2022

Annual Report

China National Petroleum Corporation

Contents

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

Jiao Fangzheng
Vice President

Cai Anhui
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

Message from the Chairman

2022 is truly an extraordinary year. Facing complexities and volatilities in the macro environment along with many other difficulties and challenges, we pursued progress while maintaining stability, conquered one hardship after another, and took effective measures to tackle risks and hazards. The oil and gas industry chains as well as new energies and new materials business saw smooth operations. Main production indices and operation performance registered historical best. Such an impressive achievement lit up new chapters of high-quality development, and contributed significantly to China's energy security and stable growth of the national economy.

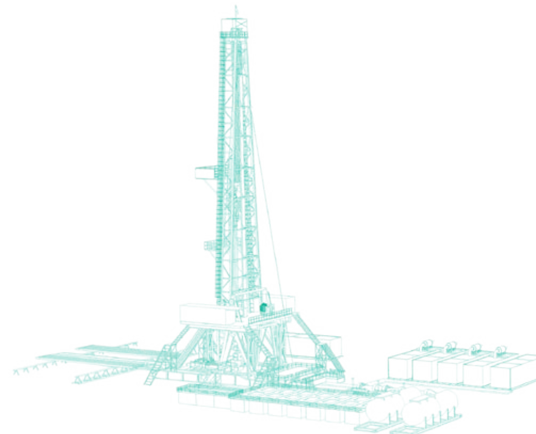
We went all out to secure China's energy supply in the new era, and made active endeavors to build a modern energy system, so as to serve as a strong pillar in ensuring energy security. In domestic operations, we redoubled efforts into E&P as well as reserves and production ramp-up. Meanwhile, the Company also deepened international energy cooperation, spurred the optimization of business layout and high-quality development overseas, and further enhanced its global oil and gas trading system. Our crude and gas output in China, together with total equity production overseas, all exceeding 100 million tons in oil equivalent terms, proves a new landscape of consolidated development. Capabilities in domestic energy supply and global resources allocation have been effectively improved.

We embrace the national strategies on carbon peak and neutrality, and include new energies and new materials into our core business. Our three-step overall approach of clean alternatives, strategic replacement, and green development is pacing up. We have published the Green and Low-carbon Development Action Plan 3.0, which advocates for a "circular carbon economy", deploys 3 major moves and 10 projects, and specifies the roadmap for green and low-carbon transition. A number of key projects were completed and brought online, featuring integrated growth of wind and solar plus gas power, and accelerated progress in geothermal, hydrogen and CCUS. The Company provided green hydrogen for the Beijing Winter Olympics, playing a crucial part in the "Green Winter Olympics". In 2022, our new energies capacity reached 8 million TCE per annum, and new materials production marked 855,000 tons, up by 56.3%. The development of new energies, new materials and new business has veered into a fast lane.

We continued to modernize governance system and capabilities, and fulfilled all tasks in the three-year action plan for SOE reform, which brought our efficiency and performance to a new level. Four major business segments maintained efficient and coordinated operations. Overseas business concluded optimization and adjustment of management mechanism. New entities for new energies, new materials, and equipment manufacturing were established in succession. Emphasizing value creation as well as efficiency and quality improvement, the Company enjoys a notable elevation in development quality.

Striving for technology-based corporate growth, we gave more prominence to R&D, and put innovation on the top of our "Five Strategies". A number of milestones were achieved in building the energy and chemical innovation hubs, along with an array of breakthroughs in core tech debottlenecking, and speedy headways in the construction of two incubators for home-grown technologies. The ten-year action plan on crucial basic research was launched, and four new research institutes were off to a smooth and promising beginning. Moreover, the IT Strengthening project has fully taken off, and "Digital CNPC" construction is well underway.

We remain steadfast in the belief that people is our greatest asset and put "talent-driven corporate development" on the forefront



of our "four strategic measures". The Company dedicated year 2022 to the theme of "Talent-Driven Corporate Development", and further improved both the size and structure of its talent pool. We focused on forging the strength of strategic talents, took solid strides on various HR programs, implemented key talent projects, and ensured effective training, recruitment and utilization of talents in an all-round fashion, in order to provide the talent and intellectual support for the development of a world-class enterprise built to last.

Holding the concept of "openness, inclusion, cooperation and win-win", we further expanded international cooperation and the "circle of friends". Driven by both "bringing in" and "going global", we pursued the panoramic opening up of the entire industry chain, and maximized our role as a mainstay in building the Belt and Road with sharpening capability edge on international operation. Several major international energy events were held in resounding success, showcasing our active engagement in global energy governance and ever-closer energy partnerships.

With a strong commitment to people-centered development, we define our corporate values as "pursuing green development and providing reliable energy supply to fuel our customers' growth and power people's happy life". Serving national strategies, we fulfilled our mission to ensure energy security and maintain stable operations along the oil and gas industry chains and supply chains. We built on the current progress of our poverty alleviation efforts, which were incorporated into the national rural revitalization campaign. The Company targets its ongoing rural support on industries, livelihoods, consumption, healthcare, and education, contributing CNPC's wisdom and strength to the full implementation of rural revitalization strategy.

2023 is crucial to delivering on the 14th Five-Year Plan. Sticking to the overall principle of seeking progress while maintaining stability, we will follow through on the new development philosophy with full completeness, accuracy and thoroughness, while serving and integrating into the new development paradigm. The Company will further deepen reforms, carry out bold innovations, forge ahead on high quality development, and expedite its journey towards a world-class enterprise, so as to contribute even more to a successful start in building a modern socialist country in all respects.

Chairman

Dai Houliang

President's Report

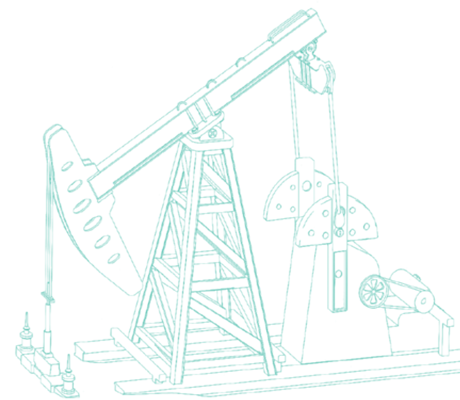
In 2022, faced with major tests like the once-in-a-century pandemic, profound changes in the international landscape, and wild volatilities in the energy market, CNPC followed through the deployments of the Board of Directors, and strived hard for stable operations and better profits. Oil and gas industry chains maintained smooth and efficient operations, main production indices gained steady growth, and performance marked a historical best. In 2022, the Company registered RMB 3.4 trillion in turnover, RMB 266.87 billion in earnings before taxes, and RMB 180.36 billion in net profit, contributing significantly to China's macroeconomic stability .

During the past year, with much efforts on reserves and production ramp-up, the oil, gas and new energies segment demonstrated a promising momentum. Domestic E&P made much new progress, having found and secured nine 100-million-ton oil reservoirs and nine 100-BCM gas provinces. Newly added proven and technically recoverable reserves amounted to 139.22 million tons of oil and 335.4 BCM of gas. Domestic crude production was 105 million tons, and natural gas 145.5 BCM, hitting a new high in BOE terms. Overseas oil and gas business also gained new ground, which brought about a total equity production of 102.33 million tons of oil equivalent, exceeding 100 million tons for the fourth consecutive year. Natural gas marketing business yielded impressive results with stable supply and sound profit, selling 217.8 BCM in China. New energies operations fully took off. Installed capacity of wind and solar power projects added up to 1400 megawatts, and total geothermal heating coverage reached 25 million m^2. Holding an unwavering commitment to technologies, oil field technical service business continued to hone its service delivery and market competitiveness.

During the past year, we strengthened integrated coordination, and further optimized the layout of the refining, chemicals, marketing and new materials segment. Transformation and upgrading of the R&C business made major breakthroughs. Guangdong Integrated Refining and Chemical project and Jilin Petrochemical's ABS plant in Jieyang were both completed. The two ethylene projects of Jilin Petrochemical and Guangxi Petrochemical have begun construction. The Company persisted in its efforts to cut fuels and boost the production of chemicals and feature products. Throughout the year, crude run was 164.9 million tons, refined products totaled 105.744 million tons, and fuels yield went down by 1.2 percentage points year-on-year. Ethylene production reached 7.419 million tons, up by 10.5%. The output of new materials grew 56.3%, with 119 chemical products newly developed. And chemicals sales of the year amounted to 37.35 million tons. Regarding marketing business, we maximized the synergy between wholesale and retail, and consolidated the mutual promotion between oil and non-oil business. Domestic sales of refined products stood at 104.23 million tons, with market share stable and rising. The Company carried on to enhance crude imports, expand gas import through pipelines, and optimize spot LNG procurement, seeing steady improvement in the supply capabilities of its international trading operations.

During the past year, we focused on capacity building, and achieved constant improvement in the service quality and market competitiveness of the support and service business. Engineering business pressed ahead with the construction of key projects, which provided solid backing for the stability and growth of hydrocarbons output, transformation and upgrading of refining and chemicals business, as well as our green and low-carbon agenda, all while winning three National Quality Engineering Gold Awards. Equipment manufacturing operations pushed for renovations and technical advances, and further strengthened the supply of efficient products and feature services. Following the new architecture and new mechanism, overseas regional companies played a compelling role in terms of comprehensive coordination. In the meantime, all research institutes, consultancies and relevant service providers strived to support the Company's core businesses as well as the task to boost quality and efficiency, having scored fresh achievements along the way.

During the past year, we enhanced industry-finance integration in our finance business, which maintained healthy development with unique characteristics. CNPC Capital leveraged its full set of financial licenses to push for ever stronger industry-finance integration. A number of new businesses were launched as a result, such as green financial leasing



and specialty insurance products for new energies. With market-based governance and operation system in place, Kunlun Capital dived deep into new energies, new materials, and new technologies development. The first of its result transformation projects has kicked off smoothly, marking a promising start.

During the past year, we tightened the accountability system, and QHSE performance remained sound and steady. The Company organized major inspections to fulfill the State Council's 15 hard measures on safe production, bringing the 3-year drive on production safety to a successful conclusion. We fully enforced pollution battling, carried out targeted rectifications on construction project environment management and discharge permits, introduced a 100-day special campaign to improve VOCs control, and continued to sharpen troubleshooting on eco and environmental hazards and relevant risk response. The Company also forged ahead with energy and water conservation, GHGs emissions cutting, and carbon asset management. As a "Low-carbon Model" enterprise for the 11^{th} consecutive year, we saw 2022 energy savings totaling 740,000 TCE, and water savings 9.23 million m^3. The upgrading of gasoline products to meet National VI B standard was completed on schedule. Moreover, leaving no detail uncovered in our COVID response, we issued and implemented guidelines on how to strengthen the health management for employees, to safeguard physical and mental health of CNPC staff.

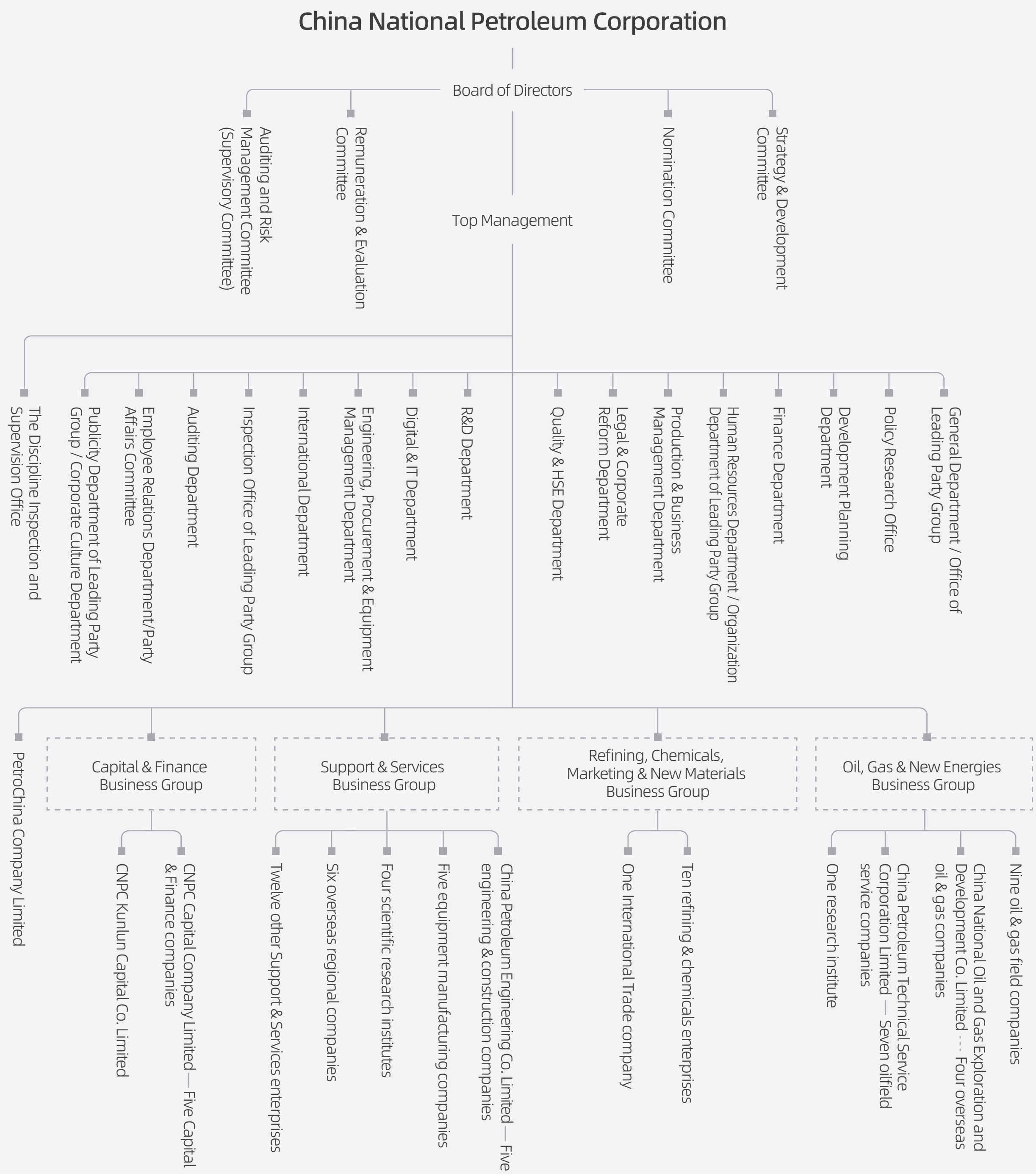
During the past year, we reinforced innovations on reform and management, which brought robust development and vitality. The Company adhered to the three-year action plan for SOE reform, and accomplished all reform tasks in full. Reforms on institutions and mechanisms kept on deepening, with the establishment of Equipment Manufacturing Department and tangible implementation of optimization and adjustment measures on overseas business. The Company also deployed the quality and efficiency improvement as well as value creation campaign that enabled an extra earning of RMB 20.1 billion. The coordinated drive to "promote case-based reforms, tighten financial discipline, and enhance compliance management" brought our compliant and law-based corporate governance to a new level. The R&D business structure was also polished, featuring the launch of Wisdom Pool Research Institute, and the setting up of South Sea research center to incorporate offshore hydrocarbon expertise. We mapped out the "9 major projects" in oil and gas operations, and "8 main areas" for refining and chemicals business, coupled with accelerated building of two incubators for home-grown technologies. The Company also formulated a ten-year action plan on crucial basic research programs and secured a number of achievements in critical core technologies. "Digital CNPC" construction is well underway, and Kunlun ERP system has realized independent and stable operations.

In 2023, CNPC will continue to encounter much complexities in its operations, facing opportunities and challenges alike. As international geopolitics remain tangled and tough, global inflation stays high, bearish economy dampens oil demand globally, and market competition further intensifies, the year 2023 indicates greater challenges. Meanwhile, Chinese government calls for greater efforts into resources exploration and development, as well as reserves and production ramp-up, quicker steps in planning and building a new energy system, and active endeavors in the development of a green and low-carbon market. It has charted the way forward for our coordinated progress in oil and gas industry chains, as well as new energies, new materials, and new businesses. Given the new realities and new requirements, we will seize opportunities, fend off risks, overcome difficulties, and commit all strengths to the various tasks in our production and operations. The Company will make continuous efforts on new achievements of quality development, in order to lay a solid foundation for faster pace in building a world-class international enterprise.

President 

Hou Qijun

Organization Structure (as of December 31, 2022)



Operation Highlights

	2020	2021	2022
Financial Index			
Revenue (billion RMB yuan)	2,087.1	2,807.3	3,400.0
Earnings before taxes (billion RMB yuan)	87.5	166.5	266.9
Net income (billion RMB yuan)	50.3	100.3	180.4
Taxes and fees paid globally (billion RMB yuan)	315.8	398.0	530.5
Oil and Gas Production			
Oil production (mmt)	178.64	179.44	182.04
Domestic	102.25	103.11	105.00
Overseas (Equity)	76.39	76.33	77.04
Gas production (bcm)	160.35	169.24	177.20
Domestic	130.60	137.79	145.45
Overseas (Equity)	29.75	31.45	31.75
Refining and Chemicals			
Crude refining capacity (mmt)	231.68	231.68	251.68
Domestic	204.30	204.30	224.30
Overseas[1]	27.38	27.38	27.38
Crude runs (mmt)	191.83	200.81	203.46
Domestic	160.02	166.74	164.90
Overseas[2]	31.81	34.07	38.56
Domestic refined products output (mmt)	107.23	108.92	105.74
Domestic lube oil output (mmt)	1.58	1.89	1.68
Domestic ethylene output (mmt)	6.35	6.71	7.42
Marketing and Sales			
Refined products sales (mmt)	186.96	184.48	172.71
Domestic	106.51	111.26	104.23
Overseas	80.45	73.23	68.48
Domestic service stations	22,612	22,684	22,655
Domestic natural gas sales (bcm)	184.66	205.55	217.81

[1-2] The overseas crude refining capacity is based on CNPC's share, but the amount of overseas crude runs is based on the total output.

Corporate Governance

CNPC is a solely state-owned enterprise. According to the provisions of laws and regulations such as the Company Law of the People's Republic of China, the Law of the People's Republic of China on State-owned Assets in Enterprises, the Interim Regulations on Supervision and Administration of Enterprise State-Owned Assets, the Constitution of Communist Party of China, the Regulations on the Work of the Party Group of the Communist Party of China, as well as arrangements made by the State-owned Assets Supervision and Administration Commission of the State Council, 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, and achieve high-quality development by improving corporate competitiveness, innovation, corporate control, corporate influence, business resilience and governance efficiency.

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 in conformity with regulations, 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, oversees the implementation of the decisions of the CPC Central Committee and the instructions from Xi Jinping, General Secretary of the CPC Central Committee, and guides the direction of CNPC's reform and development to ensure corporate accountability in the financial, political and social areas.

In 2022, following Xi Jinping's Thought on Socialism with Chinese Characteristics for the New Era, CNPC as a major central state-owned enterprise played an underpinning role in guaranteeing oil and gas supply, promoting rural revitalization in terms of industry, talent, culture, ecology and CPC organization, and serving the Beijing Winter Olympics and Paralympics, and made 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, 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 to support the decision-making of the Board. The Board of Directors issues conventional authorization on decision-making regarding certain corporate operations in accordance with the Articles of Association of CNPC and Board of Directors Authorization Management of CNPC.

In 2022, the Board of Directors performed its duties and strengthened the role of the Board of Directors in corporate governance in line with the decisions and policies of the CPC Central Committee and the State Council and the instructions of the State-owned Assets Supervision and Administration Commission of the State Council. The Board of Directors pushed ahead with the 14th Five-Year Strategic Plan and the Company's key priorities for the year based on a strategy-guided approach to SOE reform, energy security, technological innovation, and green and low-carbon development; maintained a focus on high-standard, high-quality development; protected and created value for state-owned asset based on an efficient decision-making process; and stepped up efforts in risk management, risk analysis, and monitoring and control of major risks. The Board of Directors supported the top management in performing its duties and functions and coordinated organization-wide efforts on all fronts to achieve record-breaking results in total profit, net profit, economic profit and per-capita productivity, with total profit, net profit and net profit attributable to the parent company ranking first among central SOEs.

The Top Management

The top management reports to the Board of Directors and is responsible for business planning, implementation and management. The top management oversees the implementation of the Company's strategies, formulates the 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 and management system.

In 2022, the top management made steady and robust progress in stabilizing operations, strengthening management, mitigating risks, and improving efficiency. Oil and gas operations were running smoothly and efficiently across the value chain as main production indicators improved steadily. Significant progress was made in improving quality and efficiency and in controlling losses; substantial headway was achieved in corporate reform and technological innovation and the management of regulatory compliance was brought to the next level. The top management successfully implemented work plans for the year and excelled in key performance indicators.

The Decade in Review

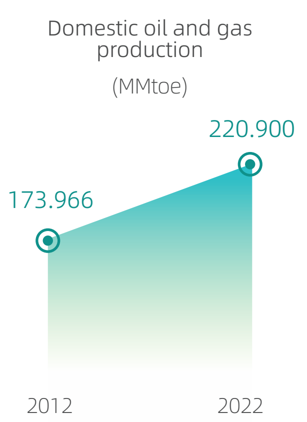
The decade since the 18th National Congress of the Communist Party of China has been very challenging and extraordinary for CNPC. Faced with the challenges of the once-in-a-century transition combined with the pandemic as well as the profound changes in the international landscape, CNPC has persisted with high-quality development by pushing ahead with deep reform and technological innovation in this new stage of development and made important contributions to ensuring national energy security, promoting green development and building a well-off society in an all-round way.

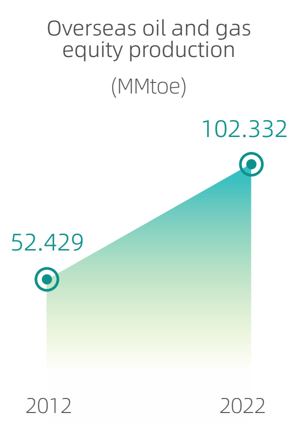
A Strong Commitment to National Energy Security with the Focus on Core Operations

Since the 18th National Congress of the Communist Party of China, CNPC has continuously improved the capacity and quality of energy supply in line with the decisions and policies of the CPC Central Committee and the State Council to facilitate the establishment of the modern energy system and provide a solid foundation for "securing energy in our own hands".

For the past decade, CNPC's domestic oil and natural gas production and overseas equity production have amounted to 1.95 billion tons of oil equivalent and 870 million tons of oil equivalent respectively. The new business landscape, i.e. 100 million tons of domestic crude oil production, 100 million TOE of domestic natural gas production, and 100 million TOE of overseas equity production, has been consolidated to ensure oil and gas supply effectively.

As of 2022, CNPC's domestic newly proven recoverable oil and gas reserves have exceeded 600 million tons for 17 consecutive years and 400 billion cubic meters for 16 consecutive years respectively; domestic crude oil production has been more than 100 million tons for 25 consecutive years.





The diversification of oil and gas supply highlighting five overseas cooperation zones, four oil and gas routes and three operation centers has formed a comprehensive industrial chain integrating E&P with pipeline operation, refining & chemicals and marketing.

Green Development towards Carbon Peak & Carbon Neutrality

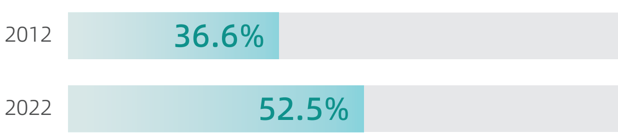
Since the 18th National Congress of the Communist Party of China, in line with the thought on eco-civilization and the important guidance on carbon neutrality and carbon peaking from Xi Jinping, General Secretary of the CPC Central Committee, CNPC has incorporated green and low-carbon development into the Company's strategy, mapped out a three-step approach of "clean alternative, strategic replacement and green transition", and set out the timetable and roadmap for carbon peak and carbon neutrality with a strong commitment to green development. The Company has embarked on the CNPC Green Development Path to support the development of fossil fuels and new energies in a coordinated way, bolster clean production and environmental protection, and promote green finance and green trade.

Over the past decade, CNPC has bolstered its efforts in stabilizing oil production and boosting gas output to increase clean energy supply, leading to the rapid growth of natural gas output. The energy mix is further optimized as a result of a growing proportion of natural gas in the Company's domestic oil and gas output.

Surpassing crude oil for the first time in 2020, the share of natural gas has continued to increase.

A number of new energies projects of hydrogen, geothermal and wind and solar power generation have advanced steadily. As of the end of 2022, the Company's new energy capacity has reached 8 million TCE per year. The Company has released the third version of its action plan for green development and developed a work plan for ecological and environmental protection in the Yellow River Basin and the Yangtze River Economic Belt in addition to its ongoing effort in promoting energy conservation, emission reduction and clean alternatives, with a continuous decrease in emissions of major pollutants for years. Based on an active response to the Paris Agreement and deep engagement in the collaborative effort of the global oil and gas industry for addressing climate change, the Company has made a significant step towards green and sustainable development by introducing the carbon emission control system and improving emission management.

The share of natural gas in the Company’s domestic oil and gas production (TOE)



Building up Innovative Capacity and Bolstering Technological Independence

Since the 18th National Congress of the Communist Party of China, in line with the national strategy of innovation-driven development, CNPC has built up its innovative capacity on all fronts and fostered new growth engines for high-quality development, focusing on technological independence and taking innovation as the core driver of growth.

In line with the innovation strategy, CNPC has made a number of landmark achievements in domestic reserves and production ramp-up, technological transformation/upgrading, and quality and efficiency improvement, highlighting geological theories and exploration techniques for continental shale oil, geological theories and exploration techniques for deep and ultra-deep reservoirs, 1Mt/a ethane-to-ethylene unit, high-end synthetic rubber unit, and one-touch 7,000-meter automated drilling rig. The Company has received the first and second prizes of the State Science and Technology Progress Award, the second prize of the National Award for Technological Invention, and the Gold Medal of China Patent for its R&D efforts. Recognized by the State-owned Assets Supervision and Administration Commission of the State Council as one of the enterprises with “Outstanding Contribution to Technological Innovation”, the Company also tops the list of central state-owned enterprises in terms of the number of patents granted.

CNPC has continued to deepen the reform of its framework for innovation governance and make progress in improving its technology platforms. At CNPC, the R&D team’s innovation momentum has been greatly enhanced. By the end of 2022, the Company has a total of 95 research institutes, 56 key laboratories and testing bases, and nearly 30,000 scientific researchers.

Honoring Social Responsibility and Fueling Happiness

Since the 18th National Congress of the Communist Party of China, in line with our values of “pursuing green development and providing reliable energy supply to fuel our customers' growth and power people's happy life”, CNPC has played an active role in poverty alleviation and rural revitalization and demonstrated the concept of people-centered development by honoring its social responsibility.

Aligning our strength with the needs and actual conditions of local communities, CNPC has helped all assisted counties achieve poverty alleviation. Embarking on the new journey of rural revitalization, CNPC has continued to deepen industrial, consumption and educational assistance and facilitate and consolidate effectively the process from poverty alleviation to rural revitalization.

In response to emergencies and natural disasters, CNPC took the lead in supporting rescue and relief efforts. During the pandemic, CNPC maintained focus on both pandemic control and energy production to safeguard the economic and social development. CNPC formulated a five-in-one work plan to serve the Beijing 2022 Winter Olympics with green energy.

In the future, CNPC will focus on advancing the Chinese path to modernization, implementing the new development philosophy completely, accurately and comprehensively, serving and integrating into the new development paradigm and promoting high-quality development to build a world-class company built to last and make our due contributions in building a modern socialist China and promoting the great rejuvenation of the Chinese nation in an all-round way.

2022 Industry Review

In 2022, due to the serious impact of geopolitical tensions, energy security became a key global issue. The price volatility in the international oil and gas markets had a significant impact on inflation rates around the globe, hindering economic recovery, resulting in a marked slowdown in global oil and gas consumption and prompting profound readjustment in the supply-and-demand outlook as well as the global landscape of oil and gas trading. The energy crisis in Europe turned governments' attention to energy security and led to a new high in coal consumption and a boost in renewable energy investment, leading to twists and turns in the transition to clean and low-carbon energy.

2022 Global Oil and Gas Industry

The global energy landscape was reshaped as the transition to green and low-carbon energy accelerated. International geopolitical tensions and conflicts caused profound changes in the global energy landscape, major supply and demand adjustments in the global market and drastic fluctuations in international oil and gas prices, making energy security the primary goal of energy policies for all governments. Global energy consumption witnessed rising demand for coal and rapid growth of renewable energy. Global investment in clean energy reported record growth and energy transition gathered pace after a brief hiccup.

International oil prices fell after rise, with an average annual price close to $100 per barrel. Given black swans and gray rhinoceros in the international oil markets, international crude oil prices experienced wide swings, with the average annual price rising sharply year-on-year. Due to the slowdown of the global economy and the repeated waves of the pandemic, demand growth slowed and oil supply rose sharply as competition intensified on the supply side. However, global oil inventories remained at a low level, resulting in the tight balance between supply and demand and supporting the oil price.

Gas prices hit new highs as market turmoil worsened. International geopolitical conflicts had a huge impact on global natural gas demand and supply. Global natural gas consumption saw a historic decline as natural gas production slowed down and natural gas trade decreased for three consecutive years. Natural gas prices fluctuated dramatically as a result of geopolitical tensions and once again hit a record high.

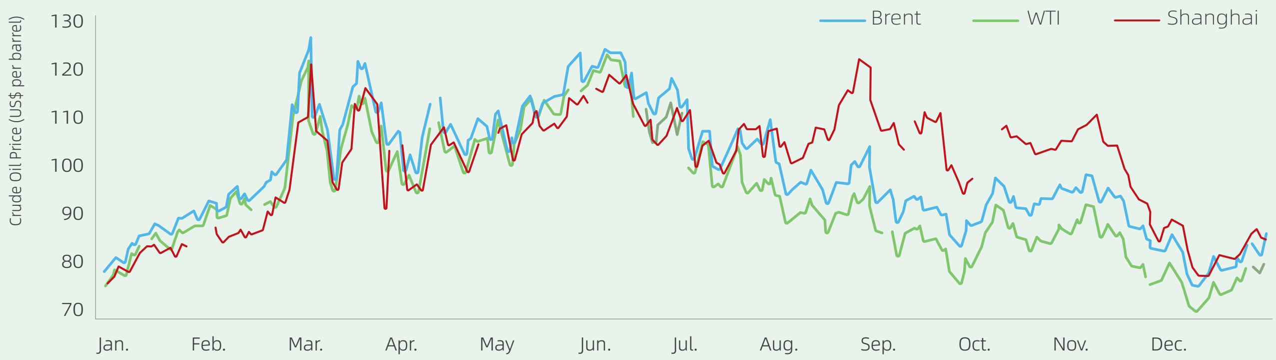
E&P investment increased remarkably as oil and gas production and reserves continued to recover. Global investments in E&P rose by 39% year on year, with above-average growth in the Americas and Asia Pacific. Global oil and natural gas reserves increased thanks to large-scale oil and gas discoveries on average, in which oil discoveries accounted for a bigger share and major discoveries mainly coming from West Africa and the northern offshore areas of South America. Both oil production and natural gas production increased worldwide as oil production outpaced natural gas.

Refining and chemicals capacity grew as fuels saw stronger demand and profits than chemicals. Global refining capacity reached 5.12 billion tons per year, with a net increase of 62.1 million tons; ethylene capacity reached 220 million tons, up 3.9%. The demand for petroleum products grew as the transportation sector continued to recover. Meanwhile, the demand for petrochemicals decreased significantly due to the global economic slowdown. Refining margins hit a record high as the petrochemical industry was headed towards a trough.

2022 China's Oil and Gas Industry

Energy supply and demand remained stable on the whole as the shifts in the energy mix speeded up. Given the global backdrop and the mounting pressure of energy supply in the domestic market, the energy sector managed to ensure supply and stabilize prices as renewable energy installations rose rapidly. Total domestic energy consumption increased steadily. The share of non-fossil fuel sources in China's primary energy consumption increased by 0.8 percentage points over the previous year. Renewable energy grew rapidly on a large scale, with the total installed capacity of renewable electricity exceeding 1.2 billion kW.

Price Movements of International Crude Oil Futures in 2022



The oil market witnessed a slow recovery as the market order continued to improve. The repeated waves of the pandemic, in combination with the explosive growth in the new-energy vehicle sector, led to a decline in oil demand. Crude oil output rose for the fourth year in a row and exceeded 200 million tons again after six years as oil dependency on external supply declined for two consecutive years. Demand for refined products fell more than expected, leading to periodic excess supply. The central government took action to straighten out the refined products market for the continuous improvement in market order.

Natural gas consumption grew at a slower rate and domestic natural gas production played a significant role in keeping supply and price stable. Domestic natural gas demand was dampened by high prices of imported gas, complexities relating to pandemic control, weaker-than-expected economic growth and availability of alternative energy sources. The year saw a big slowdown in natural gas consumption. Domestic natural gas production played a significant role in keeping supply and price stable. Natural gas imports fell for the first time, with LNG imports down by 19.6%.

Oil and natural gas outputs and reserves continued to grow as the process of energy transition and digital transformation picked up the pace in the oil and gas industry. Oil and gas companies continued to ramp up their E&P efforts. Newly proven recoverable oil and natural gas reserves were 1.46 billion tons and more than 1.2 trillion cubic meters respectively. Crude output rebounded to above 200 million tons; natural gas output achieved an increase of over 10 billion cubic meters for six consecutive years. Energy transition and digital transformation speeded up in the oil and gas industry as the carbon capture, utilization and storage (CCUS) sector made steady headway. E&P activities in deep, deepwater and unconventional formations made major breakthroughs and the oilfield services sector embraced an upturn.

A variety of production and operational indicators for refineries withered and the petrochemical industry reached the trough in the business cycle. The growth of domestic refining capacity slowed down and key performance indicators for refineries, such as crude runs, utilization rates and industry-wide margins per ton of crude oil etc., withered as a result of higher, volatile oil prices and a plunge in the demand for major petroleum products. The ethylene capacity grew rapidly with a significant increase in ethylene supply. However, due to a significant slowdown in ethylene demand, both margins and utilization rates hit historic lows. Petrochemical companies explored business opportunities in new materials and made headway in the localization of higher-end petrochemicals.

Despite complexities in the investment climate, international oil and gas cooperation was brought to a higher level. Chinese oil companies launched new overseas products and expanded existing operations as overseas equity production reached 185 million tons of oil equivalent, up 2.7% year on year. E&P breakthroughs and major discoveries supported the sustainable development of overseas operations. Measures were taken to optimize existing assets and facilitate participation in key tenders and renewal/increase of stakes in high-quality assets. The countries along the Belt & Road Initiative routes became the main destinations for overseas investment from Chinese oil companies.

Source: *2022 Report on Oil and Gas Industry Development* by CNPC ETRI

Environment and Society

The Company has been committed to the principle of "people-oriented, quality-utmost, safety-first, environment-prioritized" to achieve the goal of "zero accident, zero injury, zero pollution and zero defect". We pay attention to people's livelihood and social progress, and strive for harmonious relationship between energy and the environment, as well as enterprise and the community.

Safe Operation

At CNPC, we promote the building of a long-acting safety system and strengthen safety risk mitigation to enhance our workplace safety management. In 2022, the Company maintained safe and stable production.

Management system

The Measures for Supervision and Management of Workplace Safety and the Measures for Supervision and Management of Key Hazard Sources and Hazardous Chemicals were issued to further improve the workplace safety management system.

Risk management

The preventive mechanism for risk prevention and control and hazard identification and treatment was fully implemented and the classification system for risk prevention and control was further improved to eliminate safety risks and potential hazards. Targeted supervision measures based on risk classification were implemented in subsidiaries and a proactive approach to hazard identification was adopted to improve risk prevention.

Emergency response capabilities

The framework for emergency preparedness was taking shape. The emergency action plans regarding public health and capital market were improved and the revision and filing of the headquarters' emergency plan made progress.

Supply chain safety management

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

Overseas security risk management

The social security management system was further improved, measures for prevention and control of social security risks were heightened and the emergency response capabilities were enhanced.

Environmental Protection

At CNPC, we make great efforts to reduce adverse effects on environment and climate. By improving resource utilization, pollution control, energy conservation and emission reduction, green production and lean production, we strive to achieve harmony between energy production and the environment.

In-depth pollution control

Actions were taken to protect our blue skies, clear waters, and clean lands. 31 measures in 8 areas were implemented to promote green and low-carbon development, maintain ecological security, develop low-carbon and eco-friendly industries, and build a modern environmental governance system.

Environmental protection management

The guidelines on the permit for discharges were issued and the guidelines on environmental protection in construction projects were amended to ensure environmental compliance.

Environmental hazard management and risk control

Environmental hazards were identified and addressed on an ongoing basis, and overseas projects with operatorship were included in this process for the first time; environmental risks were identified and assessed. An environmental surveillance and early warning system was put in place. The three-tiered system of prevention and control facilities continued to improve.

Environment protection in key river basins

Efforts were heightened to protect the ecological environment in the Yellow River Basin and the Yangtze River Economic Belt, and strengthen coordination between key projects. 100 pollution control projects were completed in the Yellow River Basin and the Yangtze River Economic Belt to prevent environmental risks in these key basins.

Management of key pollutants

emissions of chemical oxygen demand, ammonia nitrogen, nitrogen oxides, and volatile organic compounds (in refining and chemicals operations) were reduced by 8.5%, 27.0%, 7.1% and 3.5% 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 0.74 million tons of standard coal, water consumption by 9.23 million cubic meters throughout the year.

Conservation of Biodiversity

A holistic approach centered on conservation and natural restoration was adopted. Engaging actively in biodiversity governance, the Company fully integrated biodiversity conservation into its business operations. In 2022, no events of damage to biodiversity were reported.

Demoiselle Cranes settle down in Changqing Oilfield

Climate Change

Actions were taken in line with the Paris Agreement and the Chinese government's goals for carbon peak and carbon neutrality. Under the three-step approach, i.e. "clean alternatives, strategic replacement and green development", the Action Plan 3.0 for Green and Low-carbon Development was formulated to introduce four measures: carbon reduction, carbon utilization, alternative fuels, and carbon sequestration. Three action plans, i.e. Green Business Leader Initiative, Clean and Low-carbon Energy Contributor Initiative, and Circular Carbon Economy Pioneer Initiative, along with ten energy-saving and carbon reduction projects were developed to facilitate the green and low-carbon transition.

Four measures for low-carbon development

Carbon reduction	Control the sources of carbon emissions, promote energy-saving practices, improve energy efficiency and energy utilization, reduce energy consumption, and bolster the natural gas business.
Carbon utilization	Improve carbon utilization, increase the use of carbon dioxide in the chemical industry and foster relevant industries.
Carbon offsetting	Replace the traditional fossil energy, promote the replacement of traditional heating used in oil and gas production with geothermal and solar thermal heating, promote the replacement of coal-fired electricity generation with clean electricity, accelerate the production and large-scale application of hydrogen energy, increase the use of "green power", and continue to promote electrification.
Carbon sequestration	Explore and improve the economically feasible technological pathways for carbon capture and storage, deploy CO_2 displacement and carbon storage on a large scale, expand "zero-carbon" and "carbon-negative" industries, and enhance the carbon sequestration capacity of the ecosystem.

Carbon Emission Management

The management system for carbon emissions was further improved in 2022 and a series of measures to reduce emissions and carbon intensity were launched. The Company was in charge of formulating China's Action Plan for Methane Emission Control and overseeing the pilot project of the Ministry of Ecology and Environment for methane monitoring. Meanwhile, the Company continued to promote cooperation under the framework of China Oil and Gas Methane Alliance and leveraged its industry-leading expertise and influence in reducing greenhouse gas emissions to implement the Action Plan for Methane Emission Control and achieve a year-on-year reduction in methane emissions intensity.

The Company supports and participates in a number of reduction and control plans and initiatives for GHG emissions.

- *The Paris Agreement*
- *United Nations Framework Convention on Climate Change*
- *China's National Climate Change Program*
- *Action Plan for Carbon Dioxide Peaking Before 2030*
- China Technology Strategic Alliance for CO_2 Capture, Utilization and Storage Technology Innovation (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*

Actively Participate in International Cooperation

As the only Chinese member of OGCI, the Company is involved in international cooperation actively to address climate change. In accordance with the proposal of CNPC OGCI working group, the studies on the electrification roadmap for downstream sectors and the methodological research on indirect greenhouse gas emissions in various upstream and downstream activities were carried out together with other member companies. The Company was fully involved in the research of the Paris Agreement mechanisms, joined the ISO TC265 working group on CCUS industry chain, participated in the formulation of international CCUS standards, and pushed ahead with Daqing, Changqing and Northwest CCUS Industry Promotion Centers under the framework of OGCI. In March 2022, the Company's Chairman Dai Houliang signed the Aiming for Zero Methane Emissions Initiative to encourage full engagement of oil and gas companies and a systematic approach to methane emission reduction.

Carbon Emission Reduction during Production

The Company endeavors to minimize the use of fossil fuels, accelerate the shift towards cleaner alternatives and reduce energy intensity. In 2022, The Company's first chemical project using green electricity, a 1.2 Mt/a ethylene plant as part of CNPC Jilin Petrochemical's Transformation and Upgrading Project, started construction.

Market-based Mechanism for Carbon Reduction

The Company played an active role in building China's National Carbon Market. It was one of the first major companies to achieve timely compliance within the first compliance period of the National Carbon Market. In 2022, the Company achieved full compliance with its annual carbon allowance.

Forestry Carbon Sink

The Company actively engages in building forestry carbon sinks to promote carbon neutrality through carbon compensation. In 2022, the Company's participation in voluntary tree planting reached 700,000 person-times, planting 1.955 million trees and increasing the green space to a total area of 314 million square meters. The Ma'anshan Ecological Governance Demonstration Zone and carbon neutral forests at Daqing Oilfield were completed. The total area of forestry carbon sinks reached 11,850 mu in 2022. Two CNPC subsidiaries received the National Greening Award for organizations and two CNPC employees received the National Greening Award.

"Planting Trees for Carbon Neutrality" Campaign

On March 10, 2022, the "Planting Trees for Carbon Neutrality" campaign was launched by CNPC in cooperation with China Green Foundation on yiwuzhishu.cn, the fundraising platform of China Green Foundation.

The purpose of the campaign is to raise funds from CNPC employees and the general public for voluntary tree planting activities and carbon sink forests. This campaign aims to raise RMB 100 million within five years to support afforestation a total area of 15,000 mu. As of the end of 2022, the campaign has received RMB17,889,800 from 559,200 participants. Tree planting for an area of 3,550 mu is under way.

Green development of Zhejiang Oilfield

Social Responsibility

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

"Come on! Baby" health campaign for kids from rural low-income families

On September 2, 2022, the "Come on! Baby" health campaign was launched in Beijing, jointly initiated by CNPC, the China Foundation for Rural Development (CFPA), and the Ant Foundation.

Focused on kids up to 14 years old from underprivileged rural families, the "Come on! Baby" campaign aims to improve children's health in underdeveloped areas by providing comprehensive coverage for hospitalization, certain diseases, accidents etc. to protect low-income rural families from poverty caused by diseases and accidents of children.

The campaign represents an innovative form of cooperation among SOEs, social organizations and online platforms, bringing together the brand reputation of SOEs, the expertise of social organizations and the influence of online platforms to encourage public engagement, maximize impact and benefit more families in underdeveloped areas.

Rural Revitalization

In response to the United Nations' 2030 Agenda for Sustainable Development and the Chinese government's guidance on promoting rural revitalization, the Company aligns its resources with local needs and conditions in the assisted areas to facilitate their endogenous development, consolidate poverty alleviation achievements, and promote rural development in a solid and orderly way. In 2022, the Company earmarked RMB 666 million in rural revitalization and public welfare, implemented 1,080 assistance projects.

CNPC Rural Revitalization efforts in 2022

Vitalization of industries	Food security Agro-industry chain to enrich the people Rural tourism Job creation for assisted areas
Training	CNPC Rural Development Lecture Training programs for oil & gas jobs
Cultural heritage	Making the most of local cultural heritage Rural cultural-ethical advancement
Ecological conservation	Improvement in living environment Green infrastructure Ecological potential in rural areas Conservation of Biodiversity
Marketing assistance	Connecting production and marketing Diversification of marketing channels Brand building for local specialties

The Company helped build corn drying factories and smart granaries in Nilek County and Jimunai County, Xinjiang to provide strong support for food security.

The Company helped build a feed plant in Qinghe County, Xinjiang, and created an integrated development model covering the entire industry chain from grass growing to product marketing.

The Company helped build inns beside terrace farmland in Hengfeng County, Jiangxi to promote rural tourism and create an eco-friendly and integrated model of development.

The Company helped 4326 people from 10 assisted counties find jobs to alleviate poverty, among which 529 were hired by our own company.

The Company set up the Rural Development Lecture training platform, which provided training for 197,000 community-level officials, rural revitalization leaders, and technicians.

Training courses on petroleum engineering under the CNPC Seedling Program enrolled 100 high school graduates from 6 assisted counties in Xinjiang.

The Company helped build two rural tourism demonstration projects in Fan County and Taiqian County, Henan to promote the development of home-stay tourism and cultural & creative sectors.

The Company carried out cultural-ethical advancement project in Xishui, Guizhou, and Hengfeng, Jiangxi. Also, around 600 themed cultural activities were organized to enrich people's cultural life in Xinjiang.

The Company carried out the Happy Villages Initiative to support household waste and sewage treatment in 76 villages and toilet upgrade for more than 2,000 households, to make these villages greener, brighter and more beautiful.

The Company carried out carbon neutrality and carbon peaking projects, e.g. national reserve forests and carbon sink research, in Qapqal County, Xinjiang, to promote green development in rural areas by purchasing, planting, maintaining trees and seedlings for an area of 10,000 mu and creating jobs such as forest rangers.

In Qinghe County, Xinjiang, an integrated water-saving fertilization project was put in operation to turn a 20,000-mu area of Gobi Desert into farmland.
In Xishui County, Guizhou, a demonstration project for rare specimen plants and land rotation practices was launched to maximize the ecological values in rural areas.

In Qinghe County, Xinjiang, the "Bringing Baby Beavers Home" program was launched to create a demonstration base for the harmony between human and nature. It combines science education, water conservation, protection of endangered species, and income creation for local farmers and herdsmen.

The Catalogue of Recommended Products for Marketing Assistance covering more than 3,000 items was issued. Employees and subsidiaries are encouraged to purchase these products.

A special section for products enjoying marketing assistance was set up in convenience stores at service stations and CNPC's online shopping platforms. Live stream marketing contests were also carried out to boost sales.

Leveraging its non-fuel marketing channels, the Company introduced local specialties such as Barkol melon, Nilek black honey, and Jimunai flour to promote industry upgrades.

Education

At CNPC, we continue to help young people access equal opportunities for education and realize their dreams and value through various student aid programs, including scholarships and grants. The Company earmarked RMB 64 million to support education in 2022. In partnership with China Foundation for Poverty Alleviation and other organizations, the Company explored new ways to carry out education support programs, so as to help more students from poverty-stricken areas pursue further education.

In 2022

- CNPC Scholarships provided RMB **4.47** million to **685** students.
- The Xuhang Scholarship Program earmarked RMB **11** million to support financially struggling students 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 capital 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 related business growth to achieve the city-based and industry-driven "city-industry integration".

"Teacher Training Program" for rural education development

Contributions to Local Communities in Overseas Operations

At CNPC, we respect local cultures and customs where we operate, and are committed to building long-term and stable cooperative relationship with the host country. As a good corporate citizen, we incorporate our development into local socioeconomic growth and actively create socioeconomic value to promote the development and prosperity of local communities.

Managing Community Impact

At CNPC, we strive 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 improving public welfare.

Enhancing Communication with Local Communities

At CNPC, we set up coordinating bodies 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.

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 in the local communities.

Promoting Localization

The Company embraces 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 its projects. We also support the development of SMEs and community-based start-ups, to create employment opportunities locally.

Job creation for local residents

The Company partnered with SENATI of Peru to provide training and consultation for local residents in mechanical maintenance, machinery operation, computer software, and professional code of conduct. It helps to improve women's work skills and create 3,000 jobs every year.

In 2022, we carried out a variety of community outreach activities overseas

Kazakhstan	◆ The Aktobe Company supported the development of local culture, education and sports programs. With the company's sponsorship, the Aktobe table tennis center was established. ◆ PetroKazakhstan donated 151 million tenge to charity and public welfare organizations in Kyzylorda Oblast.
Iraq	◆ The Halfaya Project donated education supplies to schools to support local education.
Chad	◆ The upstream project in Chad carried out a number of public welfare activities, such as "Sweet Community" and "Community Health & Care", to share development opportunities with surrounding communities. It also actively participated in the "One Person One Tree" afforestation campaign led by the Chadian government, helping to plant 320,000 trees on the outskirts of the Chadian capital N'Djamena to support local environment protection. ◆ The refinery in Chad actively carried out education, livelihood and other public welfare activities to improve schooling conditions and living standards for residents in local poor communities.
Niger	◆ To improve the well-being of local residents, the upstream project of the Niger Company focused its efforts on education, health, water supply and other public welfare causes. In 2022, seven new wells were built to enhance water supply for surrounding residents. ◆ The Zinder refinery donated medicines and medical equipment to improve local medical and healthcare conditions. It also carried out afforestation at the factory site and surrounding villages to protect local environment.
Canada	◆ We participated in the Conservation Champions Program at the Calgary Zoo as a sponsor, to provide young people with the opportunity to learn about endangered species and environmental protection. ◆ We also sponsored and joined (through a team of employees) the annual Dragon Boat Race held by the Calgary Dragon Boat Society.
Singapore	◆ 50 saplings were planted at Belok Reservoir Park, helping to add more green to the "garden city" of Singapore. ◆ PetroChina International (Singapore) received the award of Singapore's Best Customer Service 2022/23 granted by the Straits Times.

Human Resources

At CNPC, we regard innovation as the key growth driver and people as the greatest asset. We build up our human resources to support business growth by deepening the reform of the talent development system, implementing the human capital management program and maximizing the value of talents. We are committed to putting people first, with a focus on safeguarding employee rights and interests, building an effective platform for career development of our employees, and paying close attention to their physical and mental health to ensure all employees can grow along with the Company while benefiting from the Company's development and innovation.

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 an employment policy 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.

Employment Policies

We always value and safeguard the lawful rights and interests of our employees in line with the “people come 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 to 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

Focusing on the plans for improving quality and efficiency, innovation and human capital management and highlighting the role of merit-based incentives, the Company has established a multi-category, multi-tier system for labor cost management to enable the alignment of payroll growth with a competitive and profit/efficiency-focused salary distribution system. Meanwhile, the salary structure is optimized, with priorities given to front-line workers, key and demanding positions and technical professionals. Targeted mechanisms are strengthened to increase incentives for high-end management talents, key R&D talents, and high-skilled talents.

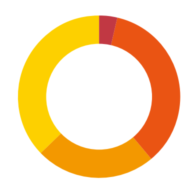
Employee Engagement

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.

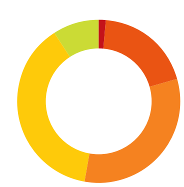
Composition of employees by educational background

- Master’s degree and higher 4.25%
- Bachelor’s degree 36.62%
- Junior college 23.59%
- Technical secondary school and below 35.54%



Composition of employees by age

- 25 and under 1.60%
- 26~35 17.23%
- 36~45 32.47%
- 46~55 39.08%
- 56 and above 9.62%



Employee sex ratio

- Male 70.5%
- Female 29.5%

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, we unleash the potential of human resources through "Internet + training", based on the modern corporate training practices. A differentiated and diversified approach to vocational training is developed, leveraging needs analysis and innovative forms of training.

In 2022, the Company issued the 14th Five-Year Plan for Employee Education and Training to enable tailored training; we worked closely with prestigious universities in China and made headway with the Excellent Engineers Program to create a team of excellent engineers; we also implemented a training system highlighting job-related training standards to ensure an improvement in disciplined training activities. The transition to digital training gathered pace and a new breakthrough was made in e-training.

- The number of training programs implemented in 2022: **25,000**
- The number of employees participating in training: **6.15** million
- The total training time: **38.38** million hours
- Training coverage of front-line employees: **100%**
- Training coverage of senior skilled personnel and staff in key operational positions: **100%**

The first training camp for employee onboarding

On May 9, 2022, "Join CNPC", CNPC's first training camp for employee onboarding, was launched during the 2022 National Vocational Education Week.

Starting on May 9, this 6-week training camp was held for 210 students newly recruited by 18 CNPC refining and petrochemical enterprises. The training program was based on cooperation among industry, enterprise and academy and focused on skill training for key positions in refining and petrochemical enterprises to support "make-to-order" training planning and talent pooling and prepare the new employees for a high-performing experience at workplace. The 2nd CNPC Cup Chemical Engineering Control Room Operator Contest for Vocational Colleges was held jointly by CNPC and China Petroleum and Chemical Industry Federation after completion of the training program, in order to assess the trainees in terms of adaptability, teamwork and comprehensive quality, recognize the outstanding candidates and enhance training efficiency.

Career Development

At CNPC, we attach great importance to the career planning of employees and support the career development of employees to realize their value. In line with the principle of "political integrity and professional competence", the Company strives to create a positive atmosphere for all kinds of talents to stand out and excel, based on a democratic, open, competitive and merit-based mechanism for talent selection. The Company launched the Year of Advancing the Talent-Driven Corporate Development Program comprehensively in 2022 to build up its talent strengths, including 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.

As of the end of 2022, the Company has established 92 Skilled Expert Workshops, including 28 National Skilled Expert Workshops, which serve as an effective platform for career development.

Young tech talent program

In May 2022, the Human Resources Department of CNPC released a plan for organization-wide implementation of the Young Tech Talent Program.

The program was innovation-oriented with an emphasis on talent selection in a range of professional spheres, including key areas such as geological prospecting, oil and gas field development, oil and gas well engineering, petroleum refining, petrochemicals, geophysical exploration and logging, etc. and burgeoning fields such as new energies, new materials, next-generation information technology etc. The program aimed to develop a talent pool based on a dynamic approach to candidate selection and candidate tracking on an ongoing basis. Targeted measures for recruiting talents were aligned with the Excellent Engineers Program, and a "make-to-order" approach to talent training was adopted, focusing on the needs in core areas of production and technology.

Talent-Driven Corporate Development

At CNPC, we implement the talent-driven corporate program in an all-round way in response to the new stage, new developments and new mission, aiming to create a dynamic human capital ecosystem and a strong talent pool to serve the high-quality growth.

Top-level Framework and Long-term Mechanism

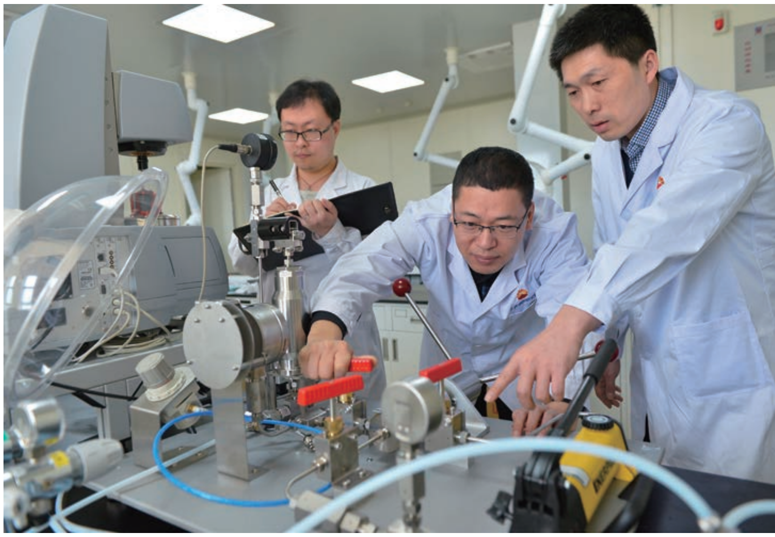
At CNPC, an integrated approach to strengthening the measures for talent training, selection, review and incentives is centered on the ten talent schemes and the mechanism to train & groom, attract & pool, appraise & motivate, and use & develop talents. The procedures for human resource valuation, selection of young cadres, management of highly skill talents, long-term talent incentives and recruitment of college graduates are in place. In addition, focusing on urgently needed top talents in key areas such as international operations, new energies and new materials, talent recruitment measures are tailored to provide a policy environment that is more positive, inclusive and effective and create an integrated, collaborative and efficient talent management system.

Organization and Operation of the Talent-Driven Corporate Development Program

The Company developed the 2021-2025 Roadmap for Talent-Driven Corporate Development Program and the 2022 Schedule for Talent-Driven Corporate Development Program with the rules for review and monitoring. The 100 Q&As for CNPC Talent-Driven Corporate Development was issued to provide insights and explanations and promote concerted effort in implementing the program. The Company pushed ahead with 20 key measures during the Year of Advancing the Talent-Driven Corporate Development Program.

Talent pool development

At CNPC, we implement and improve the mechanism to train & groom, attract & pool, appraise & motivate, and use & develop talents, while pressing ahead with the ten talent schemes. Under the Young Tech Talent Program, the first 494 Young Tech Talent Program candidates were selected for the exchange plans between research institutes and production enterprises. Under the Petroleum Masters Program, 88 candidates were selected; 4 skilled masters and 350 skilled experts were appointed.



Core technological R&D by technical personnel, Daqing Oilfield

"Ten Talent Schemes"

- Organizational System Optimization Scheme
- Talent-Driven Value Creation Scheme
- Scheme to Forge Cadres
- Management Team Function Enhancement Scheme
- High-level Tech Talent Scheme
- Talent Pooling Scheme for Scientific and Technological Innovation
- Skilled Talent Training and Development Scheme
- International Talent Acquisition Scheme
- Talent Succession Scheme
- Talent Development Scheme for New Energies, New Materials and New Businesses

The Company vigorously implemented key personnel training programs

3 employees were elected to the China Chemical Industry Association

2 employees received the Vocational Skills Competition of the People's Republic of China

1 employee received the Outstanding Contribution to National Skilled Talent Development Award (for individuals)

7 employees were awarded National Technical Expert

6 employees were awarded Central SOE Technical Expert

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

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 2022, international employees and local employees accounted for 78.8% of the Company's overseas employees.

Respecting Cultural Diversity

At CNPC, we give full accommodation to the personality, ability and background of employees, and cherish their varied talents. We make every effort to eliminate 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

Local employment in Indonesia

We recruit and train local employees in Indonesia. As of the end of 2022, we have hired 1,953 local employees, with local employees accounting for more than 99%. In addition, the plan for local talent development is formulated on an annual basis to strengthen business skills of our local employees. In 2022, 76 training sessions were held, with more than 1,600 participants.

Employee Health

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

Occupational Health

At CNPC, we give priority to improving occupational health of our employees. The Company issued the Guidance for Employee Health Management and held the Occupational Disease Prevention Law Awareness Week. More than 99% of employees received occupational physical examinations, the screening rate of occupational hazard factors reached 100%, and occupational health files were prepared for 100% of our employees.

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 various forms of training on mental well-being to encourage professional fulfillment and improve quality of life.

"Employee Well-being on the Cloud"

In 2022, "Employee Well-being on the Cloud", a series of online activities lasting one month and focusing on the subject of employee health, was held in the forms of online lectures, call for submissions and experience sharing. These activities aimed to convey CNPC's care for overseas employees and their families, encourage bonding between employee families and CNPC as a big family and facilitate understanding and communication between the management and employees, as well as employees and their families.

Overseas Employee Assistance Program in 2022

The mental health hotline for overseas employees provided **1,624** hours of counseling service in the year-round.

Number of help-line cases: **995**

Number of expatriate employees receiving readiness assessment and testing: **1,577**

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.

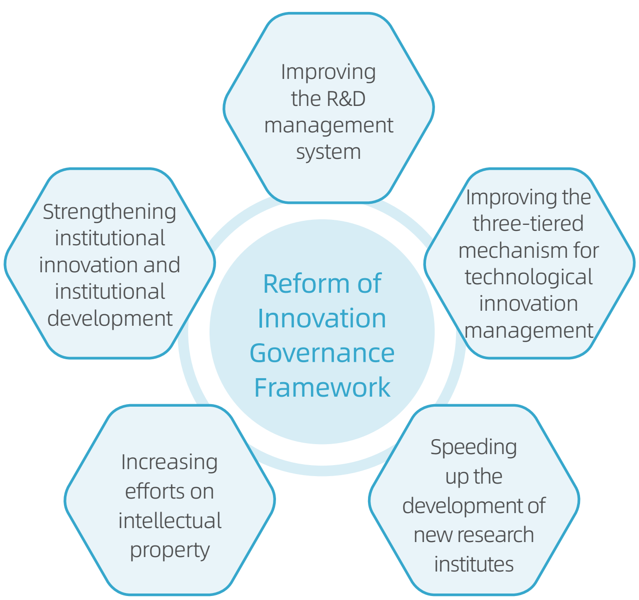
Research institutes
95

key laboratories and testing bases
56

National R&D & innovation platforms
14

Technological Innovation System

At CNPC, we continue to deepen the reform of the framework for innovation governance, strengthen top-level design and overall planning and improve the technological innovation management system to enhance the ability of independent innovation. As of the end of 2022, the Company has set up a total of 95 research institutes and 14 national R&D & innovation platforms, including the national key laboratory on EOR and the national R&D (testing) center on shale gas. In view of production and research needs, the Company has developed a comprehensive R&D system, including 37 key laboratories, 19 testing bases and 23 R&D centers. The Company has nearly 30,000 scientific researchers.



Progress in Technology Platforms and Innovation

In 2022, CNPC's EOR laboratory was included in the Ministry of Science and Technology's list of the first 20 national key laboratories, and the national key laboratory on oil and gas drilling, production and transportation equipment was approved to begin construction. The National Engineering Research Center on Well Drilling and Completion, the only national innovation platform targeting well drilling and completion, was inaugurated. The Company's entrepreneurship and innovation demonstration base was rated by the National Development and Reform Commission as one of the top entrepreneurship and innovation demonstration bases.

The first strategic cooperation agreement of Shenzhen New Energies Research Institute

On November 19, 2022, CNPC Shenzhen New Energies Research Institute and Huawei Digital Power Technologies Co., Ltd. signed a strategic cooperation agreement in Shenzhen. Under the agreement, the two sides will carry out all-round and in-depth cooperation on research and development to enable resource sharing and complementarity of respective strengths, so as to provide strong technical support for the green transition and high-quality development of CNPC.

The signing of this strategic cooperation agreement will promote in-depth cooperation between the two sides in areas featuring integrated development of new energies and hydrocarbons, such as intelligent micro-grid, energy storage, and hydrogen energy. It will also accelerate the construction of new energies demonstration projects in oil and gas fields and help CNPC implement its green and low-carbon strategy as well as bolster innovation capabilities regarding new energies technologies.

Major R&D Achievements

At CNPC, we implement actively 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. We have achieved a series of fruitful results marked by the "Top Ten Technological Achievements" in E&P, refining and petrochemicals, low-carbon and new energies, and oilfield services etc.

E&P: Geological theories and E&P techniques for ultra-deep oil/gas bolstered high-efficiency exploration and large-scale plus cost-effective exploitation; geological theories on the development of continental shale oil and key engineering techniques were applied in demonstration areas, i.e. Daqing, Xinjiang, Changqing and Dagang etc.; E&P theories and techniques for deep coal-seam methane, integrated techniques for gas flooding and underground gas storage, and geological theories for passive continental margins made breakthrough; major breakthroughs were achieved in multi-strata exploration in central Sichuan through refined characterization of the distribution of Sinian-Permian strike-slip faults in Sichuan Basin, innovation in trap/reservoir control and high-efficiency drainage in lithological strike-slip faults, and a new 3D model of reservoir forming and multiple accumulation.

Refining & Chemicals: The commercial production of low-viscosity polyalpha-olefin (PAO) facilitates an upgrade of lubricating base oils; a 20,000 t/a 1,4-cyclohexanedimethanol (CHDM) pilot project was successfully launched, making CNPC the third company in the world to have the full-industrial-chain capabilities for the manufacturing of PETG copolyesters; metallocene polyethylene production technology bolsters the development of high-end polyolefin industry; the proprietary flexible and high-efficiency catalytic cracking process and the high-carbon alpha-olefin polyethylene copolymer process and products made significant progress.

Oilfield Services: The industrial application of the one-click interactive 7,000-meter automated drilling rig made reliability improvements, i.e. a lower failure rate and an improved rig uptime; the CG STEER-150 geosteering-while-drilling system was widely applied with the purchase and service costs greatly reduced; the CG STEER-175-15 prototype was developed, demonstrating world-leading performance on all fronts; the 76mm ultra-high temperature, ultra-high pressure wireline logging equipment, and high temperature, high pressure azimuth electromagnetic wave imaging logging-while-drilling equipment were successfully applied in deep-layer hydrocarbon

Top 10 technological achievements in 2022

- Target appraisal techniques for pre-salt ultra-deepwater prospecting in passive continental margin basins and the major discovery at Curaçao
- Ultra-deep geomechanical techniques to support E&P in the deeper layers of Tarim Basin
- An important breakthrough in EOR techniques for low-permeability reservoirs using ion-matched nano-dispersion
- Intelligent zonal water injection for improved water flooding to enable fine and high-efficiency development
- Key technologies for preventing severe lost circulation and improving safety, quality and efficiency in drilling and completion
- OBN seismic exploration techniques and equipment innovation as a big step forward in marine operations
- Breakthrough and wide application of next-generation plug-and-perf techniques
- Major breakthroughs in key technologies for single-point mooring and offshore pipeline construction
- A major progress in domestic production of 1,4-cyclohexanedimethanol (CHDM)
- Metallocene polyethylene technology for the development of high-end polyolefin industry

exploration; intelligent zonal water injection technology promotes the formation of a fine and efficient development model with water flooding; key technologies for the prevention and control of severe lost circulation help to improve the safety, quality and efficiency of well drilling and completion; OBN seismic exploration technology and equipment innovation lead the leapfrog development of marine operations; R&D breakthrough and wide application of next-generation plug-and-perf techniques were achieved; significant breakthroughs have been made in key technologies for single point mooring and offshore pipeline construction; major progress was achieved in passive magnetic steering, 240 ℃ ultra-high temperature eco-friendly wellbore working fluids.

New Energies and Green & Low-carbon: Major progress was made in key technologies throughout the CCUS industry chain, integrated and high-efficiency utilization of geothermal energy, and manufacturing of wide-temperature, high-power lithium titanate battery materials and cells.

Frontier Technology: The Company has been developing new theories, methods and technologies in line with the development needs for the future and international tech trends. Breakthrough progress was achieved in ion-engineered, micro-nano-dispersion water flooding to increase the displacement efficiency by more than 15%; the research on miscibility of hydrocarbon systems revealed the heat-assisted mechanism of "in situ cracking + bidirectional mass transfer" to reduce greatly the miscibility pressure and enable a significant improvement in gas injection based EOR; important advances were made in in-situ catalytic upgrading of high-viscosity crude oil, revealing the key deposition points and targeted modification mechanisms for asphaltene structures in ultra-heavy oil to enable a revolutionary technology for cost-effective ultra-heavy oil production; a new microflow reaction method for continuous polymerization of liquid rubber and the high-concentration polymerization technology were developed to bolster our strength and competitiveness in synthetic rubber; the catalysts for polar copolymerization were developed to produce ethylene-based polar copolymers such as ethylene methyl acrylate (EMA), so as to facilitate the development of new materials.

Green hydrogen technology innovation platform, RIPED

Digital Transformation and Intelligent Operation

The Company takes an active approach to bring about digitalization and intelligent development, with a special focus on smart technologies and product innovation. At CNPC, we have embedded digital technology into our products, services and processes along the oil and gas value chains and integrated the Internet, cloud computing, big data and artificial intelligence with our business operations. We strive to promote intelligent oil and gas fields, intelligent refining and petrochemical production, intelligent marketing and intelligent oilfield services, to create new businesses, new operations and new business models that are an integral part of a "Digital CNPC".

CNPC Intelligent Operation Center put into operation

On June 28, 2022, CNPC Intelligent Operation Center was officially opened after the final acceptance.

As a key project under CNPC's 13th Five-Year Plan, the Intelligent Operation Center started construction in July 2020 and was completed on July 8, 2021 for trial operation. During the initial period, the Intelligent Operation Center provided strong support for CNPC's "two-tiers-in-one-piece" production and operation management model, enabling centralized production and operation scheduling, coordinated emergency response, and operational visibility. The capabilities in data sharing, intelligent monitoring and business coordination were building up and the operations regarding production, refining, transportation, marketing, storage and trading were coordinated. All this helped achieve closed-loop management of optimization, planning, monitoring and early warning throughout the oil and gas industry chains, bolstered capabilities in production and operation planning and rapid response, and demonstrated strong leadership in digital transformation.

Goal of Development

Our goal is to achieve substantial progress in digital transformation and build the Digital CNPC by 2025, featuring the integration of logistics, information flow and cash flow, as well as wide application of digital scenarios from key business areas in our production operations.

Development planning

Wide application of cloud computing, big data, artificial intelligence, edge computing and 5G, tryouts in blockchain and Web 3.0, as well as research on metaverse and other emerging technologies will help to build a new technological system for the Digital CNPC, to enable an Intelligent Twin that is fully cognitive, connected, analytical and real-time responsive, and create a smart energy ecosystem based on knowledge innovation and value creation through interaction/integration with physical entities and adaptive iteration/optimization.

Progress

The 14 subsidiaries selected for the digital transformation pilot project have reported industry-specific achievements for 108 application scenarios, and developed digital transformation and intelligent development models that can be copied and widely used elsewhere, showing constant headways in the research on digital and intelligent technologies.

Achievements

In various areas, 34 technical research achievements and more than 90 business algorithm models have been made, along with 105 software and hardware products developed and applied in 9 pilot companies. A total of 64 patent applications were filed.

Inauguration of China Petroleum Engineering Intelligence Support Center

On August 30, 2022, China Petroleum Engineering Intelligence Support Center (EISC) was inaugurated in Beijing, marking a solid step towards digital transformation and intelligent development in engineering services.

In recent years, CNPC has maintained a focus on digital transformation and intelligent development in its top-level design and forward-looking planning. The digital transformation and intelligent development of engineering services is centered on business development, management reform and technology empowerment to support the transition towards the Digital CNPC.

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 in the industry.

As one of the founding members of the innovation consortium of central SOEs for key components in major equipment, CNPC carried out joint research with Hefei General Machinery Research Institute and Shenyang Academy of Instrumentation Science under Sinomach; the Company also joined the innovation consortium of central SOEs for advanced metal materials and worked with CISRI on R&D. The Company pushed ahead with technological innovation under 14 strategic cooperation agreements with national ministries, government agencies, domestic enterprises, universities and research institutions, and made progress in the strategic cooperation projects with Peking University and China University of Petroleum, as well as the innovation consortium projects with Southwest Petroleum University etc., making important progress and reaching new milestones.

With respect to international exchange and cooperation, CNPC played an active role in the technological cooperation in polymer flooding for enhanced oil recovery, and low-emission, iron-resistant catalysts under 12 strategic partnership frameworks with companies like TotalEnergies and Equinor.

S&T Awards and Intellectual Property Rights

In 2022, the Company continued its efforts in building standardization systems, and supported the preparation for the National CCUS Standardization Committee; 6 new international standards and 2 amendments led by CNPC were enacted.

In 2022, the Company filed 6,862 patent applications and was granted 2,625 patents. The Company received 3 silver prizes and 5 excellence prizes of the 23rd China Patent Award.

Patents applied

6,862

Patents granted

2,625

Annual Business Review

The strengths and overall benefits of the Company's four business segments in coordination, resource sharing and integrated planning continued to build up. Oil and gas operations were running smoothly and efficiently across the value chain. Main production indicators improved steadily, highlighting a number of major breakthroughs and discoveries in oil and gas exploration, record-high domestic production (TOE), significant breakthroughs in strategic planning, transformation and upgrading of the Refining, Chemicals and New Materials segment, an effective role of the Support & Services segment and in-depth industry-finance integration.

Oil, Gas & New Energies

In 2022, in view of a revival in demand, the surge in oil prices and the national guidance on promoting new energies, the Company boosted efforts in E&P activities and domestic reserves and production ramp-up to achieve steady growth of crude oil production, rapid growth of natural gas production and an acceleration in new energies.

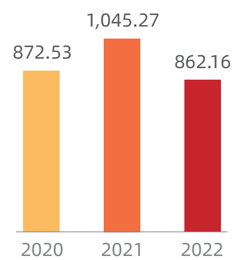
Domestic Exploration and Production

The Company reported a number of major breakthroughs and discoveries in exploration discoveries and achieved record-high domestic oil and gas output.

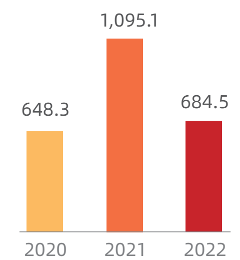
Exploration

Based on overall research and top-level design, exploration efforts were focused on risk exploration and preliminary prospecting in new plays and areas, highlighting concentrated exploration and refined exploration in reserve-adding and reserve-replacing areas. In 2022, the Company posted 4 strategic breakthroughs and 15 major discoveries and identified 9 100-million-ton and 9 100-billion-cubic-meter plays. Domestically, newly proven oil in place totaled 862.16 million tons and newly proven gas in place stood at 684.5 billion cubic meters.

Newly proven oil in place (Domestic) (mmt)



Newly proven gas in place (Domestic) (bcm)



Reserves and Operating Data (Domestic)

	2020	2021	2022
Newly proven oil in place (mmt)	872.53	1,045.27	862.16
Newly proven gas in place (bcm)	648.3	1,095.1	684.5
2D seismic (km)	7,431	7,264	8,618
3D seismic (sq km)	15,815	14,379	20,236
Exploratory wells	1,658	1,496	1,325
Preliminary prospecting wells	882	776	658
Appraisal wells	776	720	667

Major Discoveries and Achievements in 2022

Oil

Two major achievements were made in the exploration in Ordovician deep carbonates of Fuman oilfield, Tarim Basin and in the Baoding Sag (shallow oil), Bohai Bay Basin among others. A number of 100-mmt plays were discovered and confirmed in the Fuman Ordovician (Tarim), Mahu Fengcheng Formation (Junggar) and Xinghua Tectonic Belt (Hetao) etc.

Natural Gas

Two major breakthroughs were achieved in the exploration of deep natural gas in the middle part of the southern margin of the Junggar Basin and shale gas in the eastern Sichuan Basin etc. A number of 100-bcm plays were discovered and confirmed, including the Northern Slope of the central Sichuan paleo-uplift (Sichuan Basin), continental tight gas, and the Taiyuan Formation limestone in (Ordos Basin).

Shale Oil

Important discoveries were made in shale oil exploration in Ordos Basin, Junggar Basin and Songliao Basin.

Shale Gas

A major breakthrough was made in shale gas exploration in new formations of eastern Sichuan Basin.

Oil and Gas Production

Domestically, the Company produced 105 million tons of crude oil and 145.5 billion cubic meters of natural gas, with an increase of 1.89 million tons and 7.66 billion cubic meters respectively YOY. The full-year production hit a record high at 220.9 million tons of oil equivalent, with an increase of 8 million tons YOY.

Development of Key Oil and Gas Fields

The Company ensured steady output growth in major domestic oil and gas fields despite the pandemic and floods by strengthening the coordination of production, transportation, marketing and storage activities. The oil and gas production of Changqing Oilfield was on the rise and stood above 65 million tons of oil equivalent. Daqing Oilfield continued to maintain crude output around 30 million tons. Tarim Oilfield hit a record high of oil and gas output with a year-on-year increase amounting to 1.28 million tons of oil equivalent. Southwest Oilfield saw a year-on-year increase in production amounting to 2.33 million tons of oil equivalent, marking CNPC's fourth field with an output above 30 million tons. Xinjiang Oilfield's crude output kept rising. Liaohe Oilfield maintained stable production of above 10 million tons despite flood disasters.

Stabilizing Production of Mature Fields

Focusing on mitigating decline rates and enhancing recovery efficiency, the Company improved mature field management, bolstered oil recovery and increased economically recoverable reserves through the measures for refined reservoir interpretation, waterflooding optimization and dormant well restoration, in addition to ongoing efforts in CCUS and development testing. In 2022, the natural decline rate of oilfields and the comprehensive decline rate were 9.12% and 4.05% respectively, down by 0.57 and 0.24 percentage points from a year earlier. Drainage gas recovery and other measures were stepped up in mature gas fields, a range of techniques such as sidetracking of mature wells and stratum review were implemented, and EOR tests for fractured gas reservoirs with edge water aquifers were applied to maintain a natural decline rate at 20% and a comprehensive decline rate at 13%, despite a high initial decline rate of unconventional wells and an ever-increasing output.

Domestic oil and gas production

220.90 million tons of oil equivalent

Domestic crude production

105.00 million tons

Domestic natural gas production

145.5 billion cubic meters

Ramping up Production Capacity

The Company leveraged technological progress to increase single well output and facilitated efficiency with strong management, in a bid to meet the objectives for its production ramp-up projects and ensure a positive pull on output, efficiency and cost reduction. The year 2022 saw an addition of 11.72 million tons to the Company's crude capacity and an addition of 27.83 billion cubic meters to its natural gas capacity.

Unconventional Hydrocarbons

The Company continued to step up unconventional E&P by enhancing the prediction and appraisal of sweet spots, pilot development and demonstration of profit-based capacity building.

Shale oil: The capacity ramp-up for shale oil made steady progress in Changqing Oilfield; the integrated E&P plan for the national shale oil demonstration area in Gulong, Daqing was smoothly implemented; the national shale oil demonstration area in Jimsar, Xinjiang saw a remarkable improvement in its production indicators. The Company produced 3.036 million tons of shale oil in 2022.

Tight gas: Changqing Oilfield continued to expand the test scope for tight gas development while pushing ahead with adjustment to mature fields and production ramp-up in new fields; E&P activities in tight gas gathered pace in Southwest, Jilin and other oilfields. The produced 41.13 billion cubic meters of tight gas in 2022.

Shale gas: Deep shale gas development in Luzhou made a major breakthrough with a 10-bcm/a ramp-up project under way; the shale gas field in southern Sichuan maintained a rapid growth in production. The Company produced 13.92 billion cubic meters of tight gas in 2022.

Coal-bed methane: Focused on southern Qinshui Basin and eastern Ordos Basin, the Company made new breakthrough in deep CBM E&P through enhanced evaluation and pilot testing. The annual CBM output was 3.01 billion cubic meters.

Gas Storage Facilities

The Company continued to expand storage capacity of existing gas storage facilities and made headway with the evaluation and building of new facilities. In 2022, there were 8 capacity expansion projects and 7 new gas storage projects. As at the end of 2022, 15 gas storage facilities have been completed and put into operation. The gas injection stood at 15.7 billion cubic meters with a cumulative peak shaving capacity of 15.9 billion cubic meters in 2022.

Foreign E&P Projects in China

In 2022, the oil and gas output of CNPC's joint E&P operations in China continued to grow, reaching12.65 million tons of oil equivalent, including 2.89 million tons of crude oil and 12.2 billion cubic meters of natural gas.

The Company deepened the cooperation with international partners, including Shell, Total and Chevron etc., in E&P activities in China around low-permeability reservoirs, heavy oil, shallow-water reservoirs, sour gas, high-temperature and high-pressure gas reservoirs, CBM, and tight gas. By the end of 2022, the Company had 29 joint E&P projects in operation with foreign partners.

The key joint E&P projects demonstrated excellent results in production and operation. The Changqing Changbei Phase-II Project made progress in production ramp-up as the output exceeded 3 billion cubic meters for 15 consecutive years. The Southwest Chuandongbei Project produced more than 2 billion cubic meters for four consecutive years. The Changqing Sulige South Project made technical breakthrough with the annual output hitting a record high. The Dagang Zhaodong Project achieved growth in both production and reserves for new wells and a drop in decline rates for mature wells. The crude oil output of the Liaohe Haiyue Project reached a new high. The Jilin Da'an Project maintained the efficiency and profitability through effective measures for cost reduction.

Overseas Oil and Gas Operations

In 2022, the Company continued to bolster its global operations in Central Asia-Russia, Middle East, Africa, the Americas, and Asia Pacific. A number of major breakthroughs in E&P activities were achieved with overseas equity oil and gas outputs staying at 100 million tons of oil equivalent for four consecutive years. By the end of 2022, the Company's global oil and gas business covered 32 countries and regions around the world.

Oil and Gas Exploration

In 2022, the Company reported a number of major overseas discoveries. A world-class giant oilfield was taking shape in Alam, Brazil; two 100-million-ton hydrocarbon accumulations were identified in Chad and Niger.

Oil and Gas Production

The Company used a project-specific approach to dynamic analysis in production activities and boosted reserves and production ramp-up. In 2022, the Company's overseas equity production reached 102.33 million tons of oil equivalent, including 77.04 million tons of crude oil and 31.75 billion cubic meters of natural gas.

The Mero 1 block of the Libra Project in Brazil and the Arrow Energy's Surat Gas Project Phase I were successfully put into operation; the surface works of Amu Darya Territory B West Gas Field in Turkmenistan became operational ahead of schedule; the first LNG shipment was exported from the Coral FLNG vessel in Area-4, Mozambique; the LNG project Phase I in Canada advanced steadily.

CNPC deepwater oil and gas discovery in Brazil

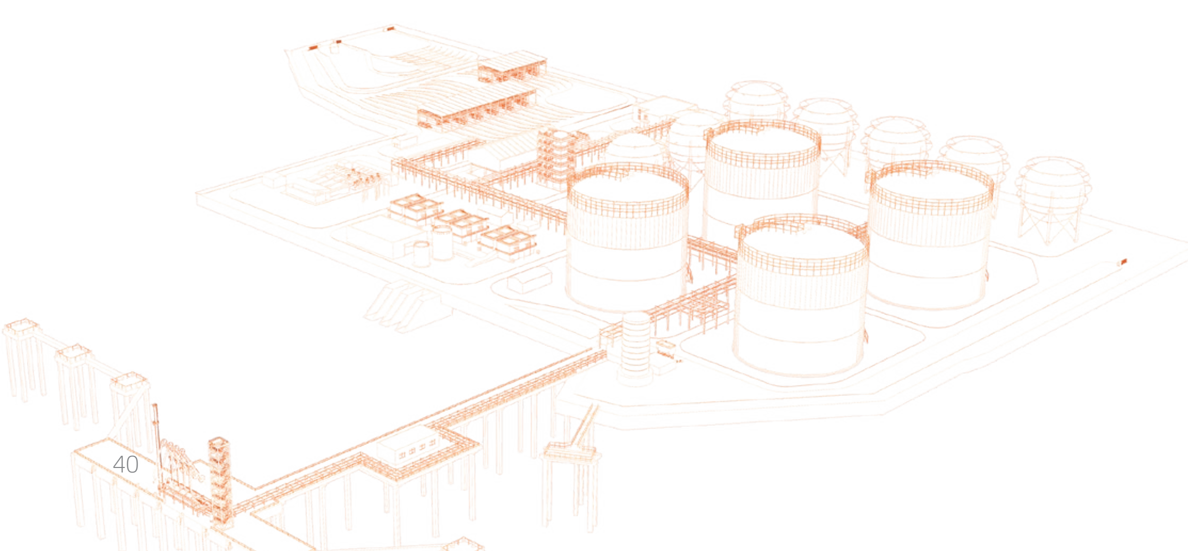
On November 10, 2022, CNPC announced that it had successfully completed formation testing in Well 1-BRSA-1381-SPS (Curaçao-1), the first exploratory well in the Aram Block of the Santos Basin in partnership with Petrobras.

On October 16, 2022, Well Curaçao-1 completed a three-round phase test and achieved high-yield oil flow. Based on the dynamic production data collected during the test, further analysis and appraisal was conducted to confirm the Alam block's resource potential and development prospects.

CNPC world-class deepwater oilfield project starting production in Brazil

On April 30, 2022, Guanabara, a floating production storage and offloading (FPSO) vessel operating for the Libra Project at the Unit 1 of Mero field offshore Brazil started production, marking a new stage of production growth.

Deployed after the FPSO Pioneiro de Libra for early production, FPSO Guanabara is the first major production platform operating at the Mero field, Libra with the capacity to produce 180,000 barrels of oil per day and 12 million cubic meters of natural gas per day, making it the largest FPSO in Brazil.



Pipeline Construction and Operation

The Company's overseas pipelines maintained safe and stable operation. The transnational routes in northwest and southwest delivered 21.28 million tons of crude oil and 51 billion cubic meters of natural gas throughout the year. The Niger-Benin Crude Pipeline construction progressed well with the laying of its undersea pipelines completed. The 15-bcm expansion project of the Kazakhstan South Natural Gas Pipeline was put into operation ahead of schedule. The Chad Phase II debottlenecking project became operational as scheduled.

Refining and Chemicals

The production and operation of the Company's overseas refining and chemicals projects remained steady and orderly, processing 38.558 million tons of crude oil throughout the year. The refinery in Niger completed an overhaul. The Shymkent refinery in Kazakhstan streamlined its governance structure to ensure smooth operation.

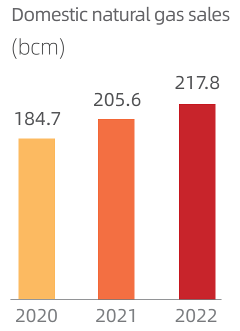
Assets Management

The Company’s overseas asset structure continued to optimize to bolster the operational efficiency; an equity purchase agreement was completed in Kazakhstan and a number of highly profitable projects were extended; a contract on oilfield services was signed in Oman; a joint venture was founded with BP for the Rumaila Project in Iraq with positive progress in asset transfer and ownership optimization.

Mero Oilfield, Libra Project, Brazil

Natural Gas Sales

In 2022, domestic natural gas consumption contracted for the first time in years due to the economic slowdown and high international natural gas prices. Faced with these challenges, the Company leveraged its strengths to achieve growth in both domestic sales and market share. The full-year domestic sales totaled 217.8 billion cubic meters, up by 6.0% year-on-year.



Natural Gas Marketing

In 2022, 196 new projects were put into operation, delivering CNPC's pipeline gas to many cities in the Pearl River Delta region for the first time and focusing on natural gas supply to the gas-fired power plants in the Yangtze River Delta, Pearl River Delta and Bohai Rim. The peak shaving and operation capacity was further improved and natural gas marketing made steady progress. Marketing efforts targeting end users were stepped up, adding about 0.87 million new end users throughout the year.

As at the end of 2022, the Company's natural gas marketing network has covered 31 provinces, municipalities and autonomous regions. The full-year terminal sales totaled 49.63 billion cubic meters, up by 6.9% from a year earlier.

LNG

The Company further optimized the planning for LNG operations and made headway with the preliminary work of a number of LNG terminal projects including the Fujian LNG Terminal, Western Guangdong LNG Terminal, and Jiangsu LNG Terminal Phase III jetty & tank expansion. The Fujian LNG Terminal got a green light from the National Development and Reform Commission. These projects will further improve the reception capacity of the Company's offshore gas corridor and bolster the Company's storage and peak-shaving capabilities. Meanwhile, the Company provided offshore LNG refueling for ships and delivered bonded LNG filling to international ships for the first time in November 2022 at Yantian Port in Shenzhen, marking a good start of new LNG terminal services.

As of the end of 2022, the Company had two LNG terminals in Jiangsu and Tangshan, with a total annual gasification and loading volume of 15.83 billion cubic meters; in 2022, the Company had 15 LNG plants in operation, with a total LNG processing volume of 2.78 billion cubic meters.

Tangshan LNG terminal, Hebei

New Energies

At CNPC, we have incorporated the green and low-carbon development into our development strategy, formulated a roadmap for achieving carbon peak and carbon neutrality, and set out a three-step approach to "Clean Alternative, Strategic Replacement and Green Development", making new energies part of our core operations. The business plans for new energies have been developed to facilitate the shift to an integrated energy company across oil, gas, thermal energy, electricity and hydrogen.

Hydrogen Energy

Tapping into the hydrogen energy business, the Company's high-purity hydrogen capacity increased by 1,500 t/a in 2022, with the total high-purity hydrogen capacity reaching 3,000 t/a. In 2022, 23 hydrogen refueling stations and integrated energy service stations were completed. Preliminary studies on 4 hydrogen purification projects were rolled out, including the Sichuan Petrochemical Project, which became operational in 2022. The first hydrogen-fueled torch was used to light the Winter Olympics as the Company maintained steady and constant supply of hydrogen energy to serve the Beijing Winter Olympics and Paralympics.

Geothermal Energy

In 2022, the first medium-deep geothermal heating project started construction in Beijing. The coverage of geothermal heating increased by 10.06 million square meters, with the total area of geothermal heating reaching 25 million square meters, replacing 570,000 tons of standard coal annually.

Wind and Solar Power Generation

In 2022, the Company received a 10.2 million-kilowatt approval for clean power generation as the total installed capacity exceeded 1.4 million kW. A 300,000-kW grid-connected photovoltaic power plant in Yumen Oilfield was near completion and the Xinghuo Floating Photovoltaic Demonstration Project in Daqing Oilfield was connected to the grid. The Company worked with State Power Investment Corporation in signing a 900,000-kW offshore wind power project in Guangxi.

The first grid-connected floating photovoltaic project of CNPC

In July 2022, the CNPC-designed Xinghuo Floating Photovoltaic Demonstration Project in Daqing Oilfield was connected to the grid. With an installed capacity of 18.7 megawatts, the Company's first floating photovoltaic project generates 27.5 million kWh of electricity annually and reduce carbon dioxide emissions by 22,000 tons compared with thermal power. As at the end of 2022, the project has generated 13.04 million kWh of electricity.

Oilfield Services

In 2022, the Company's oilfield services provided a strong support for adding reserves and bolstering production under the guidance on safety, compliance, efficiency and profitability and in line with the strategy of "innovation, market orientation, cost-effectiveness and integration".

Geophysical Prospecting

In 2022, CNPC acquired data of 38,000 kilometers of 2D lines and 80,000 square kilometers of 3D profiles.

Based on the wide adoption of the "broadband, wide azimuth and high density" seismic prospecting techniques, the Company continued to introduce novel techniques for data acquisition, develop equipment and supporting technologies related to nodal exploration, build digital seismic study teams and promote the wide adoption of intelligent nodal acquisition to enable high-efficiency exploration.

Drilling

The research efforts targeting "stuck-point" issues in key basins in China made headway in 2022, with a focus on integrated geological engineering to solve the "pain points" hindering efficient exploration and cost-effective production.

In 2022, the Company spudded 12,569 wells and completed 12,440 wells, with a total footage of 31.47 million meters.

Well Logging and Mud Logging

In 2022, the Company completed 99,460 well-times of well logging, up by 13.0% year-on-year. The proprietary high-temperature high-pressure small-diameter logging tool, CPLog, was successfully field-tested to replace imported instruments; eccentric NMR logging tools realized domestic replacement.

The Company has deepened comprehensive geological research and logging technology, enabling a comprehensive range of field geosteering services based on geological, reservoir, engineering and seismic data. The Company completed 11,241 instances of mud logging in 2022.

Oilfield Services Data

		2020	2021	2022
Geophysical prospecting	2D seismic data acquired (kilometers)	18,027	34,565	**37,837**
	3D seismic data acquired (square kilometers)	85,443	86,496	**80,376**
Drilling	Wells completed	11,117	12,019	**12,440**
	Drilling footage (million meters)	25.95	28.60	**31.47**
Well logging	Well logging operations (well-times)	81,702	88,017	**99,460**
Mud logging	Mud logging operations	10,359	10,334	**11,241**
Downhole operations	Downhole operations (well-times)	114,185	121,330	**106,844**
	Formation test (layers)	9,805	11,291	**12,256**
Offshore engineering	Offshore drilling footage (meters)	301,100	217,000	**309,000**

Geophysical prospecting in Qaidam Basin, BGP

Downhole Operations

In 2022, the Company completed 107,000 well-times of downhole operations, including 71,000 sections/intervals of fracturing.

Electric fracturing was widely used to enable a more cost-effective and eco-friendly fracturing process. The "dual-fracturing" mode set a record in both the daily number of plug-and-perf multi-stage fracturing sections per unit and the pumping fluid volume, filling the gap in the domestic "dual-fracturing" area.

A number of high-yield oil and gas wells were identified in Xinjiang, Sichuan and Tarim fields as risk exploration and formation testing for deep and ultra-deep wells continued to improve. Services capabilities required for snubbing operations were strengthened and more than 1,626 new wells were successfully commissioned.

Offshore Engineering

In 2022, the Company spudded 121 offshore wells and delivered 107 wells with a total drilling footage of 309,000 meters.

The repair project addressing the deformation of the Cezhen submarine pipeline for PipeChina was implemented in a safe and efficient manner, providing a novel permanent repair solution for deformation and defects of submarine pipelines.

The Company's first integrated production-repair platform, Dagang oil field Chenghai 1-1, was successfully designed, constructed, installed and commissioned to fill the gap in a number of technical processes in China.

Refining, Chemicals, Marketing & New Materials

In 2022, the Company continued to promote the transformation and upgrading in refining and chemicals and optimize the business structure. CNPC processed 164.9 million tons of crude oil domestically, and produced 105.74 million tons of refined products and 7.42 million tons of ethylene throughout the year. The new materials output increased by 56.3% year on year, as the production and development efforts stepped up. Based on in-depth market research and focusing on retailing, wholesales & direct sales and non-fuel business, domestic sales of refined products reached 104.23 million tons.

Refining and Chemicals

Based on a market-oriented approach, the product portfolio was further optimized. The Company continued to improve the operational stability of its refining and chemical plants, facilitate transformation and upgrading with the construction of key projects and accelerate new material projects to enhance its business competitiveness.

Optimization of Product Portfolio

The product portfolio of refining and chemical operations continued to optimize, with a focus on reducing refined products and increasing new chemicals, specialty chemicals, and high-end and high-value products, in order to maximize the profitability along the value chain. In 2022, the Company's refinery yield was 64.1%, with a year-on-year decrease of 1.2 percentage points. 16 of the 28 key technical and economic indicators for the Company's refineries improved from a year earlier.

In response to the sulfur limit regulations of the International Maritime Organization (IMO), the Company ramped up R&D and production of low-sulfur marine fuels and produced 6.40 million tons of low-sulfur marine fuels throughout the year. More specialty chemicals were produced, as the outputs of paraffin wax and petroleum coke increased by 5.5% and 6.4%, respectively.

R&D and production of new chemicals and specialty chemicals gained momentum and the efforts to cut back refined products and ramp up chemicals output made remarkable headway. The output of ethylene, synthetic resin, chemical fertilizers and other products grew steadily.

Refining and Chemicals Operating Data (Domestic)

	2020	2021	2022
Crude runs (mmt)	160.02	166.74	164.90
Utilization rate of refining units (%)	82.3	81.6	80.8
Refined product output (mmt)	107.23	108.92	105.74
Gasoline	46.28	49.39	43.51
Kerosene	10.23	11.29	8.58
Diesel	50.72	48.25	53.65
Lube oil output (mmt)	1.58	1.89	1.68
Ethylene output (mmt)	6.35	6.71	7.42
Synthetic resin output (mmt)	10.29	10.90	11.62
Synthetic fiber output (mmt)	0.03	0.02	0.03
Synthetic rubber output (mmt)	1.00	1.04	1.04
Urea output (mmt)	2.16	2.42	2.55
Synthetic ammonia output (mmt)	1.86	2.00	2.05

Construction of Large Refining & Chemical Bases

As of the end of 2022, the Company had eight large integrated refining-petrochemical complexes and fourteen 10 Mt/a refineries in China.

A number of key petrochemical projects made significant headway. The integrated refining and petrochemical project of Guangdong Petrochemical and the ABS project of Jilin Petrochemical (Jieyang) were completed; two large ethylene projects of Jilin Petrochemical and Guangxi Petrochemical started construction; the specialty nitrile-butadiene rubber project based on proprietary technology was put into operation at Lanzhou Petrochemical.

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 855,000 tons, with a year-on-year increase of 56.3%. Medical-grade polyolefin, solution styrene-butadiene rubber (SSBR) and cathode coke etc. were ready for commercial production, marking significant progress in the new materials business.

Fast-paced construction of new materials bases. A 1.2 Mt/a ethylene plant and its supporting works started construction at Jilin Petrochemical as part of the transformation and upgrading process to increase the production of high-value chemical products and new materials such as ABS and ethylene-propylene rubber. The construction of an integrated refining-petrochemical complex kicked off at Guangxi Petrochemical to facilitate the upgrading of the Company's SSBR products.

SSBR, an innovative new product

On June 28, 2022, China Petroleum and Chemical Industry Federation announced 15 new materials and innovative products for 2021 at the 2022 Petrochemical Industry Development Conference, including SSBR from Dushanzi Petrochemical.

The 300,000 t/a-PPH plant of Liaoyang Petrochemical

Marketing and Sales

In 2022, the Company stepped up its marketing efforts in response to the repeated waves of the pandemic, extreme weather conditions and regional demand-supply imbalances to improve the quality and efficiency of marketing operations.

Refined Products

In 2022, leveraging the integrated, synergetic strengths, the Company improved the coordination between production and sales, promoted a membership system in retailing and facilitated tie-in marketing for fuel & non-fuel products to increase sales and improve efficiency. A variety of marketing models were adopted, including community-based marketing, fine marketing, electronic refueling cards and apps and direct sales/wholesale apps, to strengthen the multi-tiered and classified account management. The full-year domestic sales of refined products reached 104.23 million tons.

Marketing & Sales of Chemical Products

In 2022, the Company sold 32.6 million tons of chemical products, up by 2.6% year on year, and a 24.2% increase in high-end high-value product brands, by leveraging the integrated system for technical support and customer service, broadened channels, hedging services for chemical products, CNPC e-Chemicals Platform and digital marketing.

Marketing Network

Based on a differentiated approach, the Company continued to fine-tune investment and prioritize R&D activities, optimize the network development structure and strengthen cooperation through various channels. Targeting new business scenarios such as hydrogen refueling stations and battery charging/swapping stations, the Company promoted transformation and upgrading of its marketing operations as part of the effort to become an internationally recognized leading service provider in refined products, gas, hydrogen, electricity and non-fuel products. A total of 177 service stations were built throughout the year. Of them, 204 new service stations, 23 hydrogen refueling stations (integrated energy service stations) were completed and 280 battery swap station became operational. As of the end of 2022, the Company had a total of 22,655 service stations in operation across the country.

Non-fuel Business

The Company promoted integrated marketing of refined products, pre-paid fuel cards, non-fuel products and lubricants and improved the fuel-to-non-fuel conversion rate by seizing key market opportunities and shopping seasons; based on resource consolidation throughout the value chain, the Company worked with more than 100 famous brands, including procurement and own brand partners, to improve customer engagement in a “product +service+ refueling card + fuel” model; procurement capabilities were strengthened to support a broader portfolio of own brand products; delivery capabilities were improved to support regional coordination in the supply chain in Beijing, Tianjin and Hebei. The Company worked with Meituan and JD to provide home delivery in more than 1,000 outlets and began to build e-commerce warehousing to solve the “last-mile delivery” problem. The sales revenue from non-fuel products totaled RMB 27.76 billion from convenience stores in 2022.

CNPC joining hands with leading companies in creating a new battery swap ecosystem

On September 21, 2022, SEPT New Energy Technology (“Energiex”), a company jointly founded by CNPC, Sinopec, SAIC, CATL and Shanghai International Automobile City Corporation, was inaugurated. Centered on battery leasing, Energiex specializes in R&D in battery swapping, battery operation management and big data services etc. It will provide an entire ecosystem under the concept of vehicle-battery separation and create a standardized platform to provide safe, reliable, easy-to-use and high-quality mobility experience for NEV owners.

CNPC and these leading companies will bring together their strengths in clean energy supply, R&D in NEV and battery technology, intelligent connected vehicle and intelligent transportation to build a new battery leasing platform under the concept of vehicle-battery separation, provide battery-as-a-service, promote the shift from fossil fuel-based vehicles to battery-based vehicles, and provide a standardized and generic solution for the industry.

International Trade

In response to changing situations and focused on mitigating business risks, the Company effectively performed the duty of "ensuring supply, reducing cost and improving efficiency" through a series of measures, i.e. optimizing imported crude resources, increasing pipeline gas imports, optimizing spot LNG purchases, boosting overseas equity oil and gas sales, coordinating the export of refined products and chemical products and providing hedging services in an orderly manner. The Company's three international operation hubs in Asia, Europe and the Americas continued to bolster operation management and build up the ability to operate across regions, markets and product lines. The Company posted a trade volume of 430 million tons and sales revenue of USD 323.9 billion for 2022.

Crude Trading

The Company managed to reduce cost and improve efficiency in crude trading by optimizing the allocation of resources, developing an unimpeded distribution system, expanding access to crude oil resources, implementing a diversified and quality-centered procurement strategy and optimizing consolidated shipment and transportation plans. The Company enhanced crude trading across regions and markets and established the trans-Atlantic sweet crude trading group; improved overseas time-charter fleets and warehousing facilities to provide a stronger support for crude trading.

Refined Products Trading

Refined products trading based on consolidated shipment across categories and refineries continued to gain momentum as new breakthroughs were achieved in Vietnam, Mexico, Mediterranean, Caribbean and other places. Biodiesel business continued to expand and ranked first in Europe in terms of trade volume and witnessed the first bio-jet fuel exports of China in 2022. The Company actively participated in futures trading in domestic futures exchanges and ranked among the top in terms of the delivery of high-sulfur and low-sulfur fuel oil contracts.

Natural Gas Trading

Based on analysis of international natural gas markets, the Company responded actively to changes in demand and supply conditions and market imbalances to ensure the stability in its natural gas industry chain, peak shaving in summer and natural gas supply in winter.

Chemicals Trading

As market exploration 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 paraffin and toluene.

Maritime Shipping

Maritime shipping operations were further streamlined as the Company's managed fleet continued to expand. The CNPC-invested LNG ships Shaolin and Wudang were delivered and put into operation. Meanwhile, we continued to build up shipping capacity in the forms of voyage charter, time charter and contract of affreightment (COA) etc. to support our international trade.

Crude oil jetty on Made Island, Myanmar-China crude oil pipeline

Support & Services

The Company leveraged its expertise and implemented the "dual-driver" (management + technological innovation) approach to bolstering service quality and market competitiveness in Engineering & Construction, Equipment Manufacturing and Research & Consulting to support high-quality development.

Engineering & Construction

As of the end of 2022, the Company performed 81 major projects in oil and gas field surface engineering, refining & petrochemicals and storage & transportation at home and abroad. China Petroleum Engineering Corporation ranked No. 3 on the ENR's Top 10 Global Oil and Gas Contractors list, No. 30 on the ENR's Top 250 Global Contractors (measured by revenue generated globally) in 2022.

Oil and Gas Field Surface Engineering

The surface project for capacity ramp-up (part of the processing plant) at Shenmu Gas Field in Jidong Oilfield and the surface project for the development of carbonate reservoirs at the Yuke Block in Hudson Oilfield became operational; the Halfaya Gas Processing Plant in Iraq and the surface project phase 2 for the Niger Oilfield progressed steadily.

Storage & Transportation

The Eastern Russia-China Natural Gas Pipeline (Anping-Tai'an Section and Taian-Taixing Section), Tangshan LNG Distribution Pipeline, the trunk pipeline for gathering and transporting shale gas from the Weiyuan-Luzhou Block were put into operation; the Third West-East Gas Pipeline, Fourth West-East Gas Pipeline, Eastern Russia-China Natural Gas Pipeline (Nantong-Luzhi Section) progressed well; a number of new projects started construction, including LNG terminal projects in Rudong (Jiangsu), Huizhou (Guangdong) and Tangshan (Hebei) and the subsea natural gas pipeline at Jiaozhou Bay (Qingdao).

Project panorama, Guangdong Petrochemical

Refining & Chemicals Engineering

The integrated refining and petrochemical project of Guangdong Petrochemical was completed; the transformation and upgrading projects of Jinzhou Petrochemical and Jinxi Petrochemical became operational; steady progress was made in the two large ethylene projects of Jilin Petrochemical and Guangxi Petrochemical; contracts were signed for the integrated refining and petrochemical project of Yulong Petrochemical and the Verbund cracker project of BASF (Guangdong).

New Energies & New Materials

The 120 MW photovoltaic power generation project in Tuha Oilfield was connected to the grid; new material projects, including Liaoyang Petrochemical CHDM, Lanzhou Petrochemical Specialty NBR and Dushanzi Petrochemical SSBR produced quality products.

Overseas Market Development

The Company achieved good results in optimizing its overseas market layout and exploring the international markets. The Company signed the contracts for the West Qurna-1 Field (Iraq) and the new crude processing plant for degassing station at the Rumaila Project in Iraq, the surface project for Uganda's Kingfisher Oil Field and the national gas pipeline project for Nigeria's Ajaokuta-Kaduna- Kano (AKK) pipeline; the Company entered Uganda's engineering general contracting (EPC) & project management contracting (PMC) market for the first time; the Company signed the contracts for front-end engineering design (FEED) of ABU Dhabi West-East Pipeline and detailed design of Iraq Nasiriyah Natural Gas Processing Plant, marking further achievements in high-end overseas design & consulting business; the EPC contract for PTT’s natural gas pipeline from Pangpakorn to South Bangkok Power Plant Phase-I was signed, strengthening the Company’s presence in Southeast Asia as a traditional market; licensing + EP (engineering and procurement) contracts for 1,000 t/a polyester plant in Ufrex, Egypt and 800 t/a polyester plant at Sanathan Textiles, India were concluded, with overseas polyester projects enjoying a significant increase in market share year-on-year.

Petroleum Equipment Manufacturing

The Company adheres to the direction of “high-end, intelligent and green” development, deepens the reform of the system and mechanism, established the Equipment Manufacturing Department, strengthens the professional management and integrated planning of equipment manufacturing, promotes the key core technology research and intelligent development of digital transformation, and promotes the construction of a “domestically leading and internationally top-rated” service provider in equipment manufacturing. The Company’s supply chain and marketing network continued to grow with overseas branches in Central Asia, Latin America, the Middle East, Africa, Asia Pacific and other international oil and gas productions regions. By the end of 2022, the Company sold petroleum equipment to more than 80 countries and regions around the world.

The Company stepped up R&D efforts in core technology and key equipment, with a focus on green, low-carbon and eco-friendly new technologies and new energies. New breakthroughs have been made in the research and application of key equipment such as the first silent 8000-meter automated drilling rig in China, the world's first 18Cr stainless steel continuous pipe, CCUS supercritical carbon dioxide injection compressor unit, the first 1.2 megawatt flywheel electrochemical hybrid energy storage system in China, and green electric energy storage efficient intelligent boiler. Some products have achieved international advanced levels in comprehensive performance. The 7000-meter automated drilling rig and the Model 7000 electric drive fracturing sled with one click human-machine interaction of Baoji Oilfield Machinery have been selected as the first major technical equipment catalog by the Ministry of Industry and Information Technology and the National Energy Administration.

The Company attaches importance to the International marketing of equipment products, actively responded to severe challenges in the global market, and provided material equipment and service support for many projects such as the Niger-Benin crude oil export pipeline, the expansion of Ronier power station in Chad, and the pressurization and transformation of Tanzania natural gas treatment plant. The cross-border long-term service of submersible electric pumps has increased by 21%, maintaining the international market share of the Company's equipment products, making new progress in global equipment product marketing.

Capital & Finance

The Company has a complete set of financial licenses, with business operations covering in in-house banking, financial leasing, trust, insurance, insurance brokerage etc. Centered on industry finance services and anchored to an industry-leading position, the Company's capital & finance business follows a problem-solving, disciplined and innovative approach to bringing the alignment of financial services with production needs and the collaboration between financial institutions to the next level. As green finance gained a strong momentum, the Company advanced on all fronts, especially in new energies, new materials and new technologies.

Capital Management

Functions such as cash concentration, settlement, fund monitoring and financial services are performed through China Petroleum Finance Company, a subsidiary of the Company, to support the centralized capital management and the effective utilization of funds. Serving the real economy and centered on industry finance services, China Petroleum Finance Company facilitated the transformation to the green and low-carbon development by promoting green credit and offering tailored financing products such as Gas Storage Loan, Exchange Connect and Commercial Paper Finance to support the high-quality development of the Company's core operations.

Banking

Bank of Kunlun, a subsidiary of CNPC, served the core energy operations by sticking to the business path of exploring the "smaller-sized, difficult, specialized and deep-level" areas of financing and creating exclusive solutions for the industry chain, in a bid to bolster business results and improve quality and efficiency. The bank achieved a new breakthrough in its Chemicals Sales Loan business, targeting clients along the industry chain; efforts were made to provide industry finance products through online platforms; the CNPC E-Connect business grew steadily.

Trust

Kunlun Trust, a subsidiary of CNPC, actively sought to invest in green and low-carbon areas and new energies to promote business growth in new energies, new materials, new business models and green finance, and leveraged our financial strength to protect lucid waters and lush mountains. In 2022, we worked with Tzu Chi Siming Medical Foundation, the largest medical assistance foundation in China, to assist in the development of healthcare.

Financial Leasing

Kunlun Financial Leasing, a subsidiary of CNPC, leveraged its expertise in leasing and financing to promote the development of a petroleum equipment leasing platform; a credit rating model was developed to improve quantitative evaluation of credit risks. A total of RMB 16.5 billion was provided throughout the year.

Insurance

Our captive insurance cases were included in the list of China's Most Influential Coverage Cases for three consecutive years. Generali China Life Insurance won many awards and accolades, including 2022 Insurers with Excellent Investment Performance, 2022 Zhenshan Business Award, and China Banking and Insurance Service Innovation Award. Generali China Life Insurance made a strategic move in new energies, developed an integrated risk coverage solution and provided novel green insurance products and services to support the transformation to green and low-carbon development.

Insurance Brokerage

Kunlun Insurance Brokerage Company, a subsidiary of CNPC, leveraged industry-finance integration to provide comprehensive insurance services for CNPC's energy supply. In December 2022, the CNPC Commercial Property Insurance Information System developed by Kunlun Insurance Brokerage Company was put into service.

Industrial Capital Investment

Kunlun Capital Co., LTD., a subsidiary of CNPC, was incorporated with the market-oriented governance structure and operation system. Kunlun Capital watched closely opportunities in new energies, new materials and new technologies, especially lithium battery materials, biodegradable materials and heterojunction solar cells. In 2022, Kunlun Capital kicked off its first technology transfer project across a number of funds, marking a good start in business.

Emerging Industry: Kunlun Capital's first investment

On April 19, 2022, CNPC Kunlun Capital Co., LTD. signed a strategic investment agreement with Shanghai Shanshan Lithium Electric Material Technology Co., Ltd. via a "cloud signing" ceremony. As Kunlun Capital's first investment since its foundation, the project marks a successful start of its investment business.

Financial Statements

Consolidated Balance Sheet

million RMB yuan

Item	2020	2021	2022
Current assets			
Cash and cash equivalent	229,805.98	271,391.44	321,339.30
Funds lent*	185,735.05	231,062.05	296,316.59
Financial assets held for trading	90,336.79	106,791.43	113,037.23
Derivative financial assets	1,517.35	398.49	21,594.03
Notes receivable	705.98	452.16	67.09
Accounts receivable	81,434.34	84,149.57	102,591.20
Receivables under financing	8,261.93	2,540.43	3,940.97
Prepayments	202,726.16	153,383.54	118,387.67
Premium receivable*	69.62	101.22	116.43
Reinsurance accounts receivable*	845.91	797.39	1,030.42
Reinsurance reserves receivable*	1,642.82	1,771.00	1,547.59
Other receivables	36,270.47	57,579.58	68,112.21
Financial assets purchased under resale agreements*	24,700.22	62,059.09	28,615.78
Inventories	177,126.67	189,004.94	215,332.50
Contract assets	59,720.40	74,258.89	65,603.92
Assets held for sale	42,612.74	-	34.71
Non-current assets maturing within one year	140,145.28	197,170.16	130,274.67
Other current assets	144,217.31	111,857.78	129,953.99
Total current assets	1,427,875.02	1,544,769.16	1,617,896.30
Non-current assets			
Loans and advances issued*	116,262.45	101,454.52	117,241.62
Debt investments	95,439.55	70,676.25	77,621.50
Other debt investments	42,224.44	21,161.19	26,054.85
Long-term accounts receivable	52,329.15	47,579.43	52,776.95
Long-term equity investments	292,118.13	317,945.69	323,209.26
Other investments in equity instruments	9,081.59	8,213.47	18,547.03
Other non-current financial assets	53,528.19	33,662.27	31,244.04
Investment properties	2,475.44	2,467.83	2,837.77
Fixed assets	585,065.95	583,336.40	631,236.74
Construction in progress	252,217.09	259,819.94	257,651.66

Consolidated Balance Sheet (continued)

million RMB yuan

Item	2020	2021	2022
Oil and gas assets	944,188.74	952,596.50	976,946.05
Right-of-use assets	-	45,834.09	44,262.86
Intangible assets	101,544.28	105,979.60	108,299.30
Development expenditure	963.68	1,145.53	1,286.39
Goodwill	8,218.11	8,077.95	7,411.60
Long-term deferred expenses	52,474.45	35,756.12	35,194.49
Deferred tax assets	20,542.86	21,694.34	29,525.14
Other non-current assets	32,124.71	30,263.90	35,810.14
Total non-current assets	2,660,798.81	2,647,665.02	2,777,157.39
Total assets	4,088,673.83	4,192,434.18	4,395,053.69
Current liabilities			
Short-term loans	71,623.21	69,037.11	72,993.90
Borrowings from central bank*	2,624.23	7,887.49	6,179.35
Borrowing funds*	50,392.82	49,055.04	57,188.75
Trading financial liabilities	–	–	3,357.53
Derivative financial liabilities	4,698.08	3,640.25	14,837.45
Notes payable	60,397.70	68,562.99	55,649.38
Accounts payable	331,213.44	362,295.11	413,950.62
Receipts in advance	5,932.95	2,718.61	1,942.26
Contractual liabilities	114,449.18	105,583.80	109,490.50
Funds from sales of financial assets with repurchase agreement*	26,671.98	32,748.93	24,777.59
Deposits from customers and interbank*	200,083.54	204,244.40	237,020.14
Funds arising from acting trading of securities*	1	1	1
Employee benefits payable	38,931.87	46,203.38	63,875.37
Taxes payable	72,405.53	88,123.36	67,435.27
Other payables	84,212.70	78,730.86	78,390.59
Handling charges and commissions payable*	40.06	27.59	25.58
Reinsurance accounts payable*	719.83	592.40	777.90
Liabilities held for sale	2,261.52	-	-
Non-current liabilities due within one year	59,828.46	94,871.38	132,384.76
Other current liabilities	57,946.62	54,875.37	92,909.43
Total current liabilities	1,184,433.73	1,269,198.08	1,433,186.38

Consolidated Balance Sheet (continued)

million RMB yuan

Item	2020	2021	2022
Non-current liabilities			
Reserve for insurance contracts*	4,461.50	5,651.65	5,437.47
Long-term loan	54,104.05	91,473.65	49,876.70
Debentures payable	333,188.51	244,297.40	146,277.92
Lease liabilities	-	28,321.54	24,684.80
Long-term payables	5,021.67	12,611.61	13,202.98
Long-term employee remuneration payable	1,515.78	1,481.84	1,526.17
Accrued liabilities	139,443.84	150,091.81	160,990.04
Deferred income	12,808.10	10,500.30	9,453.51
Deferred tax liabilities	31,310.22	44,285.11	39,887.35
Other non-current liabilities	3,144.16	2,808.28	1,594.26
Total non-current liabilities	584,997.83	591,523.19	452,931.20
Total liabilities	1,769,431.56	1,860,721.27	1,886,117.58
Owners' equity			
Paid-up capital (or share capital)	486,855.00	486,855.00	487,055.00
Other equity instruments	147,702.14	102,994.08	66,656.79
Capital reserve	255,441.43	269,023.34	268,251.84
Other comprehensive income	-43,451.99	-53,658.65	-10,146.26
Special reserve	17,690.80	16,243.69	15,742.84
Surplus reserve	1,084,371.23	1,085,311.85	1,088,939.42
General risk provisions*	11,857.50	12,585.14	12,580.37
Undistributed profit	18,121.74	70,812.45	189,686.57
Total equity attributable to CNPC	1,978,587.85	1,990,166.90	2,118,766.57
Minority interest	340,654.42	341,546.01	390.169.54
Total owners' equity	2,319,242.27	2,331,712.91	2,508.936.11
Total liabilities and owners' equity	4,088,673.83	4,192,434.18	4,395,053.69

Consolidated Income Statement

million RMB yuan

Item	2020	2021	2022
1. Revenue	2,087,146.80	2,807,275.07	3,400,008.13
Including: Operating revenue	2,064,488.05	2,781,399.49	3,372,646.46
Interest income*	20,215.08	22,740.06	24,698.03
Premiums earned*	696.22	1,520.17	1,178.39
Handling charges and commission income*	1747.44	1,615.35	1,485.25

Consolidated Income Statement (continued)

million RMB yuan

Item	2020	2021	2022
2.Total cost of operations	2,029,239.85	2629,728.10	3,065,508.23
Including: Operating cost	1,587,693.90	2142,204.38	2,532,026.58
Interest expenses*	8,884.92	8,398.94	9,945.67
Handling charges and commission expenses*	278.62	1,566.51	1,939.33
Net expenditure for compensation payments*	505.07	577.28	958.74
Net amount of provision for insurance contract*	305.26	1,011.95	-30.40
Reinsurance costs*	180.61	158.54	166.58
Tax and surcharges	205,249.12	239,683.39	294,490.81
Selling expenses	79,366.75	79,404.47	74,816.95
Administrative expenses	79,018.52	84,406.40	93,580.35
R&D expenses	22,759.34	25,291.79	30,824.36
Finance expenses	25,401.03	22,442.15	-458.40
Others	19,596.71	24,582.30	27,247.66
Add: Other gains	11,530.91	15,585.58	19,150.64
Gain from investment (Loss is represented by “-”)	52,418.83	46,223.07	4,438.50
Exchange gain (Loss is represented by “-”)*	105.56	46.95	99.96
Net exposure gains (Loss is represented by “-”)	-	-	-
Gains from change in fair value (Loss is represented by “-”)	3,523.43	6,397.71	-7,967.70
Credit impairment loss (Loss is represented by “-”)	-796.91	-5773.76	-8,458.10
Impairments loss of assets (Loss is represented by “-”)	-29,625.36	-36,561.29	-44,771.93
Gain on disposal of assets (Loss is represented by “-”)	1,829.43	1,501.47	1,494.89
3.Operating profit (Loss is represented by “-”)	96,892.84	204,966.70	298,486.16
Add: Non-operating revenue	16,605.27	7,976.85	5,949.31
Including: Government grants	11,249.97	4,029.28	1,578.45
Less: Non-operating expenses	25,978.38	46,466.81	37,569.61
4. Earnings before taxes (Loss is represented by “-”)	87,519.73	166,476.74	266,865.86
Less: Income tax expenses	37,248.11	66,213.42	86,510.38
5.Net income (Net loss is represented by “-”)	50,271.62	100,263.32	180,355.48
(1) Classified by continuity of operations:			
Net income from continuous operation	50,271.62	100,263.32	180,355.48
Net income from discontinued operation	-	-	-
(2) Classified by ownership			
Net income attributable to CNPC	31,568.74	62,165.26	141,798.36
Minority interest	18,702.88	38,098.06	38,557.12

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:

(1) 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;

(2) Whether the lessee is entitled to almost all the economic benefits arising from the use of the identified assets during the period of use;

(3) 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

The Company has implemented since January 1, 2022 the Interpretation of Accounting Standards for Enterprises No. 15 (CK [2021] No.35), with no significant impact on the financial statements of the Company.

B. Main Types of Taxes

1. Corporate income tax

Corporate income tax shall be calculated on the basis of taxable income and the applicable tax rates shall be 15% and 25%, etc.

In accordance with the Announcement on Continuing the Corporate Income Tax Policy for the Western Development Strategy ([2020] No. 23) 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 Administration of Taxation jointly issued the Announcement on Further Improving the Policy of Pre-Tax Super-Deduction of Research and Development Expenses (Announcement No. 13 of 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, the State Administration of Taxation, and the Ministry of Science and Technology have issued an Announcement on Increasing the Pre-tax Deduction Efforts to Support Technological Innovation (Announcement No. 28 of the Ministry of Finance, the State Administration of Taxation, and the Ministry of Science and Technology, 2022). From October 1, 2022 to December 31, 2022, high-tech enterprises are allowed to deduct all newly purchased equipment and appliances in one lump sum during the year when calculating taxable income, and are allowed to implement 100% additional deduction before tax. For enterprises that currently apply a 75% pre-tax deduction ratio for research and development expenses, the pre-tax deduction ratio has been increased to 100%.

The Ministry of Finance and the State Administration of Taxation have issued the "Announcement of the Ministry of Finance and the State Administration of Taxation on Tax Preferential Policies for Enterprises to Invest in Basic Research" (Announcement No. 32 of the Ministry of Finance and the State Administration of Taxation in 2022). Starting from January 1, 2022, for the expenses invested by enterprises to non-profit scientific and technological research and development institutions, high-level schools, and government 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 and the State Administration of Taxation have issued the Announcement on the Extension of the Implementation Period of Partial Tax Preferential Policies (Announcement No. 4 of 2022 of the Ministry of Finance and the State Administration of Taxation), which stipulates that from January 1, 2022 to December 31, 2023, third-party enterprises engaged in pollution prevention and control that meet the conditions will be subject to a reduced corporate income tax rate of 15%.

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 Administration of Taxation, 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.

In accordance with the Notice on Printing and Distributing VAT Management Measures for Oil and Gas Enterprises (CS [2009] No.8) and the Supplementary Directive on VAT-related Issues for Oil and Gas Enterprises (CS [2009] No.97) 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.

The Ministry of Finance and the State Administration of Taxation have issued the "Announcement on Further Accelerating the Implementation Progress of the Ending Value Added Tax Deduction and Refund Policy" (Announcement No. 19 of 2022 of the Ministry of Finance and the State Administration of Taxation). Starting from April 1, 2022, the country will implement a new combined tax and fee support policy, which will implement large-scale tax refunds in advance for value-added tax deductions. Large enterprises in industries such as manufacturing that meet the conditions will fully refund the incremental value-added tax deductions on a monthly basis, Starting from the tax declaration period in June 2022, apply to the competent tax authority for a one-time refund of the remaining tax amount. Before June 30, 2022, on the basis of voluntary application by taxpayers, the remaining tax amount for large enterprises will be refunded in a centralized manner.

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.

In accordance with the Directive on Increases in Fuel Consumption Tax (CS [2015] No.11) announced by the Ministry of Finance and the State Taxation Administration, the unit consumption tax amount has increased from RMB 1.40 to RMB 1.52 per liter for gasoline, naphtha, solvent oils and lubricants, and from RMB 1.10 to RMB 1.20 per liter for diesel, jet kerosene and fuel oils, effective since January 13, 2015. The suspension of consumption tax remains unchanged for jet kerosene.

In accordance with the Directive 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 Directive 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.

The Ministry of Finance and the National Development and Reform Commission jointly issued a notice on the implementation of phased price subsidies after the international oil price reaches the regulatory limit (CJ [2022] No. 185). Starting from June 14, 2022, when the international market crude oil price exceeds the national regulatory limit for finished oil prices ($130 per barrel), the central government will regulate the production, commissioned processing, and import of gasoline and gasoline within China Diesel product oil production and operation enterprises (refining enterprises) implement phased price subsidies, and the subsidy amount is calculated based on the actual sales volume of gasoline and diesel that the refining enterprise pays consumption tax within a 10 working day period.

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 Directive 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 Administration of Taxation jointly issued the Announcement on Extending the Implementation Period of Some Preferential Tax Policies (MOF/SAT 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.

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 Directive 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.

Major Events

January

Jan. 5 CNPC R&D Center on Carbon Neutrality was put into operation.

March

Mar.10 A strategic partnership agreement was signed with China Export & Credit Insurance Corporation.

April

Apr.26 A strategic partnership framework agreement was signed with State Grid Corporation of China.

Apr.30 The Guanabara FPSO at Unit 1 of the Mero field in the Libra Project in Brazil was successfully commissioned.

May

May.12 A strategic partnership framework agreement was signed with East China University of Science and Technology.

May.12 A strategic partnership framework agreement was signed with CRRC Corporation Limited.

June

Jun.5 CNPC's Action Plan 3.0 for Green and Low-carbon Development was released.

Jun.14 A framework agreement for deepening strategic partnership was signed with China Huadian Corporation Limited.

Jun.21 CNPC co-hosted the first BRICS Energy Cooperation Forum with the Faculty of Energy and Mining Engineering, Chinese Academy of Engineering.

Jun.30 The 1.2 Mt/a integrated refining and petrochemical project of Guangdong Petrochemical was completed.

Jun.30 CNPC was awarded "China's Low-Carbon Role Model" for the 11th time.

July

Jul.1 Xinghuo Floating Photovoltaic Demonstration Project in Daqing Oilfield was connected to the grid as CNPC's first floating photovoltaic project.

Jul.25 Tarim Oilfield started construction of a 10-bcm capacity project in the Bozi-Dabei area.

Jun.14

Jun.21

Jun.30

August

Aug.5 The Ballast Program for mature fields was kicked off.

Aug.31 China Petroleum Engineering Intelligence Support Center (EISC) was inaugurated.

September

Sept.14 A comprehensive strategic partnership agreement was signed with the China Association for Science and Technology.

Sept.30 The Wisdom Pool Research Institute G.K. was established.

November

Nov.5 The CNPC International Cooperation Forum & Signing Ceremony was held during the 5th China International Import Expo.

Nov.9 The Babu Oilfield complex project won the "Belt and Road" International Project Award of PMI (China).

Nov.10 November 10 Gulasha-1, the first exploratory well in the Alam deepwater block in cooperation with Petrobras, was successfully tested.

Nov.16 CNPC started installation of its first wind power project in Jilin oilfield.

Nov.20 A partnership framework agreement was signed with Liaoning Province.

Nov.29 The 4th China-Russia Energy Business Forum opened, hosted by CNPC and co-hosted by Rosneft.

December

Dec.11 1 million metric tons of CO_2 was injected in 2022, exceeding 1 million tons for the first time with the cumulative CO_2 injection reaching 5.63 million metric tons.

Jul.1 Nov.5 Nov.16

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 diseases

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.

It is recommended that you visit www.cnpc.com.cn or scan the QR code to browse or download the PDF version of this report and learn more about us.

Planning: CNPC International Department

Editing: CNPC Economics & Technology Research Institute

Designing: Beijing FineDesign Co., Ltd.

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

9 Dongzhimen North Street, Dongcheng District, Beijing 100007, P. R. China
www.cnpc.com.cn