the *Announcement of the Ministry of Finance and the State Taxation Administration on Clarifying the Policies on Reduction and Exemption of Value-added Tax and Other Policies for Small-scale Taxpayers of Value-added Tax* (Announcement No.1, 2023), from 1 January 2023 to 31 December 2023, the policy of adding and deducting the value-added tax is implemented in accordance with the following provisions: (a) taxpayers in the production service industry are allowed to add 5% to the amount of the deductible input tax for the current period to against the taxable amount. Taxpayers in the productive service industry are those taxpayers whose revenue derived from postal services, telecommunication services, modern services and consumer services exceeds 50% of the taxpayers' total revenue. (ii) Taxpayers in the consumer service industry are allowed to offset their taxable amount by 10% of the current creditable input tax amount. Taxpayers in the consumer service industry refer to those taxpayers whose revenue derived from the provision of consumer services exceeds 50% of the taxpayers' total revenue.

According to the *Announcement of the Ministry of Finance and the State Taxation Administration on the Policy of Value-added Tax Credits and Deductions for Enterprises in Advanced Manufacturing Industry* (Announcement No.43 [2023]) and the *Notice of the General Office of the Ministry of Industry and Information Technology on Matters Relating to the Formulation of the List of Advanced Manufacturing Enterprises Enjoying the Value-added Tax Credit and Deductions Policy for the Year of 2023* (GXTC No.267 [2023]), from January 1, 2023 to December 31, 2027, advanced manufacturing enterprises are allowed to offset the VAT payable by adding 5% to the creditable input tax for the current period. Advanced manufacturing enterprises refer to general taxpayers in the manufacturing industry among high-tech enterprises (including their unincorporated branches); and high-tech enterprises refer to enterprises recognized in accordance with the provisions of the *Notice on Revision and Issuance of "Administrative Measures for the Determination of High-tech Enterprises"* by the Ministry of Science and Technology, the Ministry of Finance, and the State Taxation Administration (GKFH No.32 [2016]).

Overseas subsidiaries are subject to the applicable local tax rates.

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 consumption tax. The rate of education surcharge is 3% of the amounts actually paid for value-added tax and consumption tax.

4. Consumption tax

The taxable amount in calculating the consumption tax is based on the sales volume of taxable products. The amount of the consumption tax payable is RMB 1.52 per liter for gasoline, naphtha, solvent oils and lubricants, and RMB 1.20 per liter for diesel and fuel oils.

According to the *Announcement on the Implementation Caliber of the Consumption Tax Policy on Some Oil Products* issued by the Ministry of Finance and the State Taxation Administration (Announcement No.11, 2023), starting from June 30, 2023, the consumption tax on alkylated oils (iso-octane) will be levied in accordance with gasoline; the consumption tax on petroleum ethers, crude white oils, light white oils, and some industrial white oils (including No.5, No.7, No.10, No.15, No.22, and No.32, No.46) are subject to consumption tax in accordance with solvent oil; mixed aromatics, heavy aromatics, C_8 aromatic hydrocarbons, natural gasoline, light oil and light coal tar are subject to consumption tax in accordance with naphtha. The suspension of consumption tax remains unchanged for jet fuel.

According to the *Notice on Continuing Consumption Tax Exemption for Recycled Oil Products from Used Mineral Oil* issued by the Ministry of Finance and the State Taxation Administration (Announcement No.69, 2023), industrial oils such as lubricant base oil, gasoline and diesel made from used mineral oil produced by taxpayers are exempt from consumption tax. This Notice is valid until December 31, 2027.

According to the *Notice on Increase in Consumption Tax on Refined Products* (CS [2015] No.11) of the Ministry of Finance and the State Taxation Administration, effective since January 13, 2015, the consumption tax has increased from RMB 1.4 per liter to RMB 1.52 per liter for gasoline, naphtha, solvent oil and lubricant, and from RMB 1.1 per liter to RMB 1.2 per liter for diesel, jet kerosene and fuel oil. The suspension of consumption tax remains unchanged for jet fuel.

In accordance with the *Notice on Consumption Tax Exemption* *for Oil Consumption in the Production of Oil Products* (CS [2010] No.98) announced by the Ministry of Finance and the State Taxation Administration, the Company has been exempt from consumption tax since January 1, 2009 on self-produced refined oils used as fuel, power and raw materials to produce oil products.

In accordance with the *Provisional Measures on Consumption Tax Refund (Exemption) for Naphtha and Fuel Oil Used in Producing Ethylene and Aromatic Hydrocarbons* ([2012] No.36) issued by the State Taxation Administration, the Company is exempt from consumption tax on self-produced naphtha and fuel oil for continuous production of ethylene and aromatic hydrocarbons, and also exempt from consumption tax on self-produced naphtha and fuel oil sold under the dedicated direct supply programs announced by the State Taxation Administration.

5. Resource tax

The taxable amount in calculating the resource tax is based on the sales volume of taxable resource products such as crude oil, natural gas and shale gas, and the applicable tax rate ranges from 1% to 6%.

In accordance with the *Resource Tax Law of the People's Republic of China*, CNPC is eligible for resource tax exemption for crude oil and natural gas used for heating during the process of crude oil production and transportation in oilfields and eligible for a resource tax reduction of 20% for crude oil and natural gas produced from low abundance fields; 30% for sour gas, and crude oil and natural gas produced by means of tertiary recovery or deep-water operations; and 40% for heavy oil and high pour point oil.

In accordance with the *Notice on Cutting Resource Tax on Shale Gas* (CS [2018] No.26) announced by the Ministry of Finance and the State Taxation Administration, resource tax on shale gas is cut by 30% (from the standard rate of 6%) from April 1, 2018 to March 31, 2021 to boost shale gas production and increase gas supplies. On March 15, 2021, the Ministry of Finance and the State Taxation Administration jointly issued the *Announcement on Extending the Implementation Period of Some Preferential Tax Policies* (MOF/STA Announcement No.6 [2021]); after the expiry of the existing preferential tax policies on March 31, 2021, the implementation period of such policies will be extended to December 31, 2023. On September 20, 2023, the Ministry of Finance and the State Taxation Administration issued the *Announcement on the Continuation of Preferential Policies on Reducing Resource Taxes on Shale Gas* (Announcement No.46 of 2023), which continues to provide a 30% reduction of the resource tax on shale gas (at the prescribed rate of 6%) until December 31, 2027.

6. Special oil gain levy

The taxable amount in calculating the special oil gain levy is based on the excess income from the domestic crude oil sales with price exceeding a certain level, and the applicable tax rate ranges from 20% to 40%.

In accordance with the *Notice on Raising the Threshold for Special Oil Gain Levy* (CS [2014] No.115) issued by the Ministry of Finance, with the approval of the State Council, the Ministry of Finance has decided to raise the threshold for special oil gain levy to $65 per barrel, effective from January 1, 2015, with the five-level progressive ad valorem rates remaining in place.

7. Mining Rights Transfer Proceeds

Proceeds from the transfer of mining rights include the transaction price of prospecting rights (mining rights) and the proceeds from the transfer of mining rights collected on an annual basis, with the transaction price of prospecting rights (mining rights) being recognized and collected at the time of the assignment. The proceeds from the transfer of mining rights collected on a yearly basis are calculated and paid based on the annual sales revenue of mineral products, with the applicable tax rate ranging from 0.3% to 0.8%.

According to the *Notice on the Issuance of the Measures for the Collection of Proceeds from the Transfer of Mining Rights* (CZ [2023] No.10) issued by the Ministry of Finance, the Ministry of Natural Resources and the State Taxation Administration, proceeds from the transfer of mining rights = the transaction price of the prospecting rights (mining rights) + proceeds from the transfer of mining rights collected on an annual basis. The transaction price of the prospecting rights (mining rights) is mainly determined by the area of the mining rights, taking into account such factors as the mineralization conditions, the specific level of exploration, changes in the market for mining rights and competition within the market, and is collected at the time of the assignment of the prospecting rights (mining rights). The proceeds from the transfer of mining rights collected on an annual basis = annual revenue from the sale of mineral products × the rate of return on the transfer of mining rights, with 0.8% for the rate of return on the onshore transfer of mining rights for oil, natural gas, shale gas and natural gas hydrates, 0.6% for the rate of return on the offshore transfer of mining rights, and 0.3% for the rate of return on the transfer of mining rights for coal-bed methane.

Major Events

January

Jan. 6

CNPC signed memorandum of understanding on cooperation with the State Concern “Turkmengas” and Yagshygeldi Kakayev International Oil and Gas University respectively.

February

Feb. 1

CNPC signed a strategic cooperation agreement with Beijing University of Chemical Technology.

Feb. 24

CNPC signed an agreement on in-depth cooperation with the Changping District People's Government of Beijing Municipality.

Feb. 27

Guangdong Petrochemical's refining-chemical integration project became fully operational, capable of processing 20 million tons of crude oil per year while producing 1.2 million tons of ethylene and 2.6 million tons of para-xylene.

March

Mar. 14

CNPC signed a strategic cooperation agreement with China University of Geosciences (Wuhan).

Mar. 17

CNPC's first wind power project went into operation.

Mar. 28

Guangxi Petrochemical's refining and chemical integration and upgrading project started construction.

April

Apr. 19

CNPC signed a strategic cooperation agreement with Shanghai Stock Exchange.

May

May 18

CNPC signed a series of cooperation agreements with Kazakhstan.

May 30

The drilling of CNPC’s Shendi Take 1 well started in Tarim Basin, marking China’s first borehole drilling with a depth of more than 10,000 meters.

May 30

Guangdong Petrochemical’s Integration project entered commercial operation.

June

Jun. 20

CNPC signed a cooperation agreement with QatarEnergy.

July

Jul. 5

CNPC signed a framework agreement on strategic cooperation with the People's Government of Inner Mongolia Autonomous Region.

Jul. 7

CNPC signed a strategic cooperation agreement with the China Geological Survey.

Jul. 9

CNPC co-hosted the Belt and Road Energy Partnership Forum with the Party School of the Central Committee of C.P.C (National Academy of Governance).

Jul. 20

The drilling of Shendi Chuanke 1 well - China's second borehole drilling with a depth of more than 10,000 meters - started in the Sichuan Basin.

Jul. 20

CNPC signed a strategic cooperation agreement with the Shenzhen Municipal People's Government.

August

Aug. 17

CNPC signed a strategic cooperation agreement with Sinochem Holdings.

Aug. 19

CNPC signed a cooperation framework agreement with ENH, Mozambique's national oil company.

September

Sep. 4

The International Organization for Standardization (ISO) approved CNPC's proposal on behalf of China to set up a green and low-carbon working group under the ISO Technical Committee on oil and gas industries including lower carbon energy (ISO/TC67).

Sep. 15

CNPC signed a framework agreement on strategic cooperation with the People's Government of Qinghai Province.

Sep. 28

The Tarim 1.2 Mt/a ethylene plant (Phase II) of Dushanzi Petrochemical was launched.

October

Oct. 17

CNPC signed a memorandum of understanding on the development of renewable energies with Kazakhstan.

Oct. 19

The fifth China-Russia Energy Business Forum was held.

Oct. 19

CNPC held the third Belt and Road Roundtable for Energy Cooperation.

Oct. 20

Kunlun Manufacturing Co., ltd. was incorporated.

Oct. 23

CNPC signed a strategic cooperation agreement with China Energy Engineering Corporation Limited.

November

Nov. 1

CNPC signed a strategic cooperation agreement with Chongqing Municipal People's Government.

Nov. 3

The Tarim Oilfield single-unit capacity photovoltaic project, the largest of CNPC, was connected to the grid.

Nov. 5

CNPC signed a strategic cooperation agreement with Baker Hughes.

Nov. 6

The CNPC International Cooperation Forum & Signing Ceremony was held during the Sixth China International Import Expo(CIIE).

Nov. 24

CNPC held a conference in Beijing in celebration of the 10th anniversary of the Belt and Road Initiative and the 30th anniversary of the Company's Going Global.

Nov. 30

The oil and gas production of Changqing Oilfield exceeded 60 million tons in oil equivalent terms for four consecutive years, maintaining an efficient and stable output.

December

Dec. 8

CNPC signed a strategic cooperation agreement with China General Technology (Group) Holding Co., Ltd.

Dec. 26

CNPC signed an investment & cooperation agreement with the People's Government of Heilongjiang Province.

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 directional wells where the wellbore axis is near horizontal, or more or less 90 degrees deviation. A horizontal well may produce at rates greater than a vertical well, enhance recovery efficiency and prolong the production cycle. Meanwhile, the environmental costs or land use problems 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 by the organizational structure, responsibilities, practices, procedures, processes and resources for implementing health, safety and environmental management.

Occupational disease

A disease or ailment caused due to excessive exposure to dust, radioactive substances, and other toxic and harmful 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.

Volatile Organic Compounds (VOCs)

In accordance with the *Guidelines for Identification of VOC Sources in Petrochemical Industry* (HB [2015] No.104) and other national standards, volatile organic compound means any organic compound participating in atmospheric photochemical reactions or any organic compound measured or determined according to the prescribed methods.

Carbon capture, utilization and storage (CCUS)

CCUS is a process of separating carbon dioxide (CO_2) from emission sources of industry or related energy sectors and having it sequestrated in geological structures or utilized to prevent CO_2 from being released into the atmosphere. It is a technical system aimed at reducing man-made carbon dioxide emissions.

About this Report

In this report, the expressions "CNPC", "the Corporation", "the Company" and "we" are used for convenience where references are made to China National Petroleum Corporation. This report is presented in Chinese and English. In case of any divergence of interpretation, the Chinese text shall prevail.

Recycled/recyclable paper is used for this report.

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