



Green development and energy delivery
Facilitating the growth momentum of customers
Empowering people to enjoy a better life



2020
Corporate Social Responsibility Report

About the Report

This is China National Petroleum Corporation's 15th annual Corporate Social Responsibility Report since the establishment of the reporting system in 2006. This report reflects our accomplishments in fulfilling our economic, environmental and social responsibilities in 2020. Hereby, we make the following statement on relevant information:

Reporting company: China National Petroleum Corporation (CNPC)

Alternative reference: China National Petroleum Corporation is also referred to in this report as "CNPC", "the Company", "we" and "us".

Timeframe: From January 1 to December 31, 2020. Given the continuity and comparability of the disclosed information, part of the information may be taken forward or backward as necessary.

Reporting period: This is an annual report. The 2019 Corporate Social Responsibility Report was issued on May 19, 2020.

Reporting principles: Objective, standardized, honest, transparent and substantive.

Report content: Our accomplishments in fulfilling our economic, environmental and social responsibilities.

Information sources: The Company's official documents, statistical reports and statistics related to the Company's subsidiaries. All the information has been reviewed by the Company's management and its subsidiaries.

Report improvements: The Report adds some key topics, such as CNPC's path of green and low-carbon transition and digital and intelligent development. In order to showcase our social responsibility performance in a more objective, comprehensive and prioritized manner, we made investigations on the CSR practices, verified the authenticity of cases, extensively solicited opinions and suggestions and actively responded to the concerns of all stakeholders.

References: The Report is prepared according to the *Guidelines on Improving Central Enterprises' Social Responsibility Performance* issued by the State-owned Assets Supervision and Administration Commission (SASAC), the *Sustainability Reporting Guideline (G2016)* published by the Global Reporting Initiative (GRI), the *Oil and Gas Industry Guidance on Voluntary Sustainability Reporting (2020)* co-published by the International Petroleum Industry Environmental Conservation Association (IPIECA) and the American Petroleum Institute (API), the *ISO 26000 Guidance on Social Responsibility* by ISO, the *2030 Agenda for Sustainable Development* by UN, the *Guidance on Social Responsibility Reporting (GB/T 36001-2015)* by China National Standardization Management Committee, and the *China CSR Reporting Guide for Petrochemical Industry (CASS-CSR4.0)* by CASS.

Language: The report is published in Chinese and English. In case of any discrepancy, the Chinese version shall prevail.

Access to the report: You may send email to csr@cnpc.com.cn or call 8610-59984395 for a hard copy. It is recommended that you download the PDF version of this report at www.cnpc.com.cn.

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Chairman's Message

I feel pleased to present the CNPC Corporate Social Responsibility Report 2020.

The year 2020 was an extremely unusual and challenging time. Due to the outbreak of the COVID-19 pandemic, various risks and conflicts were aggravated and intertwined, such as the deep economic recession, plummeting oil prices, sharp shrinking of oil and gas demand, intensified geopolitical instabilities and COVID-19's adverse impact on overseas markets. All these had a huge impact on CNPC's business operations. In the face of unprecedented risks and challenges, we endeavored to make progress while ensuring stability, seek opportunities and countermeasures, implement the strategies of resource, market, internationalization and innovation, and make effective performance in epidemic prevention and control, work resumption, business operations, reform and innovation, and other aspects. With such efforts, we achieved unusual operating results in an unusual year, brought the "13th Five-Year Plan" to a successful conclusion, and took a step forward on the way to building a world-class integrated international energy company, making important contributions to China's national energy security and its efforts to secure a decisive victory in building a moderately prosperous society in all respects.

Developing sturdily our main businesses to significantly safeguard China's national energy security

Under the dual pressure of low oil prices and COVID-19, we remained unwaveringly committed to China's national energy security strategy, and carried out special campaigns for our main businesses to maintain our quality and benefits in oil and gas industry. In 2020, we yielded fruitful results in oil and gas exploration and development with two historic leaps: oil and gas equivalent production exceeded 200 million tons for the first time, and gas production accounted for more than 50% for the first time. Daqing Oilfield maintained a plateau of 30 million tons of crude oil, Changqing Oilfield hit a record high of 60 million tons of oil and gas equivalent, Tarim Oilfield saw more than 30 million tons of oil and gas equivalent for the first time, and Southwest Oil and Gas Field

built a 30 billion cubic meters strategic gas field. Our overseas oil and gas equity production continued to stand above 100 million tons. Our refining and chemical restructuring paid off, oil and gas marketing was comprehensively strengthened, and business support capabilities and competitiveness were enhanced. We effectively guaranteed the market supply, while smoothly operating the industry chain and supply chain. We were more confident and capable of safeguarding China's national energy security.

Promoting thoroughly the modernization of our governance system and capabilities to enhance our governance performance

Modernization of corporate governance system and capabilities is the key to comprehensively deepening the reform of state-owned enterprises and improving the modern enterprise system. It is also badly needed for effective response to risks and inherently indispensable to achieve strategic goals. We optimize our system and mechanism that perfectly combine Party leadership and corporate governance, improve our strategic system, management system and organizational system, and build governance system and capabilities in line with our development goals, so as to comprehensively enhance our governance performance.

In 2020, we continued to deepen reform and innovation, with new progress and breakthroughs made in key areas. We basically completed the top-level design of our governance system. We developed and implemented a three-year action plan for the reform, adjusted and optimized functions of some headquarters divisions, smoothly completed the restructuring and transfer of pipeline assets, and basically completed the task to relieve our obligations to operate social programs. We devoted great efforts in research and development of key and core technologies. We participated in the "4Mt/a coal indirect liquefaction technology innovation, development and industrialization" project, which won the first prize of the National Science and Technology Progress Award. We accelerated the digitalized and intelligentized

enabling transformation, in order to facilitate cost reductions and efficiency improvements, coordinated sharing, constant innovation, risk prediction and control, and smart decision-making throughout the corporation.

Pushing for the green and low-carbon transition for a clean, beautiful world

As the world is moving towards a landscape of diversified, clean and low-carbon energy resources, green and low carbon development holds the key to the future of energy. Grasping the opportunities arising out of the low-carbon transition in the energy industry, we integrated green and low-carbon development into the corporate strategy for the first time. We strive to build a "Low-Carbon Energy Ecosystem" fully integrating fossil energy and clean energy. We aim for achieving peak carbon emissions by around 2025 and "near-zero" emissions by around 2050, contributing to China's efforts to have CO₂ emissions peak before 2030 and achieve carbon neutrality before 2060, as well as to the global climate targets. In 2020, we increased investment in low-carbon and zero-carbon assets, driving our domestic gas production to grow by 9.9% and account for about 70% of China's total production in 2020. We further optimized our oil and gas production mix and made important progress in our transition to green, low-carbon energy. We actively deployed hydrogen energy and other alternative energy industries and fostered growth poles for the green and low-carbon energy industry.

We promoted the modernization of our ecological environment management systems and capabilities, and intensified efforts in pollution control, ecological protection and restoration, and emission reduction. We set energy-saving and emission-reduction as a major binding target, improved the oil-gas commodity rate and energy utilization efficiency, and accelerated the replacement of green and clean resources. In 2020, we reduced our emissions of COD, ammonia-nitrogen, sulfur dioxide and nitrogen oxides by over 32%, 29%, 18%, and 36%, respectively, as compared with 2015. We continued our deep involvement in cooperation projects under the OGCI framework. We pledged that our carbon emission reduction actions will not be compromised by COVID-19 and low oil prices.

Supporting economic and social development to the best of our ability by upholding the people-centered philosophy

Upholding the people-centered philosophy, we contributed to winning the fights against COVID-19 and poverty. We gave top priority to the safety and health of our employees, and witnessed no epidemic or infection case in our workplaces. Leveraging our industrial and resource advantages, we went all out to secure refined products and gas supplies and made urgent arrangements to produce anti-epidemic supplies. We donated funds and goods to areas hit hard by the epidemic, assigned hundreds of petroleum medical workers to Wuhan amid the coronavirus epidemic, and supplied daily necessities to communities through our service station network. With these actions, we played our role as a reliable central enterprise in the nation-wide epidemic prevention and control. Our service station at Hongtu Avenue in Wuhan was the only heroic gas station in China that won the title "National Advanced

Collective for Fight against COVID-19". Overseas, we established joint prevention and control mechanisms against COVID-19 with local governments and communities and donated more than RMB 75 million worth of supplies to assist neighborhoods in their anti-epidemic efforts. We were also devoted to poverty alleviation by overcoming difficulties and challenges. During the "13th Five-Year Plan" period, we invested more than RMB 1.8 billion in targeted poverty alleviation in 1,175 villages across China to support the government's initiative for poverty alleviation and building a moderately prosperous society. All the counties (cities, districts) under our program of paired-up assistance in poverty alleviation were lifted out of poverty. Two CNPC units were awarded the "National Advanced Collective for Poverty Alleviation", and Liang Nanyu and Bu Pengzhou, two cadres in charge of poverty alleviation, were named the "National Advanced Individual in Poverty Alleviation". As a result of its efforts in poverty alleviation, CNPC was honored with the "2020 Best Practice for Corporate Achieving the Sustainable Development Goals (Eradicating Poverty and Promoting Prosperity)" award by the United Nations Global Compact and was granted the "National Award for Innovation in Poverty Alleviation" by the Chinese government.

What's past is prologue. In the "14th Five-Year Plan" period, the momentous changes unseen in a century are evolving at an accelerated pace, and the international landscape will further immerse in profound and complex changes. The electric revolution, market revolution, digital revolution and green revolution in the energy industry are in full swing, and the industry transformation is accelerating. In the face of numerous risks and challenges, we will remain sensitive to changes, respond to them with well-judged actions, and stay ready to adjust our approach when necessary. We will make efforts to foster new opportunities amid challenges and make new advances amid changes. We will maintain our strategic focus and commit ourselves to the strategy of innovation, resources, market, internationalization, and green and low-carbon development. We will push for high-quality development, deepen reform and innovation, facilitate the growth momentum of customers and empower people to enjoy a better life.

We are grateful for your attention and support to CNPC over the years. As a global corporate citizen, CNPC will devote our strengths to seek opportunities while meeting social needs and addressing common challenges, create shared value with stakeholders, achieve sustainable development of energy, the environment, and society, and work together to build a community with a shared future for mankind.

Dai Houliang, Chairman

About Us

As one of China's largest oil and gas producers and suppliers, CNPC is an integrated international energy corporation covering oil and gas operations, oilfield technical services, petroleum engineering construction, petroleum equipment manufacturing, financial services and new energy development. We possess oil and gas assets and interests in 35 countries/regions around the world. In 2020, CNPC ranked 3rd among the world's top 50 oil companies and 4th in the Fortune Global 500 ranking.

We are committed to providing CNPC solutions to the world's energy transition, China's efforts to have CO₂ emissions peak before 2030 and achieve carbon neutrality before 2060, and other climate and temperature control goals, in response to the United Nations sustainable development goals (SDGs). In 2020, we continued to improve our strategic system, put more emphasis on innovation-driven, green and low-carbon development, and enabled strategy to better play a leading role in sustainable development.

Our value

Green development and energy delivery, facilitating the growth momentum of customers and empowering people to enjoy a better life

Our philosophy

Patriotism, honesty, dedication, entrepreneurship

Our strategy

Innovation, resources, market, internationalization, green and low-carbon development

Assets & Profits

4,088.67 billion

CNPC registered total assets of RMB 4,088.67 billion

2,087.15 billion

We recorded operating revenue of RMB 2,087.15 billion

87.52 billion

Total profit of RMB 87.52 billion

315.75 billion

Our tax and fees payments totalled RMB 315.75 billion

1/7

The domestic tax and fees payments amount as 1/7 of the total paid by central enterprises

Resources Base

872.53 million tons

Our domestic newly added proven oil in place totalled 872.53 million tons

600 million tons

Exceeding 600 million tons for the 15th consecutive year

648.3 billion cubic meters

Our domestic newly added proven gas in place reached 648.3 billion cubic meters

400 billion cubic meters

Exceeding 400 billion cubic meters for the 14th consecutive year

International Business

35

We operated overseas oil and gas business in 35 countries/regions

100.093 million tons

We yielded an equity production of 100.093 million tons of oil and gas equivalent

78

We provided technical services and engineering construction in 78 countries/regions around the world

Oil & Gas Supply

106.507 million tons

Our domestic marketing volume of refined products was 106.507 million tons

33%

Accounting for 33% of the domestic market share

184.66 billion cubic meters

Our domestic marketing volume of natural gas was 184.66 billion cubic meters

Employee Development

1.3045 million

We have a total of 1.3045 million employees

88%

More than 88% of our overseas employees are local hires

1.45 billion

We spent RMB 1.45 billion on employee training

693,000 employees

A total of 693,000 employees were trained

100%

Covering all frontline staff

Public Welfare

720 million

We invested RMB 720million in public welfare undertakings globally, benefiting tens of thousands of people

400 villages

Supporting nearly 400 villages in 239 counties

330 million

In China, we spent about RMB 330 million on poverty alleviation

635 projects

A total of 635 poverty alleviation projects

1,526 employees

We assigned 1,526 employees to serve as cadres in temporary positions and work in villages

Figures in 2020

Oil & Gas Production

306.41 million tons

Domestic and overseas oil and gas production amounted to 306.41 million tons of oil and gas equivalent

1.87%

Domestic and overseas oil and gas production representing an increase of 1.87% year on year

102.25 million tons

We produced a total of 102.25 million tons of crude oil in China

130.6 billion cubic meters

Domestically, we produced a total of 130.6 billion cubic meters of natural gas

52.7%

Accounting for 52.7% of China's total crude oil

70%

Accounting for 70% of China's total natural gas

Environmental Protection

1.42%

The proportion of natural gas in our total energy consumption increased by 1.42% year on year

1,190 hectares

1,190 hectares of land saved

4.0%

Y-o-y reduction of COD emissions

4.5%

Y-o-y reduction of ammonia-nitrogen emissions

7.3%

Y-o-y reduction of SO₂ emissions

6.4%

Y-o-y reduction of NO_x emissions

9.65%

Y-o-y reduction of domestic GHG emissions per unit of oil and gas production

Technological Progress

17.34 billion

CNPC invested RMB 17.34 billion in research and development

Typically, the "4Mt/a coal indirect liquefaction technology innovation, development and industrialization" project won the first prize of the National Science and Technology Progress Award

Corporate Governance

CNPC is a wholly state-owned enterprise. According to relevant laws and regulations, including the *Company Law of the PRC*, the *Law of the PRC on State-owned Assets of Enterprises*, the *Constitution of the Communist Party of China*, and the *Regulation of Leading Party Members' Groups of CPC*, in addition to arrangements made by the State-owned Assets Supervision and Administration Commission of the State Council, CNPC has built and continuously perfected the legal person governance structure with clearly defined rights and responsibilities among the Party group, board of directors and senior executives, to ensure that each department carries out its own duties with effective balance, rational decision-making and coordinated operations. We strengthened our supervision and accountability system, reinforced our auditing supervision with a focus on system building and fulfillment of responsibilities, and realized clear control objectives, effective integration of resources and optimal efficiency and effectiveness. We also enhanced corporate social responsibility performance and achieved sustainable growth.

Governance Structure

Board of Directors

The Board of Directors is the decision-making organ of CNPC. The Board has four affiliated committees, i.e. the Strategic Development Committee, the Nomination Committee, the Evaluation and Remuneration Committee and the Audit and Risk Management Committee, which are designed to provide advice and recommendations for Board decisions.

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

In 2020, we

Thoroughly implemented the Party's organizational line in the new era, and gave full play to the leadership role of the Party organization in setting the right direction, keeping in mind the big picture and ensuring the implementation of Party policies and principles to accomplish major tasks such as COVID-19 prevention and control, enhancing business performance, and reform and development. We also consolidated the effectiveness of Party building, and strived for high-quality development through high-quality Party building.

Key Work of the Board of Directors in 2020

Formulation of development strategies	<ul style="list-style-type: none"> Review the Company's development strategies and medium-/long-term development plans Formulate the Company's annual business development and investment plans
Deliberation of major issues	<ul style="list-style-type: none"> Deliberate and approve major investment projects at home and abroad, to facilitate the implementation of the Company's overseas strategies
Attention to team building	<ul style="list-style-type: none"> Pay attention to communication with managers, and offer guidance and advice Organize board meetings, special committee meetings and centralized investigation and survey to communicate on company development and board building
Enhancement of risk prevention and control	<ul style="list-style-type: none"> Deliberate on annual audit report and internal control system work report, and propose improvement opinions and suggestions Exert the role of the Audit and Risk Management Committee, guide relevant departments to enhance their accountability in risk management, and implement major risk response measures Strengthen the risk analysis and response for decision-making for major projects to ensure that the operation objectives are achieved while risks are minimized

Affiliated Board Committees

As specialized organs directly under, and accountable to, the Board of Directors and composed of directors of the Company, the committees appoint their members and fulfill duties in accordance with the provisions of the Articles of Association of CNPC, and provide advice and recommendations for Board decisions.

In 2020, giving full play to their respective professional advantages, the directors of the Company exercised due care and diligence, playing a positive role in guiding the strategic development of the Company, strengthening the review of major decision-making issues, and strengthening risk control.

Compliance Management

CNPC regards compliance as one of its strategies for business revitalization. Compliance is of overriding importance. Therefore, we put legal compliance above economic interests, established the strategic position of compliance management, and further defined the responsibility of comprehensive compliance management. At the headquarters and in our subsidiaries, we continuously intensify compliance demonstration and review in respect of major decisions and major issues, and strengthen the prevention and control of compliance risks, in order to ensure management according to law and legal compliance in our operations. We strictly implement national laws and regulations and government regulatory requirements and keep strengthening compliance management in key areas. We have therefore basically put in place a general compliance management pattern featuring division of work, joint management and coordination. The awareness of compliance among our employees is strengthened, and an increasingly stern atmosphere for compliance is being created.

CNPC strictly upholds business ethics, credibility and integrity in its operations. We obey international covenants and laws and regulations of the countries where we operate, respect trade controls and fight against corruption, bribery, monopolistic practices, and unfair competition in any form. We deal with our suppliers, contractors, customers, government departments, partners and competitors and stakeholders in a fair and honest manner. We are committed to business integrity to win respect.

CNPC Management and Control Systems

CNPC Management and Control Systems	Goals	Measures
Compliance management system	<ul style="list-style-type: none"> Build a scientific, complete and effective management system Keep personnel behavior regulated and controlled Guarantee the Company's operational compliance and sustainable and sound development 	<ul style="list-style-type: none"> Improved the legal compliance demonstration, review and assurance system Conducted special identification and control of legal compliance risks Issued the <i>Measures for the Implementation of the Anti-Monopoly Law of the People's Republic of China</i> and the <i>Anti-Monopoly Compliance Guidelines</i> Developed compliance management demonstrations Improved the assessment indicators and scoring methods for compliant business operations Carried out Company-wide compliance training, covering 100% staff Delivered the <i>Anti-Commercial Bribery Handbook</i> in 6 languages to our employees worldwide
Internal control and risk management system	<ul style="list-style-type: none"> Complete system Overall control Effective implementation 	<ul style="list-style-type: none"> Integrated with the supervision system to create a compliant integrated management system Enhanced the capabilities of preventing/controlling major risks at key points Improved the system control by virtue of informationization Intensified the supervision on internal control in key areas Performed internal control training to build a team of professional internal control talents
QHSE management system	<ul style="list-style-type: none"> Standardized operation Controlled risks Continuous improvement 	<ul style="list-style-type: none"> Deepened the building of the QHSE system Promoted the Three-year Action Plan for Special Rectification of Work Safety Implemented the Three-year Action Plan for Centralized Improvement of Oil, Gas and Water Well Quality Worked actively on pollution control and energy management
Anti-corruption system	<ul style="list-style-type: none"> Consolidate and extend the resounding success in the fight against corruption Improve the supervision system Strengthen the restriction and supervision over the exercise of powers 	<ul style="list-style-type: none"> Fully demonstrated the functions of the honest administration and anti-corruption work leading/coordination group Promoted the system/mechanism of coordinated action to prevent and disable all managers and employees from engaging in practices that do not comply with anti-corruption policies and best practices, and worked ceaselessly to improve Party conduct, enforce Party discipline and fight corruption Issued the <i>Instructions on Construction and Supervision of the Decision-making System for Key Issues, Key Cadre Appointment/Dismissal, Key Project Investment and Large-value Funds Utilization (for Trial Implementation)</i>

Sustainable Development Management

Concept of Sustainable Development

For a company, fulfilling corporate social responsibility is not only a necessary path to achieve economic, environmental and social sustainability, but also an inevitable choice for its own sustainable development; it is not only an external requirement to adapt to economic and social development trends, but also an internal requirement to enhance its sustainability; it is not only an important way to change its development mode and achieve scientific development, but also a strategic requirement for expanding its internationalized operation.

We aim to achieve the organic unity of economic, environmental and social responsibilities, and strive to become an outstanding global corporate citizen with higher profitability, stronger influence, and a greater reputation in society. We have never relented in our efforts to implement our social responsibilities, adhere to legal operation, be honest and trustworthy, conserve resources and protect the environment, insist on the people-oriented principle and build a harmonious enterprise, in order to make returns to society and realize value sharing.



CNPC Sustainable Development Model

Management Mechanisms

Sustainable development management is an important part of CNPC's drive for deepening the modernization of its governance system and capabilities. At CNPC, we regard the establishment and improvement of the social responsibility management mechanism as a fundamental task in advancing sustainable development management. Focusing on system establishment, organizational structure and capability building, we have established a set of comparatively comprehensive sustainable development management mechanisms.

System Building

We have developed a "1+N" system covering economic, environmental and social responsibilities. Guided by the *Guideline of CNPC on Fulfilling Social Responsibility*, we improve working rules and regulations on corporate governance, safety and environmental protection, low-carbon development, product quality, employee health, and social welfare, laying a solid foundation for sustainable development management.

Organizational Structure

The Social Responsibility Management Committee is responsible for making social responsibility strategies and plans. The Committee is composed of heads of headquarters functional departments, with a company leader as the director. Meanwhile, we have established an External Experts Committee and regularly hold meetings to solicit professional advice on social responsibility management and best practices, and to provide support for our decision-making. At the headquarters, we have set up the Social Responsibility Office for CSR implementation, which is responsible for organizing and coordinating the planning and implementation of our social responsibility work. A working mechanism has been established, in which the Committee takes the lead, departments in charge organize the work, business sectors take respective responsibilities and affiliates are fully engaged. This has effectively ensured the progress of our social responsibility standards and planning.

Capability Building

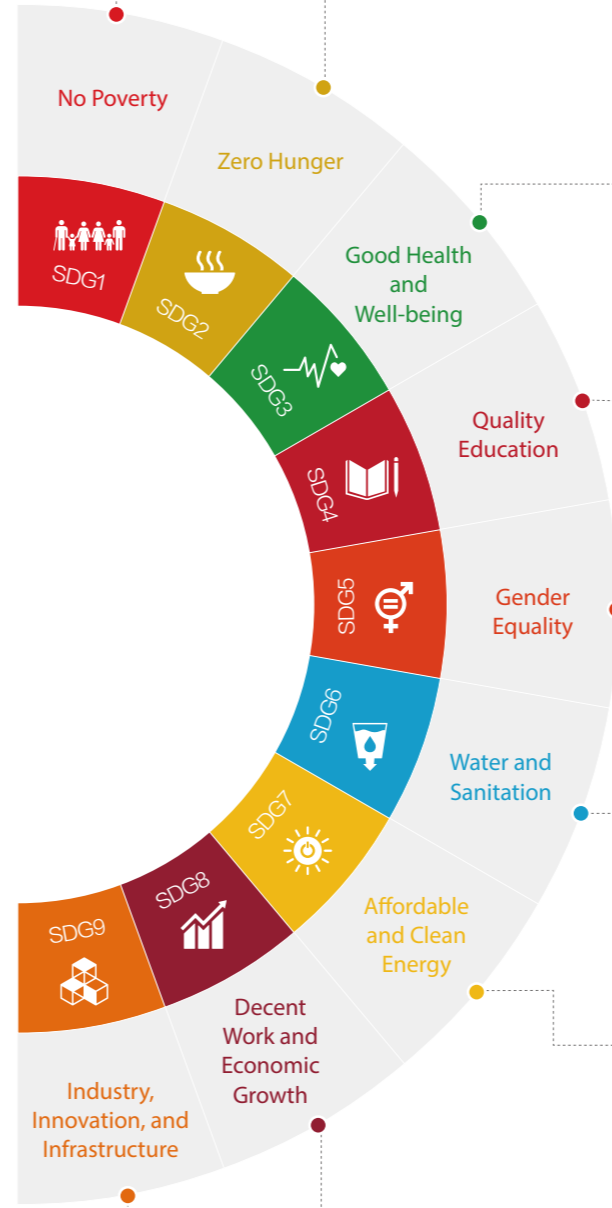
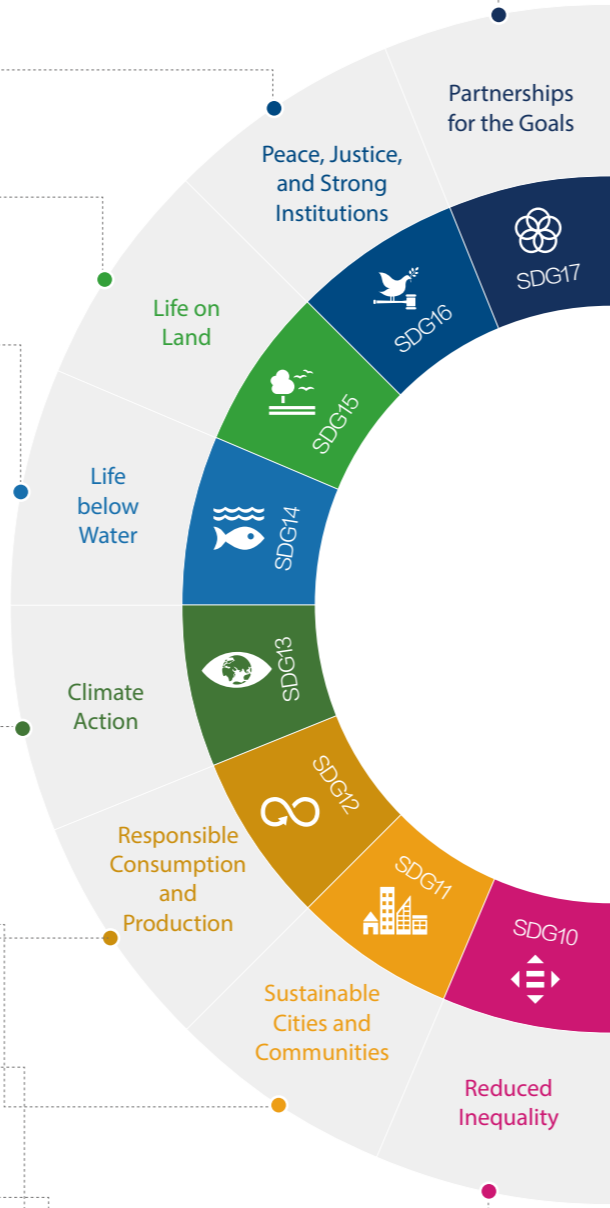
We actively carry out research in the field of social responsibility, promote CSR education and training, and boost communication with relevant organizations at home and abroad, in order to continue enhancing CSR awareness and our capability to fulfill responsibilities among all employees.



CNPC and the UN SDGs

The UN SDGs represent the greatest consensus of mankind on sustainable development. As a global corporate citizen, CNPC strives to give full play to its own advantages, and seeks opportunities and common development through meeting social development and addressing common challenges, so as to create shared value with stakeholders.

- We cooperated with host governments and partners to address challenges in energy sustainable development.**
 - We conducted international trading, with a reported trading volume of 490 million tons
- We promoted economic development, and pursued peace and growth.**
 - We strengthened overseas security management. There were no security-related fatalities in our overseas projects
- We complied with local environmental protection policies, and animal and plant trading laws and regulations, and protected local rare species.**
 - We protected the white storks in Dagang Oilfield
 - We protected the Przewalski's Horse in Xinjiang
- We activated the environmental feature acquisition program, and carried out environmental control and monitoring projects, to protect local marine ecological environment and biodiversity.**
 - We protected marine ecological environment in Brazil
- We embrace and support the goal of the Paris Agreement. We included "green and low-carbon" in our corporate strategy, and actively responded to climate change.**
 - We set the methane emissions reduction targets
 - We completed GHG emission data collection and reporting
 - We made planning for the hydrogen energy industry
 - We promoted clean and low-carbon technologies
- We intensified our efforts in clean energy supply, sustainable management of natural resources, hazardous chemicals management, and pollutant discharge reduction.**
 - The emissions of major pollutants continued to decline
 - We contributed to the "Battle for Clean Land", which was praised by the Ministry of Ecology and Environment
- We built roads and other infrastructure in economically underdeveloped countries/regions, to help improve the living conditions of local people. We paid attention to air quality.**
 - We built a tourist highway in Hengfeng County of Jiangxi Province
 - We built village roads in Xishui County of Guizhou Province
 - We built a tap water plant in Fanxian County of Henan Province
- We had no child employment and forced labor, and no form of discrimination in gender, region, religion, nationality, etc.**
 - The proportion of female employees is 31.31%
- We attached great importance to technological innovation capability building, and supported infrastructure construction in economically underdeveloped areas.**
 - The "4Mt/a coal indirect liquefaction technology innovation, development and industrialization" project won the first prize of the National Science and Technology Progress Award



- We carried out poverty alleviation to help end all forms of poverty.**
 - We invested RMB 720 million in public welfare undertakings globally
 - We helped all areas under our assistance get lifted out of poverty
 - We won the "National Poverty Alleviation Award – Organization Innovation Award"
- We took action to restore farmland, boost agricultural production and supply water to rural areas.**
 - We provided assistance in spring plowing, summer planting, summer harvesting, summer field management, and autumn harvesting
 - We assisted in the construction of an agricultural park in Taiqian County, Henan Province
- We communicated to the public a healthy lifestyle, and provided free medical services. We paid great attention to employee health, and implemented the Employee Assistance Program (EAP).**
 - We issued the Plan for Implementing the "Healthy China 2030" Outline
 - Our occupational health examination rate reached 99.23%. The psychological hotline provided services for about 2,017 hours
 - We set up teams to maintain mental health for overseas teams and provided psychological assessments for 3,000 employees
 - We carried out COVID-19 pandemic prevention and control abroad, established overseas epidemic prevention and control mechanism/system, and implemented targeted prevention and control measures
 - We transshipped and remotely treated 8 sick overseas employees
 - We assigned 63 medical workers to Wuhan for fighting against COVID-19
- We invested RMB 105.44 million in supporting education.**
 - We granted CNPC Scholarships of RMB 3.99 million to 635 excellent students
 - We implemented training programs such as the "Teacher Training Program" and "Xuhang Program", training more than 7,700 educators and helping 11,400 students in poverty
 - We helped children in Tibet get access to education
- We upheld gender equality, respected and protected female employees' legal rights and interests, and paid attention to the demands of female in poverty-stricken areas, to help them enjoy a better life.**
 - We advocated an employment policy based on equality. The proportion of female employees within our company is 31.31%
- We improved water use efficiency, and strengthened water resources management and water pollution control. We supported and participated in projects to improve drinking water quality in poor areas.**
 - We implemented water resources management throughout the industry chain
 - We carried out programs for drinking water safety in Lenghu County in Qinghai Province, Fanxian County in Henan Province and other places
- We developed new energy, improved energy efficiency, and enhanced our ability to supply natural gas.**
 - We developed and utilized geothermal resources in North China and other areas
 - We established Shanghai PetroChina-Shenergy Hydrogen Energy Technology Company Limited
 - We imported PNG and LNG through multiple channels
- We created job opportunities for local people according to applicable labor standards and gave priority to local contractors in economically underdeveloped areas.**
 - We have a total of 1.3045 million employees
 - We recruited 6,492 college and university graduates

Communication with Stakeholders

Stakeholders are the groups or individuals who are able to influence corporate decisions and activities or are subject to influence from corporate decisions and activities, including government, employees, customers and consumers, partners, relevant agencies and communities, etc. Stakeholders' participation in CSR work can help deepen mutual communication, understanding, trust and cooperation, and is beneficial to the Company's development.

We adhere to the principles of honesty, interaction and equality, and actively establish and improve the mechanism of stakeholder participation. We introduce a variety of ways to collect and analyze the expectations and concerns of our stakeholders, enhance our communication with stakeholders, and invite them to participate in decision-making and activities related to our sustainable development. In addition, we learn from international standards and advanced experiences at home and abroad to continuously improve stakeholder participation.

Increasing Routine Disclosure

Through the Company's website and its micro-blog, WeChat, micro portals, WeChat video channels, mobile platforms, public reading and other new media, we enrich information disclosure on social responsibility and enhance the effectiveness of our communications.

Expanding Public Communication Channels

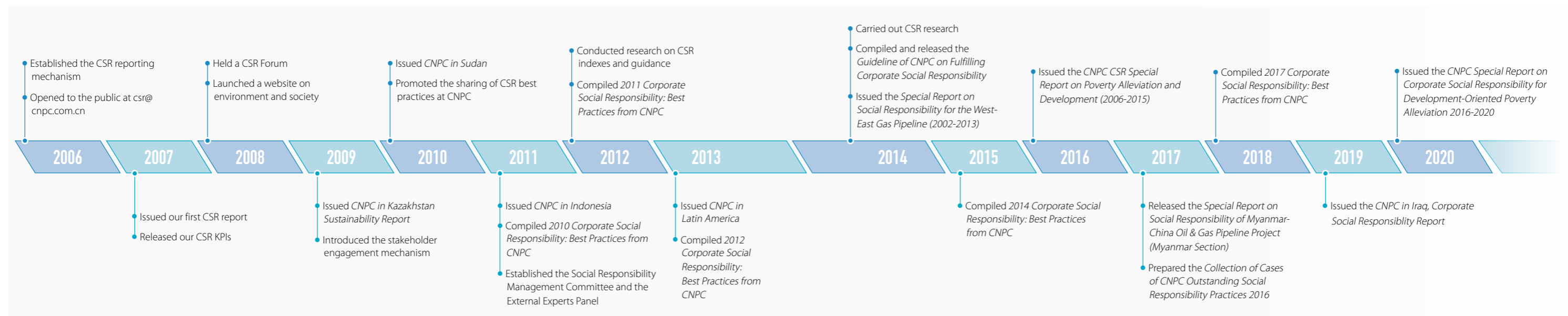
In 2020, we encouraged stakeholders to participate in the Company's major decision-making and activities, and provided the media and the general public with a better understanding of CNPC. We introduced a variety of ways to enhance communications with our stakeholders including the staff congress, announcements, seminars, and dialogues. We also launched a series of activities including CNPC Open Day, College Journalists Approaching CNPC, and other activities allowing visits to CNPC.



Case

Approaching CNPC

We actively communicate with the public through various platforms. In 2020, we held the 3rd "Refueling for Dreams" Open Day event, and launched the "cloud open" event. During the events, different stakeholders including NPC deputies, CPPCC members, media reporters, primary and middle school students and local residents were invited to learn more about and gain a deeper insight into CNPC and petroleum. A total of 239 rounds of activities were organized by 54 subsidiaries of CNPC throughout the year, attracting people from different walks of life.



Stakeholders



	Government	Employees	Customers and Consumers			Business Partners	NGOs and Relevant Organizations	Communities and the Public
Goals and Concerns	<ul style="list-style-type: none"> Guarantee energy security Stabilize market supply Fulfill social responsibility Address climate change Operate in compliance with all legal requirements Deepen corporate reform Guarantee investors' interests 	<ul style="list-style-type: none"> Guarantee employees' rights and interests Employee career development Employee value realization Employee health and safety 	<ul style="list-style-type: none"> Provide safe, environmental-friendly, and high-quality products Provide quality services Improve customer satisfaction Establish communication mechanisms Advocate sustainable consumption patterns Protect consumer privacy Improve consumer complaints mechanism 		Goals and Concerns	<ul style="list-style-type: none"> Comply with national laws, regulations and business ethics Standardized HSE management Promote fair competition and mutual benefits Promote social responsibility throughout the value chain 	<ul style="list-style-type: none"> Participate in discussion on public policy and industry standards Pay attention to industry trends and policy moves Advance the sustainable development of enterprises and industries Carry out cooperation in social development and environmental protection 	<ul style="list-style-type: none"> Promote community development Protect community environment Increase local employment Support education, public health and other public welfare activities Perform social investment Enhance sustainable development capacity
Means of Communication and Participation	<ul style="list-style-type: none"> Legal operation, integrity and trustworthiness Respond to the government's call, and accept supervision Contribute to the formulation of energy policies, laws and regulations and industry standards Enhance the quality of products, engineering and services Improve environmental performance 	<ul style="list-style-type: none"> Support trade unions at different levels Hold staff congresses Reinforce staff training Improve salary distribution system Hold contests and evaluations 	<ul style="list-style-type: none"> Safeguard consumers' interests Supervise product quality Solicit the opinions of customers and consumers 		Means of Communication and Participation	<ul style="list-style-type: none"> Promote e-procurement through e-commerce platform Share management experience and technical standards Strengthen communication with suppliers and contractors 	<ul style="list-style-type: none"> Share corporate experience Attend related meetings and forums Facilitate international exchanges and cooperation 	<ul style="list-style-type: none"> Provide education, training and employment opportunities Promote cultural exchange Pay community visits
Our Actions	<ul style="list-style-type: none"> Change the mode of development, increase resource potential, promote technological innovation, maintain sound operations and increase the value of state-owned assets Safeguard energy supply and optimize energy mix, in coordination with national energy strategy Promote the building of national key laboratories and major scientific and technological innovation projects 	<ul style="list-style-type: none"> Improve the staff development mechanism Enhance employee training by hosting professional skills competitions Protect the legitimate rights and interests of employees, including remuneration, education and training, rest and vacations, and labor protection Continue to organize occupational health examination and poverty alleviation activities 	<ul style="list-style-type: none"> Increase clean oil supply and realize supply of National VI standard gasoline and diesel nationwide Further promote the CNPC Quality Month Campaign Provide natural gas and other clean energy and products Establish a unified service station management system and launch overall inspections on service stations Implement customer satisfaction investigation and conduct mystery customer visits 		Our Actions	<ul style="list-style-type: none"> Advocate fair competition and standardized operations, and promote the use of e-procurement and management platform Strengthen control over key processes including design, procurement, construction and supervision, and strengthen HSE management for suppliers and contractors 	<ul style="list-style-type: none"> Exchanges with the public on their concerns Participate in high-level strategic cooperation forums to discuss how to build an efficient, safe and competitive supply chain 	<ul style="list-style-type: none"> Carry out disaster relief, poverty alleviation and donations to education, and support the reconstruction of disaster-stricken areas Carry out fixed-point poverty alleviation and aid programs Support and drive the development of local economies through major project construction, and make steady progress in joint venture cooperation in refining, pipelines, shale gas, and marketing network Implement oil and gas recovery projects to minimize evaporation Support the development of SMEs and promote local procurement

Special Report

Concerted Efforts to Fight against COVID-19

No one is immune to crisis in an interconnected global village. After the outbreak of COVID-19, CNPC promptly set up an epidemic prevention and control team, and worked together with the government, employees, business partners, communities, and customers to fight against the epidemic. While preventing and controlling the epidemic and resuming production, CNPC spared no efforts to ensure the oil and gas supply in the key areas of epidemic prevention and control, switched to and expanded the production of medical materials, served the supply of local people's livelihood at service stations and uSmile convenience stores, and actively supported the recovery of the local economy.

In 2020, CNPC achieved "no epidemic" and "zero case" in the workplace, effectively safeguarding the safety and health of employees. CNPC donated an aggregate of RMB 104.53 million of anti-epidemic funds and materials, switched to and expanded the production of 657,000 tons of medical materials, produced 1,259 tons of melt-blown materials and over 800 tons of melt-blown nonwovens, and produced 146 million masks. CNPC strengthened investment and cooperation and enlarged employment opportunities in key areas of the epidemic outbreak, providing jobs for college graduates and migrant workers and employing 3,000 more people than in 2019.

We are confident that with the concerted efforts of all parties, humanity will eventually overcome COVID-19 and usher in a better tomorrow. CNPC will continue to work with our stakeholders to prevent and control the epidemic and achieve economic recovery, contributing to the health and safety of the people as well as the prosperity and stability of the national economy.



Giving full support to epidemic prevention and control

- CNPC donated an aggregate of RMB 104.53 million of anti-epidemic funds and materials at home and abroad
- In January 2020, CNPC donated RMB 50 million to Hubei Charity Federation
- From February to April 2020, CNPC supplied natural gas with a total value of RMB 20 million to 39 designated hospitals for COVID-19 treatment in Hubei Province
- CNPC coordinated subordinated enterprises to fully support efforts by local governments to fight against the epidemic, donated a large number of protective clothing, N95 medical masks, disinfection supplies and other protective materials and daily necessities to areas across China, especially Wuhan
- CNPC's employees donated RMB 73.18 million to the frontline personnel in the fight against the epidemic outbreak



Enhancing overall oil and gas support

- CNPC coordinated the supply channels in Hubei Province to ensure 24-hour uninterrupted supply at all of its service stations during the lockdown of Wuhan
- By April 8, 2020, when lockdown measures for Wuhan were lifted, CNPC's 625 service stations in Hubei Province had supplied 226,500 tons of petroleum products, of which 16,900 tons were supplied for ambulances and 44,700 tons for vehicles of epidemic fighting; and a total of 1.2 billion cubic meters of natural gas were supplied to Hubei Province



Switching to and expanding production of medical materials to support the fight against COVID-19

- CNPC quickly organized research institutes and manufacturing units to jointly solve key problems in producing melt-blown materials. Our refineries spared no efforts to ensure the operation of polypropylene facilities at full load, with an accumulative output of 657,000 tons of medical materials.
- CNPC made every effort to urgently build up melt-blown nonwovens production lines, and produced over 800 tons of melt-blown fabrics
- Four enterprises including Daqing Petrochemical, Lanzhou Petrochemical, Fushun Petrochemical and Daqing Oilfield built 22 automatic mask production lines, which produced a total of 146.18 million masks, with the maximum daily production of over 1.2 million masks



Efficiently supporting hospital construction

- CNPC completed the relocation and reconstruction of the 300-meter pipeline of Huoshenshan Hospital in 8 hours and urgently laid 1,802 meters of temporary pipelines to designated hospitals in Huangshi and Shiyan areas, so as to provide energy support for the construction and operation of designated hospitals
- CNPC provided 26.12 tons of oil products for Huoshenshan Hospital at its construction site and 120.58 tons for makeshift hospitals, and coordinated with business partners to donate 300 tons of diesel



Unblocking the supply chain for people's livelihood

- CNPC promptly optimized its supply plan and ensured the 24-hour supply of life necessities (such as rice, flour and oil) and rescue materials via convenience stores at service stations and other channels during the lockdown of Wuhan
- We carried out door-to-door delivery and heartwarming activity in Hubei Province and distributed 10,800 bills of living supplies to residents, providing guarantee and services for living supplies in epidemic-stricken areas



Assigning medical workers to Hubei for frontline fight against the epidemic

- CNPC assigned 63 medical workers to assist the Union Jiangbei Hospital of Wuhan, the People's Hospital of Wuhan University, the Leishenshan Hospital, the Jiang'an Makeshift Hospital, the Zhongnan Hospital of Wuhan University, the Hanyang Sports School Makeshift Hospital, the Wuhan Youfu Hospital, the Houhu Branch of Central Hospital of Wuhan, and the Anlu Pu'ai Hospital, for treatment of infection cases



Promoting the post-epidemic recovery in Hubei Province

- CNPC launched the annual recruitment campaign to provide jobs for college graduates, migrant workers, etc., and offered preferential recruitment initiatives to Hubei Province by increasing 3,000 job vacancies over those in 2019
- CNPC strengthened support for project cooperation as well as work resumption in Wuhan, and implemented the strategic cooperation agreement with the Wuhan Municipal Government to strengthen cooperation in major projects
- CNPC's uSmile convenience stores and online mall were motivated to sell the products from Hubei. A total of nearly RMB 20 million Hubei products were sold within two months.



Actively assisting overseas communities in epidemic prevention

- CNPC provided epidemic prevention and control services to overseas communities by releasing videos for epidemic prevention and control, sharing epidemic prevention experiences with the public, and exchanging epidemic prevention and control information with embassies and consulates, local governments, media, and business partners
- CNPC donated more than RMB 75 million anti-epidemic materials to host countries where we operate
- CNPC provided epidemic prevention and control publicity and training for overseas communities, distributed anti-epidemic materials, and provided support services such as temporary isolation places for transfer of residents
- CNPC exchanged and shared the experience and measures in epidemic prevention and control with international counterparts
- CNPC assisted and supported other overseas Chinese companies by sharing charter flights, assigning medical experts and providing necessary supplies

Sustainable Energy Supply

It is CNPC's responsibility and mission to meet energy challenges and satisfy the ever increasing demand for low-carbon clean energy. To this end, we enhance technological innovation to continuously increase our efficiency in hydrocarbon development and utilization. We boost the natural gas industry, expand new energy business, and raise the proportion of clean energy in our energy supply. With these efforts, we strive to make contributions to the construction of a diversified, clean energy supply system and the prosperity of human society.

Energy and Future

Opportunities and Challenges

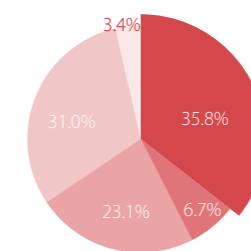
A temporary backlash against the growth of energy demand. Reeling from the impact of COVID-19, the global economy has fallen into a deep recession. The global energy demand dropped by around 5% in 2020, and it is expected to not return to the pre-pandemic level until 2023. Oil and gas will still play an important role in the global economic recovery. In the long run, population growth, urbanization and industrialization of developing countries will drive global energy demand and consumption to grow further.

Contribution of the energy transition to the "carbon neutrality" goal. The transition to a green and low-carbon energy mix has become a global consensus, and the renewable energy industry is developing rapidly amid the transition. The International Energy Agency (IEA) predicts that from 2020 to 2030, demand for renewable energy power will increase by 2/3, about 80% of the increment in global electricity demand. Low-carbon energy and efficiency improvement will help many countries and energy companies achieve the goal

of "near-zero" carbon dioxide emissions by the middle of this century.

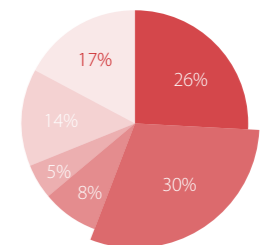
Prominent inequality in access to energy. Over 1.2 billion people worldwide still do not have access to affordable modern energy, and a large number of developing countries are still using high-pollution and high-carbon energy. Helping this group to obtain equal access to clean, low-carbon and affordable energy is a requirement for achieving the Sustainable Development Goals (SDGs) of the United Nations, but also the key to achieving global temperature control goals.

Accelerating construction of China's clean and low-carbon energy system. China is committed to a peak in carbon dioxide emissions by 2030 and carbon neutrality by 2060. The energy transition will be greatly accelerated under the guidance of the new energy security strategy and the requirements of the "Peak Carbon, Carbon Neutrality" goal. Energy enterprises are accelerating the construction of a clean, low-carbon, safe and efficient modern energy system to support high-quality economic development.



World Primary Energy Mix by 2050*

- Oil
- Coal
- Gas
- Power
- Renewable energy (incl. wind and PV)



Final Energy Consumption Mix by 2050*

- Oil
- Gas
- Hydropower
- Nuclear
- Coal
- Renewable energy (incl. wind and PV)

* Data source: World and China Energy Outlook 2050 by CNPC Economics & Technology Research Institute

Strategic Response

The world is undergoing a profound and rapid energy transition towards a cleaner, low-carbon, more efficient and diversified energy structure. Especially at a time of sluggish global economic growth and intensifying backlash against globalization, energy companies should work together to overcome difficulties, explore new opportunities and seek sustainable development. As a major player in the oil and gas industry and China's largest oil and gas producer and supplier, CNPC has been actively cooperating with the government and companies in the industry chain, and strives to provide clean, low-carbon, safe and efficient energy while meeting future energy demand, in an effort to jointly build a sustainable energy future.

We will build a "low-carbon energy ecosystem" to create new strengths for green development. Under the guidance of the new vision, we incorporate the green and low-carbon drive into CNPC's strategy. We will keep enhancing our capability to supply natural gas, foster a growth engine of green development that comprises multiple energy with oil and gas in dominance, and build a "low-carbon energy ecosystem" that integrates both fossil fuels and clean energy. We will constantly explore new low-carbon business models, develop new energy and new materials, and promote emission reduction and decarbonization in traditional businesses. We

will make further efforts to support large-scale development of geothermal resources, strengthen support for the research and application of biomass energy, consider to deploy the whole industry chain of hydrogen energy, and promote clean energy development and utilization by fully leveraging local conditions. We will also accelerate the construction of CCUS demonstration projects, foster growth poles for the green and low-carbon energy industry, and aim for achieving "near-zero" emissions by 2050 and contributing to China's efforts to achieve carbon neutrality by 2060.

We will broaden the global network of partnerships to expand new areas of cooperation. We will, further upholding the concept of mutual complementarity and mutual benefit and unswervingly following the path of "internationalization", broaden our areas of energy cooperation under the Belt and Road Initiative and the global network of partnerships, and raise the transnational index, so as to contribute to the world economy and trade recovery and development. We are committed to reshaping the global industrial chain. We will accelerate cooperation in key business areas such as natural gas and LNG integration, shale oil and gas development, and deepwater to ultra-deepwater development, intensify efforts in areas like R&D and design, marketing services, brand operations, optimize global resource allocation, and expand new areas of cooperation.

CNPC's path of green and low-carbon transition

CNPC attaches great importance to green and low-carbon transition. We have developed a green and low-carbon development path to support China's efforts to have CO₂ emissions peak before 2030 and achieve carbon neutrality before 2060, and initially established a three-step overall scheme of "Clean Substitution, Strategic Succession and Green Transition", aiming to achieve peak carbon emissions by around 2025, supply of green, carbon-free energy in excess of the fossil energy consumed by 2035, and "near-zero" emissions by around 2050. To this end, we will:

- Drive the production of natural gas, a green and low-carbon energy resource, to grow rapidly while stabilizing oil production. By 2025, gas production is expected to account for about 55% of our oil and gas production, making CNPC an industry leader.
- Take natural gas as a critical contributor in the future energy system, make good use of our abundant wind, solar and geothermal resources, promote the integrated development of wind, solar, gas and electricity and the industrialized utilization of hydrogen energy, and step up the large-scale development and comprehensive utilization of thermal resources, helping CNPC transit to an integrated energy company specialized in "oil, gas, heat, electricity, and hydrogen".
- Promote the green action plan, and implement energy conservation, emission reduction and clean replacement, in order to slash carbon emissions; adopt forestry carbon sinks and CCUS for carbon removal; and offer green, carbon-free energy to the society.

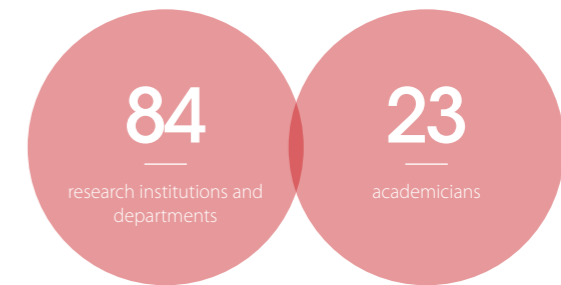
Technology and Innovation

We put more emphasis on the innovation strategy. We endeavor to deploy innovation chains based on industrial chains and promote value chains through innovation chains. We drive high-quality supply through innovation, and address global challenges such as equal access to energy, reduction of carbon emissions, and improvement of energy efficiency.

Innovation Platforms

CNPC relies on 84 research institutions and departments, including 7 at headquarters-level and 77 at subsidiary-level. CNPC also has 21 national R&D institutions and 54 Group-level key laboratories and experiment bases, covering the upstream, midstream and downstream sectors and supporting and leading the Company's sustainable development.

CNPC maintains a two-level (national-level and provincial/industry-level) skills cultivation platform and has a powerful group of 23 academicians, 23 scholars from the national "Hundred, Thousand and Ten Thousand Talents Program", 731 two-level technical experts and 1,452 skilled experts, and 30,013 researchers. Among them, 7.3% hold doctor's degree, 28.1% hold master's degree, and 48.8% hold bachelor's degree.



CNPC's Progress in Building the Innovative Scientific Research Platform in 2020



Technological Achievements

Guided by major national science and technology projects in oil and gas, and centered on the Company's science and technology major projects, CNPC intensified efforts in technological innovation and formed a batch of innovative theories and new technologies/new products with proprietary intellectual property rights. CNPC also accelerated efforts in breakthroughs in a number of key and core technologies, so as to provide strong technological support for the high-quality development of the Company.

National science and technology awards

One first prize of National Science and Technology Progress Award

Two second prizes of National Science and Technology Progress Award

One National Technical Invention Award

Standard development and revision

Development of **one** international standard

Development of **one** foreign standard

Revision of **six** foreign standards



Information Technology

CNPC integrates information technology into production and operations by promoting the formation of smart oil and gas fields, smart refineries, and smart service stations. Also, CNPC has introduced information system into professional fields. Typically, CNPC has built-in IoT systems within oil and gas production, engineering technology, refining and chemicals, and equipment manufacturing, to improve the integration of automatic data collection, remote monitoring, and production & operations decision-making. In 2020, Richfit Information Technology Co., Ltd. was established to focus on the application research and service implementation of information and communications technology and provide integrated solutions.

Objective	Measures	Progress
Increase both reserves and production under complex geological conditions	<ul style="list-style-type: none"> Continue to deepen knowledge of ancient carbonate rock reservoir formation and deep zone exploration and development Innovate the theories of shale oil accumulation and volume development Innovate the "ultra-deep, weak strike-slip" fault identification technology Break the technical bottleneck in shale gas development engineering 	<ul style="list-style-type: none"> Made significant breakthroughs in oil and gas exploration in ultra-deep reservoirs in the hinterland of the Tarim Basin Discovered China's first proven shale gas area with reserves of over 1 trillion cubic meters in the southern Sichuan Basin, which is built to a large shale gas field with an annual output of more than 10 billion cubic meters Proved shale oil in place of 3 to 5 billion tons in multiple basins Maintained a stable output of 30 million tons of crude oil in Daqing Oilfield Built China's first giant uncompartimentalized oil and gas field with an annual output of 60 million tons in Changqing Oilfield Built an oil and gas field with an equivalent output of 30 million tons in Tarim Oilfield Built a giant gas province with an annual output of 30 billion cubic meters in Southwest Oil & Gas Field
Promote green production and low-carbon development	<ul style="list-style-type: none"> Implement CNPC-level major low-carbon technology projects and research on the development and application of new energy technologies Carry out CNPC's major field tests: demonstration project of key technologies for CO₂ capture, oil displacement and storage Develop the technology for comprehensive control of refining and chemical pollutants 	<ul style="list-style-type: none"> Established a geothermal utilization technology system Developed three types of new materials for photocatalytic hydrogen production Developed and implemented key technology for CO₂ flooding and storage Established the VOCs comprehensive control demonstration zone in Jilin Petrochemical and three-waste (wastewater, waste gas and solid waste) treatment demonstration zone in Ningxia Petrochemical
Improve energy efficiency, reduce costs and ensure energy security	<ul style="list-style-type: none"> Integrate information technology into the oil and gas industry Integrate technologies such as "cloud computing, big data, and Internet of Things" into the whole process of the Company's production and operation Strengthen technological research, promote refining and chemical transformation and upgrading, optimize drilling and completion technologies, and continue to reduce construction costs 	<ul style="list-style-type: none"> Digital oilfield: The Dream Cloud platform covering exploration and development, collaborative research, operation management and other business was initially built Refining and chemical upgrading: A series of technologies were developed and applied for controlling oil and increasing chemical production to increase the production of high-end lubricants, high-value-added polyolefins, high-end synthetic rubbers and other featured new products Smart sales: The cross-border integration of "service + commodity + Internet + finance" was promoted Engineering technology: An independent and efficient drilling and completion technology and equipment system was developed

Special Report

Digitalization and Intelligentization Enabling Transformation

The global energy industry is accelerating its transition to an era of digitalization and intelligentization. The new generation of technological revolution is reshaping the way we produce and live, and the traditional ways of acquiring energy need to be changed. To catch up with the new trend of accelerating energy transition, CNPC promotes the use of digital technology to empower the industry, so as to deliver cleaner and low-carbon energy to consumers while reducing costs and enhancing performance.

Promoting the collaboration between business development and R&D innovation. We coordinate the optimization of the oil and gas industry chain and the R&D innovation, and have upgraded informatization from application integration to shared services. Through overall planning for all oil and gas production sectors and in an effort to maximize the overall profitability of the upstream as well as downstream business chain and shareholder value, we optimize resource allocation, processing, logistics and marketing to achieve a comprehensive perception of market

dynamics, coordinated optimization of production and operation, a rapid response to risk warnings, and accurate and efficient decision-making. In terms of collaborative research and development, the research platform is integrated with shared professional software and other elements to improve the efficiency of multi-disciplinary and cross-organization collaborative research and development, and artificial intelligence digital tools are used to support new product development and make research more successful. A centralized and unified business management and office management platform and a production management platform covering the upstream, midstream and downstream of the oil and gas industry chain have been established. These platforms have improved management efficiency and promoted information sharing and business collaboration across disciplines and departments.

Facilitating industrial transformation and upgrading. We integrate the Internet, big data, and artificial intelligence with the Company's business to realize smart oil and gas fields, smart refining, smart marketing and smart engineering, so as to facilitate industrial transformation and upgrading. In 2020, we launched a new version of E&D Dream Cloud platform, enabling the core data of the Company's upstream business to be fully shared.



Smart engineering

Goals

- To build a lifecycle intelligent support platform for drilling engineering, and fully improve risk management and control, engineering quality, and operation efficiency.
- To build intelligent wellbores for real-time and transparent remote surface/downhole monitoring of the whole process of drilling and completion.
- To create intelligent operation sites, including intelligent drilling and digital seismic teams.

Application

Supported by CNPC's intelligent support system for engineering operations, the digital transformation and intelligent development of engineering technology business began to pay off. As of the end of 2020, the data covered 1,124 wells, more than 4,300 field problems were solved remotely, and the complex troubleshooting efficiency was improved by 47.93%.



Smart oil and gas fields

To form a new oilfield business model of "real-time monitoring, smart diagnosis, automatic processing and smart optimization" based on perception, interconnection and data fusion.

Xinjiang Oilfield built an information system covering business such as the Internet of Things for oil and gas production and a collaborative research environment to provide production dynamics in real time, support oilfield production and operation activities, vigorously promote intelligent analysis and application and support scientific decision-making.



Smart refining

To enhance the ability of perception, analysis and optimization, prediction and coordination of refineries, and build a new smart refining model featuring an efficient supply chain, lean operation, safe work control and interconnected operation and maintenance.

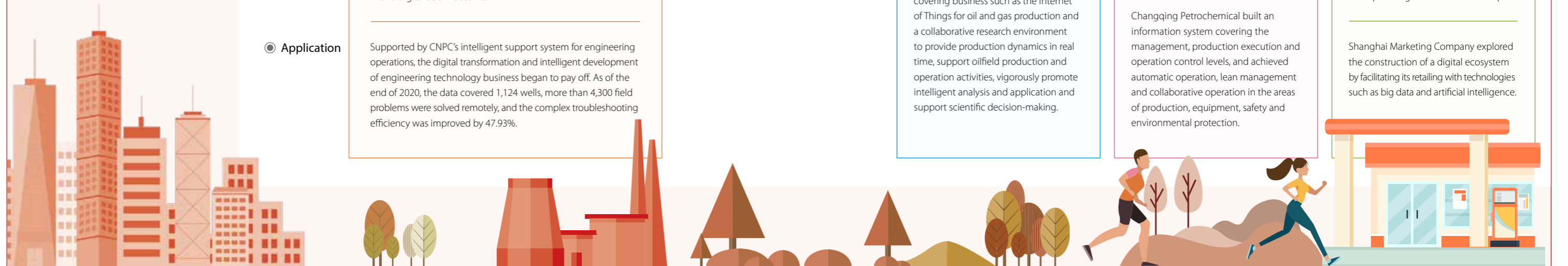
Changqing Petrochemical built an information system covering the management, production execution and operation control levels, and achieved automatic operation, lean management and collaborative operation in the areas of production, equipment, safety and environmental protection.



Smart marketing

To promote the transformation and upgrading of refined oil retailing business, build an ecosystem of "people, vehicle and life", and achieve "smart marketing, digital operations and integrated management and control" relying on digital technologies such as the Internet of Things, big data, and artificial intelligence and upholding the new retail concept.

Shanghai Marketing Company explored the construction of a digital ecosystem by facilitating its retailing with technologies such as big data and artificial intelligence.



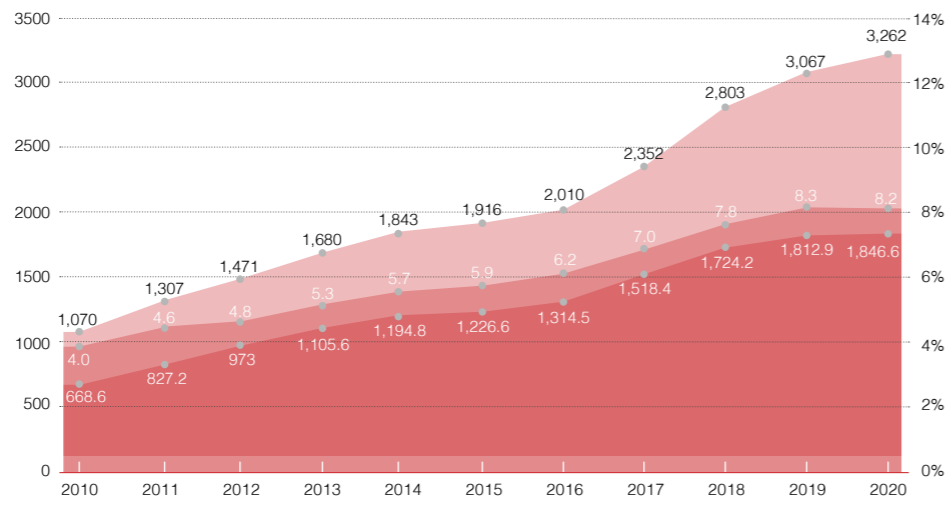
Clean Energy

In order to secure the sustainable supply of clean energy in the future, we have been vigorously developing natural gas. Particularly, we accelerate the development and utilization of unconventional natural gas and deploy the businesses of new energy and new materials in a faster manner to meet market demand for clean and high-quality energy and products. In 2020, CNPC produced more than 130 billion cubic meters of natural gas domestically, historically recording a portion of more than 50% in the oil and gas mix for the first time.

Natural Gas

As natural gas is a bridge from fossil energy to clean energy, its development and utilization is fundamental for green and low-carbon transition. Taking natural gas as a strategic, growing and value-added business, CNPC keeps strengthening natural gas exploration and development, developing unconventional natural gas such as tight gas, shale gas and coalbed methane, and importing overseas natural gas to build a diversified energy supply system. By the end of 2020, CNPC's natural gas production capacity was 128.45 billion cubic meters.

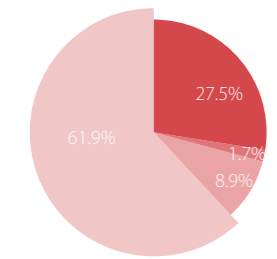
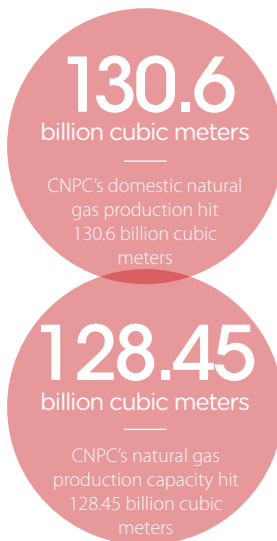
"Green Power" Optimizing Energy Structure



- Proportion of natural gas in China's primary energy consumption mix (%)
- CNPC's domestic natural gas supply (x10⁸ m³)
- China's natural gas consumption (x10⁸ m³)

(Data source: Energy Statistics by CNPC's Economics & Technology Research Institute)

In 2020, CNPC produced 160.35 billion cubic meters of natural gas, including 130.6 billion cubic meters domestically, a 9.9% year-on-year increase, and accounting for 70% of China's total production. CNPC increased PNG and LNG imports while working to increase its production capacity. CNPC supplied 184.66 billion cubic meters of natural gas, a 1.9% increase over the previous year, providing strong support to the optimization of China's energy mix and the construction of a beautiful China.



Composition of domestic natural gas production in 2020

- Tight gas
- CBM
- Shale gas
- Conventional gas

70%

CNPC's share of domestic natural gas production

50.4%

Gas mix in CNPC's domestic production of oil and gas equivalent

184.66 billion cubic meters

Gas supply in 2020: 184.66 billion cubic meters

Case

Ensuring Stable Gas Supply in Winter

CNPC supplies natural gas to over 500 million people across 31 provinces (municipalities and autonomous regions) and SARs in China. Due to large seasonal fluctuations in gas consumption, securing users' demand for natural gas in winter is a matter of responsibility for the people's livelihood, and also a great test for the Company. In the 2020 winter, especially, affected by the La Niña weather phenomenon, most parts of China were hit by a lower temperature than previous years. North China saw the area's coldest temperature since the beginning of the 21st century. Despite of severe COVID-induced challenges, CNPC leveraged its advantages of integrated natural gas industry chain, optimized production organization and operation, strengthened coordinated scheduling and work connection after the pipeline network reform, and made full efforts in production, supply, storage, sales and trade. During the winter supply period, CNPC produced 61.35 billion cubic meters and supplied 97.93 billion cubic meters of natural gas to the market, up by 11.6% and 10.5%, respectively, over the previous year.

In North China, every 1°C drop in temperature requires additional **6** million cubic meters of natural gas per day

Across China, every 1°C drop in temperature requires additional **15** million cubic meters of natural gas per day

Increasing gas production. Changqing and Tarim Oilfields produced, at their maximum capacity, 35.83 billion cubic meters of natural gas during the winter supply period, representing an increase of 12.3%. Southwest Oil and Gas Field built Southwest China's first giant gas province with an annual output of 30 billion cubic meters in the Sichuan Basin.

Withdrawing more gas from gas storages. Five gas storages (incl. Shuangtuozi gas storage in Jilin Oilfield) were built, further enhancing our capacity of gas supply. In the 2020 winter, a total of 11 billion cubic meters of natural gas was withdrawn from CNPC gas storages, representing a y-o-y increase of 4.2 billion cubic meters or 60.9%; the maximum volume of natural gas withdrawn for peak shaving exceeded 130 million cubic meters.

Coordinating the supply of LNG. LNG terminals in Dalian, Tangshan and Jiangsu delivered a maximum of 119 million cubic meters of LNG per day, effectively meeting the peak demand in the Beijing-Tianjin-Hebei, Yangtze River Delta, Northeast China and other regions.

Ensuring the import of gas. CNPC maintains close communications and regular exchanges with Shell, ExxonMobil and other suppliers to ensure a stable supply of gas.


Reducing self-use gas. To guarantee gas consumption for people's livelihood, CNPC adjusted the fuel structure of refining and chemical production, slashed self-use gas, and shut down self-owned LNG plants and fertilizer production facilities.

CNPC's Measures to Secure Resource Supply in Special Periods in 2020

Resource supply for spring plowing	<ul style="list-style-type: none"> Increasing the supply of diesel oil. From the beginning of 2020 to mid-March, CNPC delivered a total of 15.28 million tons of diesel oil for spring plowing, 1.97 million tons more than the volume at the beginning of the year. Guaranteeing the supply of agricultural materials by virtue of our sales network. In cooperation with the agricultural materials producers, CNPC's 23 sales companies supplied 149,000 tons of fertilizers during the period of spring plowing.
Resource supply for work resumption in Beijing	<ul style="list-style-type: none"> Effectively coordinating production, transport and marketing to increase the supply. In April, CNPC delivered a total of 42,000 tons of gasoline and diesel oil to Beijing.
Resource supply during the Labor Day	<ul style="list-style-type: none"> Increasing the delivery from refineries. Refineries directly subordinated to CNPC delivered a total of 6.227 million tons of refined products from April to May. CNPC actively coordinated with the railway and shipping organizations to ensure the fuel delivery to service stations, with a total of 7.09 million tons of gasoline and diesel delivered. Ensuring the supply to key areas. CNPC strengthened the supply of resources to tourist attractions and refueling stations along arterial roads, with emergency supply plans in place.
Resource supply for responses to heavy rainfall and flood disasters	<ul style="list-style-type: none"> Guaranteeing the stable supply of resources. CNPC delivered 58,000 tons of gasoline and diesel oil to five provinces along the Yangtze River for flood relief.
Resource supply during the National Day and the Mid-Autumn Festival	<ul style="list-style-type: none"> Maintaining a higher stock based on the demand estimate. Our sales enterprises increased their stock to 11.03 million tons before the holidays, representing an increase of 4.62 million tons year-on-year. Keeping multi-resource supply measures and scheme. In Beijing, where the demand for refined products was expected to rise greatly during the holidays, CNPC ensured a maximum daily resource delivery of over 3,200 tons. Integrating the means of transportation, such as railway, shipping and pipeline. During the holidays, CNPC ensured its railway transport volume in a month not less than 3.5 million tons.


Unconventional natural gas

Shale gas



CNPC produced 11.6 billion cubic meters of shale gas, representing a y-o-y increase of 3.58 billion cubic meters. The largest shale gas field in China was built in southern Sichuan, with an annual output of 11 billion cubic meters, and the daily output growing by 10 million cubic meters for three consecutive years.

Coalbed methane



- The Qinnan and Edong coalbed methane production bases contributed 2.27 billion cubic meters per year.
- CBM production amounted to 2.18 billion cubic meters in 2020

Utilization of Natural Gas and Alternative Fuels

We actively promote the comprehensive utilization of natural gas in city gas, industrial fuels, natural gas power generation, chemical feedstock and vehicle fuels. In 2020, our domestic natural gas terminal sales increased by 31.1%. To meet the demand of "coal-to-gas" users and maintain stable supply of resources, we strengthened the demand-side management to ensure the residents in seven provinces and municipalities in northern China enjoy sufficient gas supply for heating in the winter months.

Case

Coal-To-Gas Project to Improve the People's Quality of Life

China's "coal-to-gas" project has gradually expanded from the Beijing-Tianjin-Hebei region and its surrounding areas to the Fenwei Plain, covering 39 cities. It is a key to secure the Battle for Blue Skies. CNPC actively coordinates with local governments and joins hands with the partners to meet the demand of people in northern China for clean heating.

In 2020, CNPC undertook the "coal-to-gas" transformation for 420,000 households in Shijiazhuang, Xiong'an New District, Shandong and other places, benefiting nearly 2 million people. In winter, CNPC supplied 400 million cubic meters of gas, equivalent to 600,000 tons of coal, ensuring the heating in winter while mitigating the pollution caused by bulk coal combustion.

New Energy

CNPC is transitioning from a supplier of "oil and gas" to a supplier of "comprehensive energy" by increasing the proportion of clean and low-carbon energy in the energy mix and takes more active actions to address the challenges of climate change. In 2020, we set up a leading group for new energy and new materials, strengthened strategies and plans for new energy, continued to expand new energy business such as geothermal energy, solar energy, biofuels, and charging and battery swap stations. Especially, we made enormous strides in hydrogen energy.

Established Shanghai Zhongyou Shenneng Hydrogen Energy Technology Limited, and prepared for the construction of the first oil-hydrogen station in Shanghai Lingang New Area	Entered into a cooperation agreement for the 70MPa hydrogen refueling station project to promote the construction of demonstration hydrogen refueling stations	Supported the hydrogen energy supply for Beijing and the 2022 Winter Olympics, by arranging and constructing hydrogen refueling stations at the Capital Airport, along the Beijing-Zhangjiakou Expressway and parking spots for the 2022 Winter Olympics hydrogen fuel vehicles, laying out a number of high-speed hydrogen corridors, and building a proprietary core technology system and standard system for key materials
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Hydrogen refueling station serving the 2022 Winter Olympics

Green Products

We optimize the energy consumption structure by upgrading energy products. The Company's refineries fully supply National VI standard gasoline and diesel to meet the market demand for high-quality oil. The manufacturing skills of downstream green chemical products and the level of green management throughout the life cycle continue to improve, effectively supporting the country in achieving its air pollutant emission reduction targets.

Climate Change

We respond to the *Paris Agreement* adopted by the 2015 United Nations Climate Change Conference, and embrace the goal of limiting global warming to less than 2 degrees Celsius by the end of this century. We actively contribute to China's efforts to have CO₂ emissions peak before 2030 and achieve carbon neutrality before 2060. We take the initiative in international climate governance, and actively respond to climate change.

CNPC Low-Carbon Development Progress

Strategic goals	Supporting measures			
<ul style="list-style-type: none"> By 2030, the supply of natural gas and other clean energy is further increased, and the proportion of the Company's domestic natural gas output in its domestic primary energy output and that of new energy and renewable energy output in its domestic primary energy output rise By 2050, the proportion of the Company's domestic natural gas output in its domestic primary energy and that of new energy and renewable energy output in its domestic primary energy output continue to grow 	<p>1. Integrate green, low-carbon development into corporate strategy</p> <ul style="list-style-type: none"> Based on the carrying capacity of resources and environment, rationally arrange industrial planning and project construction, improve policies for low-carbon development by fields and phases, introduce a carbon cost assessment mechanism, carry out carbon assessment of construction projects, and reduce arrangements for and investment in high-carbon emission businesses Conduct stress tests on related assets of the enterprises and strengthen management measures in the affected assets Improve the phasing-out mechanism, and gradually phase out oilfields/blocks with high energy consumption and high water cut and the refining and chemical plants with high carbon emissions per unit of product and low market demand 	<p>2. Integrate low-carbon development into corporate management</p> <ul style="list-style-type: none"> Improve green and low-carbon development systems and mechanisms, and conduct special supervision (especially on carbon emission intensity, implementation of tasks and measures, and progress of pilot/demonstration projects) to ensure the realization of targets and tasks Improve the measurement and inspection system for greenhouse gas emissions, check greenhouse gas emissions, regularly update the list of greenhouse gas emissions, and engage third parties in verification and evaluation Establish a greenhouse gas control system, improve the carbon emission quota control and carbon asset centralized management and control modes, plan and implement emission control projects/measures to effectively reduce emission intensity and ensure that risks are brought under control 	<p>3. Integrate low-carbon development into technological innovation</p> <ul style="list-style-type: none"> Reinforce the synergy of enterprises, colleges/universities, research institutes and users to accelerate the translation and popularization of cutting-edge technology and research findings Build a low-carbon technology support platform and enhance the independent technological innovation capacity in terms of energy conservation, emission reduction and environmental protection. By 2030, the technical research on low carbon will share 10% of the Company's investment Apply the green manufacturing technology to provide low-carbon products, and promote the lifecycle ecological environmental protection and resources/energy saving Communicate and cooperate with international organizations such as OGCI in respect of reducing methane emissions, promoting CCUS, improving energy efficiency, and reducing the carbon emissions intensity in the transportation sector 	<p>4. Integrate low-carbon development into social responsibility</p> <ul style="list-style-type: none"> Promote the concept of low-carbon development, take measures for ecological civilization, support low-carbon activities, and commence the construction of low-carbon demonstration zones Establish a low-carbon development & climate investment fund, innovate business models and operating methods, and strengthen cooperation with social capital, local governments/enterprises and community, in order to build a low-carbon society Implement low-carbon demonstration projects in line with the Belt and Road Initiative, participate in South-South cooperation on climate change, and create the image of a responsible energy company
<p>CNPC Low-Carbon Development Plan</p>				
<p>Progress in 2020</p> <ul style="list-style-type: none"> The Company's domestic natural gas output accounted for 50.4% of its domestic oil and gas equivalent output The Company's domestic greenhouse gas emissions per unit of oil and gas production decreased by 9.65% from the 2019 level The Company's methane emission intensity decreased by 6% from the 2019 level 	<p>Enhanced carbon trading performance and carbon asset management</p> <ul style="list-style-type: none"> In 2020, all CNPC enterprises on the list of the national carbon emissions trading market fulfilled their contracts 	<p>Strengthened management on carbon emissions</p> <ul style="list-style-type: none"> Implemented the <i>Green Action Plan</i> Issued the <i>Methane Emission Control Action Plan</i> <p>Improved efficiency</p> <ul style="list-style-type: none"> Enhanced capabilities in energy control <ul style="list-style-type: none"> Promoted energy control in 38 oil and gas fields and refineries Performed training on energy control standards, with more than 200 trainees Invested RMB 660 million in technical upgrading for energy and water conservation Tested and accessed the energy efficiency of more than 12,498 energy-consuming devices such as pumping units, heating furnaces, and pump units Continued to improve the greenhouse gas emission accounting and reporting management platform 	<p>Reduced emissions by technological means, lowered greenhouse gas emissions in production processes, and promoted CCUS</p> <ul style="list-style-type: none"> Developed 18 key technologies and technical packages through low-carbon researches, established 16 demonstration projects and 9 demonstration areas, and improved the low-carbon standard system Initiated major technical research projects such as "Key Technologies and Application of CO₂ Capture, Flooding and Storage" and "Demonstration Project of Key Technologies for CO₂ Capture, Flooding and Storage", and accelerated breakthroughs in core technologies Carried out research on key CCUS technologies, and supported CCUS industrial testing in Jilin as well as the implementation of demonstration projects in Changqing and Xinjiang Stored more than 1.9 million tons of carbon dioxide in the CO₂-flooding demonstration project in Jilin Oilfield <p>Participated in activities under the OGCI framework</p> <ul style="list-style-type: none"> Basically formed the plan for Xinjiang CCUS Industrial Hub Released the <i>OGCI China CCUS Commercialization White Paper</i> Organized and held 9 roundtables on emission reduction in transportation Released OGCI Annual Report 2020 jointly with member companies 	<p>Build carbon sink forests</p> <ul style="list-style-type: none"> Established China's first carbon neutral forest in Ma'anshan, Daqing City Had a total green area of 286.6 million square meters Planted a total of 2.811 million trees in 2020 Provided support for local landscaping, with a green area of 727.23 hectares and 1.656 million trees planted

In 2020, we

- completed the accounting and reporting of annual greenhouse gas emissions data
- set methane emission targets: to reduce methane emission intensity by around 50% by 2025 from the 2019 level, and keep in line with world leading companies in respect of methane emission

50%

Plans and initiatives for greenhouse gas emission reduction and control supported and participated in by CNPC

- Paris Agreement
- China's National Program to Address Climate Change
- National Plan on Climate Change (2014-2020)
- China Technology Strategic Alliance for CO₂ Capture, Utilization and Storage Technology Innovation (CTSA-CCUS)
- Oil and Gas Climate Initiative (OGCI)
- Carbon Peak and Carbon Neutrality Declaration in China Petroleum and Chemical Industry

Carbon Emission Management

We pay close attention to greenhouse gas emissions. In 2020, we included "green and low-carbon" in our development strategy, implemented the *Green Action Plan and the Methane Emission Control Action Plan*, strengthened carbon emission management, improved the carbon emission control system, and took an active part in the cooperation with global oil and gas industry to cope with climate change.

Case

CNPC Actively Participates in OGCI Activities to Promote Carbon Emission Reduction in the Industry

As the sole member of OGCI in China, CNPC is deeply involved in international cooperation to address climate change, and works with other OGCI members to achieve low-carbon transition in the oil and gas industry. CNPC has developed the CCUS business development plan for the "14th Five-Year Plan" period.

Fulfilling emission reduction commitments

Chairman Dai Houliang issued the *OGCI-CEO Joint Open Letter*, reiterating the commitment of OGCI and its member companies to continue to fulfill their commitments and actively promote carbon emission reduction actions amid the challenge of COVID-19 and low oil prices.

Together with other OGCI member companies, we issued a plan to reduce the average carbon intensity of the upstream sector. We undertake to reduce carbon intensity of our operations to 20 to 21 kg CO₂ equivalent per barrel of crude oil by 2025, down from a baseline of 23 kg in 2017, and reduce the average methane intensity to below 0.25%, with the ambition to achieve 0.2%.

Issuing China CCUS Commercialization White Paper

We conducted benchmarking studies on CCUS commercialization policies at home and abroad and proposed a targeted plan for China's CCUS commercialization. We also held a seminar titled "CCUS Commercialization White Paper: Goals and Actions for Oil and Gas Industry".

Promoting CNPC's methane emission control and CCUS projects

We issued the *Action Plan for Methane Emission Control*, and deployed and implemented the "Seven Major Projects" to push our methane emission control to a world-class level. We completed the research on the CCUS Industrial hub in Junggar Basin. The design of the first phase of CCUS with a capacity of 1 million tons/year has passed expert verification, and the second phase will have a capacity of 3 million tons/year, with a potential of 10 million tons/year. This has been affirmed by the Ministry of Ecology and Environment and the National Energy Administration.

Committing to sustainable transportation

As one of the leading companies of the OGCI transportation working group, we worked with member companies to select prior low-carbon fuel routes, invited global oil, hydrogen and road transportation sectors to the roundtable forum on emissions reduction in transportation, and hosted the online "Forum on Opportunities for Sustainable Transportation Development".

Industry exchange

We conducted in-depth exchanges with domestic and foreign counterparts and professional organizations on low-carbon transition and carbon emission reduction. We organized and hosted 9 roundtable forums on emission reduction in transportation; we also worked with member companies to release the OGCI Annual Report 2020.

Main Measures to Strengthen Carbon Emission Management

- Optimized the industrial structure and eliminated backward production capacity for energy saving and emission reduction
- Optimized the energy mix (clean energy substitution)
- Strengthened greenhouse gas recycling (CO₂ utilization, methane recovery in oil and gas fields)
- Formulated carbon emission rules to regulate the enterprise's carbon emission
- Conducted greenhouse gas emission monitoring, reporting and verification (MRV)

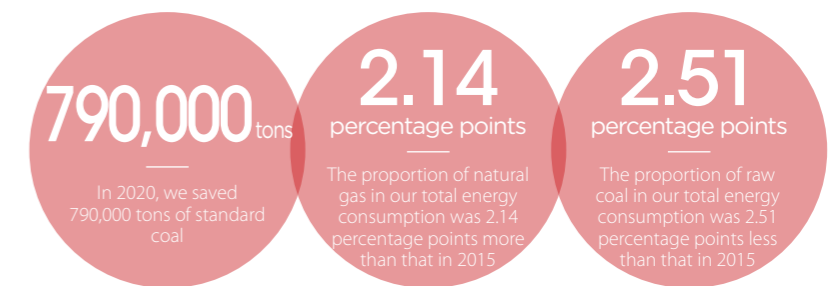
Carbon Emission Reduction During Production

While supplying society with clean oil products, we pay high attention to the optimization of our own energy consumption mix. We also address our carbon emissions and our carbon footprint during production and operation, and endeavor to reduce the consumption of fossil fuels and reduce energy intensity. We regard energy efficiency as the resource of first priority, enhance oil and gas commodity rates and energy utilization efficiency, and accelerate green and clean replacement. In Huabei Oilfield, Tarim Oilfield and other areas, we use renewable energies such as geothermal energy and solar energy to reduce carbon emissions during production.

Improvement of energy efficiency

We developed and implemented the *CNPC Work Plan for Saving Energy, Reducing Consumption and Enhancing Efficiency*, and continued to promote conservation of water, electricity and energy, and consumption reduction, thereby driving the Company's high-quality development.

- Promoted intensive and efficient development of oil and gas, strengthened the optimization of refining and chemical energy and water, and enhanced the system optimization and comprehensive utilization of resources
- Strengthened energy-saving technological transformation, and invested RMB 660 million in technological upgrading for energy/water saving
- Promoted energy management and control
 - Implemented energy control in 38 oil and gas fields and refineries
 - Performed training on energy control standards for more than 200 trainees
- Tested and accessed the energy efficiency of more than 12,498 energy-consuming devices such as pumping units, heating furnaces, and pump units



Market-based Mechanism for Carbon Saving

We actively participated in carbon trading activities to achieve carbon emissions reduction through market-based mechanisms. We are the co-founder of the Tianjin Climate Exchange (TCE), the first comprehensive emissions trading institution in China. The energy saving and emissions reduction projects developed by TCE could save more than 200,000 tons of standard coal annually, equivalent to over 500,000 tons of CO₂ emission reduction. In 2020, all CNPC enterprises on the list of the national carbon emissions trading market fulfilled their contracts.

Energy Cooperation

Upholding the principle of “mutually beneficial cooperation for common development”, we give play to our advantages in integrated businesses, capital, technology and managerial expertise, and cooperate with host governments and partners in upstream, midstream and downstream. While facilitating local access to energy, we help the local areas turn their resource advantages into economic advantages and address local energy challenges, in order to meet local energy demand and maintain regional energy security.

International Energy Cooperation

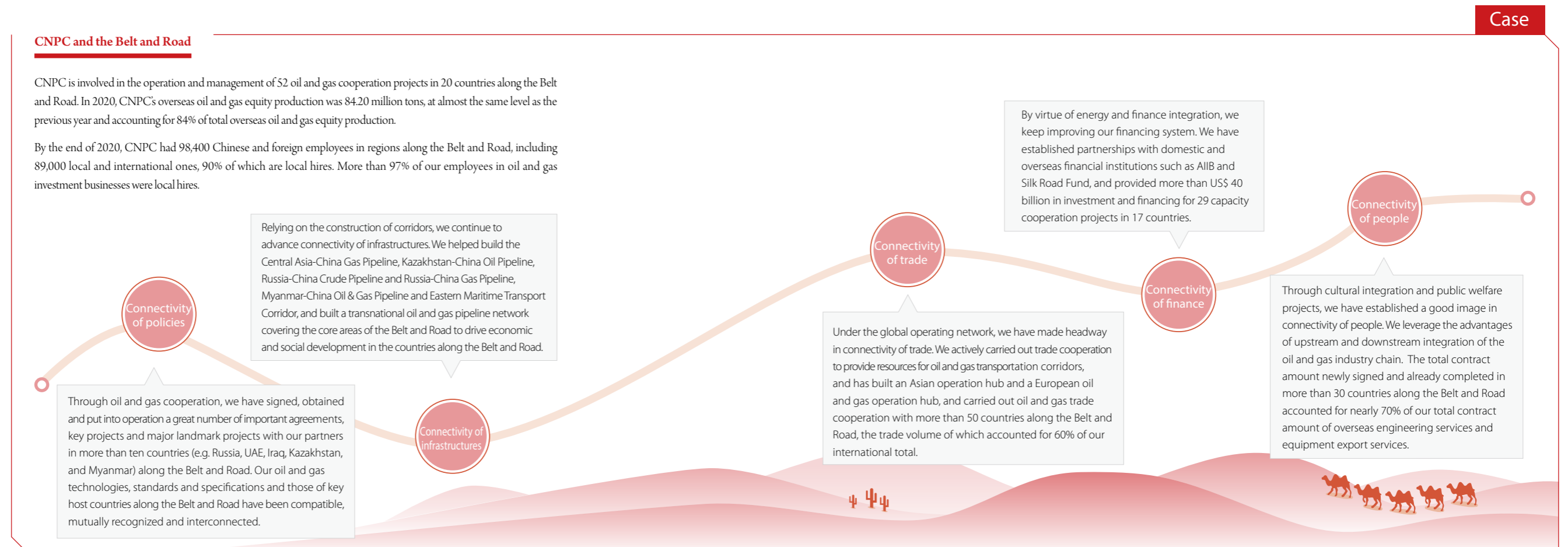
We work hand in hand with the host governments and our partners to fight against COVID-19 and guarantee the stable operation of cooperation projects. We endeavor to make steady progress in overseas oil and gas cooperation. In 2020, we made fresh breakthroughs and new progress in the risk exploration of the Chad project, the progressive exploration of the Kazakhstan PK project and the Ecuador Andes project, and the deepwater exploration in Brazil. CNPC produced 176.642 million tons of oil and gas equivalent overseas, with CNPC equity production of 100.093 million tons. CNPC made contributions to meeting energy demand in host countries and supporting local economic development.

E&P Joint Ventures in China

We continue to make steady progress in cooperation with international partners in developing oil and gas resources in China. While deepening cooperation in conventional areas, we reinforced cooperation with IOCs in shale gas and other unconventional resources. Projects including the Changbei Project, Zhaodong Project, South Sulige Project and Chuanzhong Project were in steady progress. Our domestic oil and gas production equivalent in cooperation with international partners amounted to 2.95 million tons in 2020.

International Trade

By optimizing the resource mix, we make every effort to promote the high-quality development of international trade. In 2020, we conducted international trading in over 80 countries/regions around the world, enhanced the operating capabilities of the three operation hubs in Asia, Europe and the Americas, and reported 490 million tons of international marketing volume.



Responsible Operations

We are always committed to the principle of "people-centered, quality foremost, safety first, environment prioritized" to achieve "zero defects, zero injuries and zero pollution". We regard minimizing environmental impact, reducing emissions, and providing high-quality products and services as the strategic foundation for the Company's sustainable development. We continue to improve the quality management of products and services, and promote safe, environmentally-friendly and resource-saving operations, in order to promote the construction of an ecological civilization and develop a resource-saving and environmentally-friendly enterprise.

5,800
 Rectified more than 5,800 hazards in oil and gas field gathering and transportation pipelines

212
 Treated 212 external floating roof tanks with oil and gas concentration in the secondary seal exceeding the limit

0.0018
 person/million work hours
 Work safety accident mortality rate

Safe Operation

We actively promote the building of a long-acting safety system and comprehensively enhance our work safety management. In 2020, the Company maintained a stable improvement in safety performance.

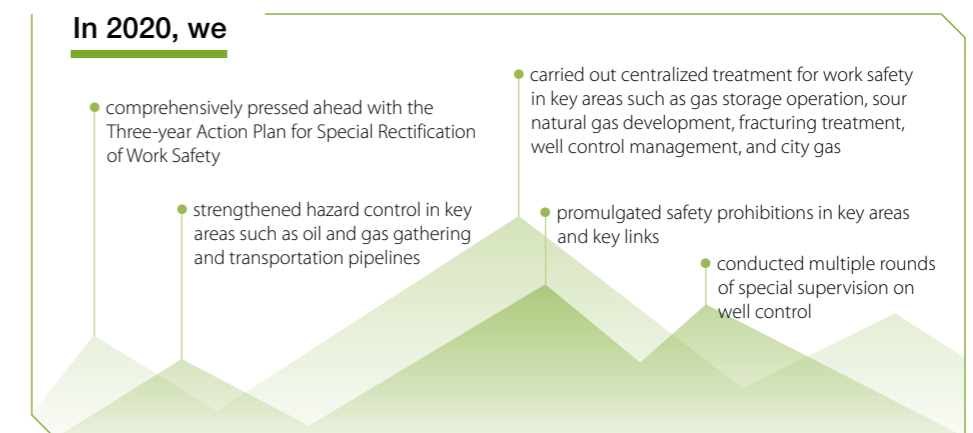
Management System and Performance Assessment

In 2020, we released some rules and regulations on safety management, such as the *Administrative Measures for All-staff Work Safety Scoring in Enterprises* and the *Measures for Administration of Work Safety Contract Points*, strengthened the fulfillment of work safety responsibilities by all employees, continued to promote work safety interviews and debriefings as well as performance assessments, and strengthened the safety performance appraisal of units and all employees. We have increasingly improved our safety management system with distinctive levels, hierarchical responsibilities, and coverage of all employees.

Work safety interviews and debriefings	Content of safety and environmental protection performance assessment
<ul style="list-style-type: none"> Conduct safety debriefing for newly appointed directors of an enterprise, and interview the leadership team of an enterprise with serious safety hazards. 	<ul style="list-style-type: none"> Safety and environmental performance assessment To review the employees' performance in safety and environmental protection, with the assessment results included in performance appraisal Safety and environmental performance capability assessment To review the employees' capability in safety and environmental protection, with the assessment results serving as a reference for determining whether the employees changing positions are qualified for the jobs

Hazard Control

We attach equal importance to both prevention and control of hazards, and build a long-acting mechanism for hazard control, so as to ensure all hazards are timely and effectively treated and enhance the overall safety performance of the Company.



Safety Risk Management

We implement a dual-prevention mechanism covering risk prevention and control and hazard identification and treatment for production safety, and improve the sound classified risk prevention and control system, so as to eliminate safety risks and potential hazards to prevent accidents.



In 2020, we

- Improved the dual-prevention mechanism covering risk prevention and control and hazard identification and treatment for production safety, and carried out classified supervision and targeted responses to risks in our subsidiaries
- Comprehensively identified any changes in safety hazards during the reform and adjustment such as the oil and gas pipeline network reform and "water/power/heating supply and property management"
- Developed a work plan for strengthening safety hazard control in increasing oil and gas reserves and production capacity
- Carried out spot checks on the implementation of prevention and control measures for key risk wells such as oil and gas wells in densely populated areas
- Carried out targeted inspections on work safety and special safety risk assessments for key projects for offshore oil and gas production in spring, and strengthened emergency protection against typhoons



Supplier Safety

We include suppliers and contractors in our safety management, and conduct systematic management of their access, selection, training, use, evaluation and assessment, in order to prevent and reduce accidents caused by suppliers and contractors. In 2020, we strengthened the selection of high-quality strategic contractors, strictly implemented measures for "zero tolerance for unqualified contractors", and carried out training for key positions of contractors and refused to hire those who failed the examination.



Overseas Security Management

Personnel safety has always been an overriding priority in our operations. We established and improved the social security management system, fully strengthened social security risk prevention and control, and continuously enhanced emergency response capabilities. In 2020, in response to COVID-19 and through measures such as establishing a four-level overseas joint prevention and control mechanism and regional coordination groups covering 78 countries (regions) around the world, we registered no deaths from COVID-19 overseas or social security fatalities in our overseas projects.

Key Actions for Overseas Security in 2020

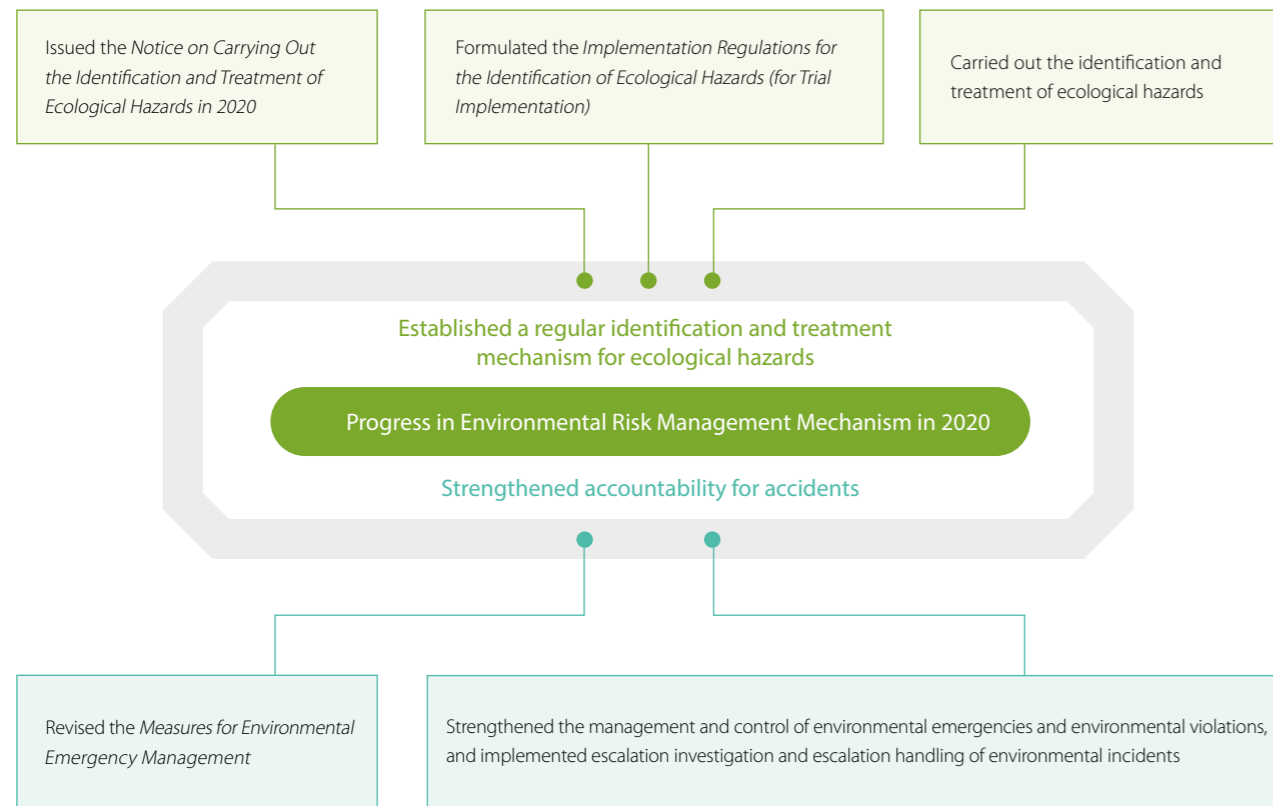
<p>Strengthening social security risk response</p>	<ul style="list-style-type: none"> ● Reviewed the five-dimensional performance appraisal and emergency response plan of social security management, and upgraded 6 social security management standards at the CNPC level ● Improved country-specific risk assessment indicators, continued to follow security situation of key countries, carried out security risk assessments, and adjusted the security risk levels of 13 countries (regions) ● Organized video seminars on kidnapping risk response and hotspot situation analysis against the background of regular pandemic prevention and control, and shared security resources ● Issued 11 safety alerts ● Strictly reviewed and approved the establishment of security risk control and security plans for new projects in the countries (regions) with high and above risks
<p>Properly responding to emergencies</p>	<ul style="list-style-type: none"> ● Updated and released CNPC's <i>Special Emergency Plan for Foreign-related Security Emergencies</i> and <i>Special Emergency Plan for Foreign-related Public Health Emergencies</i> ● Carried out strict contractor management, serious travel management and inspection of the quality of bulletproof vehicles in Iraq ● Upgraded local security management for CNPC's projects in Azerbaijan, Mozambique and Kyrgyzstan
<p>Strengthening anti-terrorism safety training</p>	<ul style="list-style-type: none"> ● Organized 130 overseas anti-terrorism safety training sessions for 9,841 people; anti-terrorism safety training rates for overseas employees: 89.24% of management personnel and 97.38% of operating personnel (lower than previous years as working in shift of overseas projects was seriously impeded by COVID-19)

Environmental Protection

We take the initiative to evaluate the environmental impact of our management and activities, and make efforts to reduce adverse effects on the environment and climate. We endeavor to enhance resource utilization efficiency, resolutely win the battle against pollution, promote energy conservation and emission reduction, strive to achieve environmentally-friendly and resource-saving operations, and vigorously advocate ecological civilization, in order to achieve harmonious development with the environment.

Strengthening Risk Prevention and Control

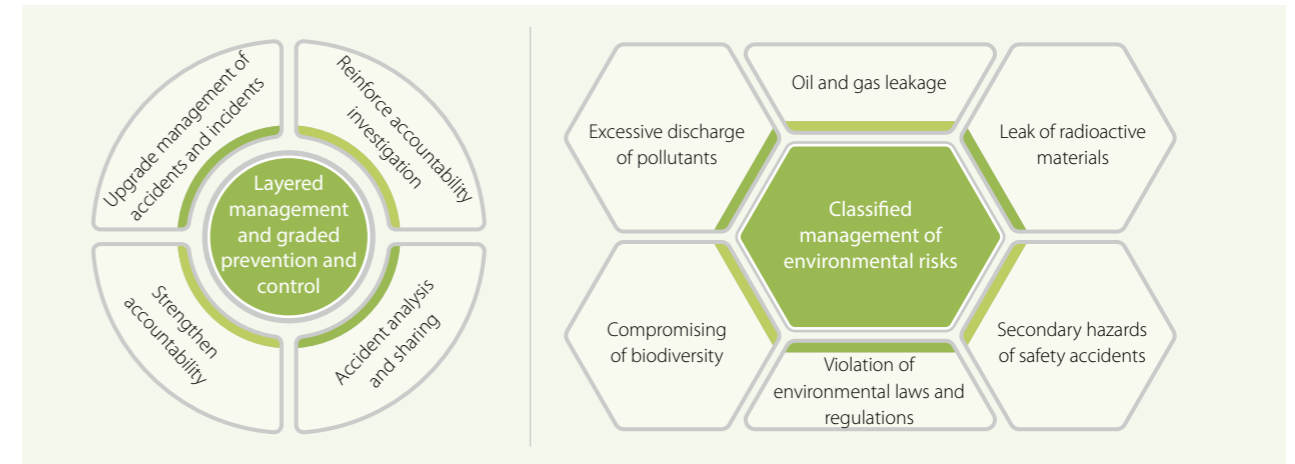
We carried out environmental risk identification and assessment and implemented a risk prevention and control management model focusing on environmental forecasting, pre-warning and monitoring. We began the environmental risk management at an earlier stage and established a sound risk management mechanism featuring "layered management and graded prevention and control", in order to ensure overall control over environmental risks. In 2020, no major environmental accidents were reported.



Case

CNPC Contributed to the Battle for Clean Land and Was Affirmed by the Ministry of Ecology and Environment

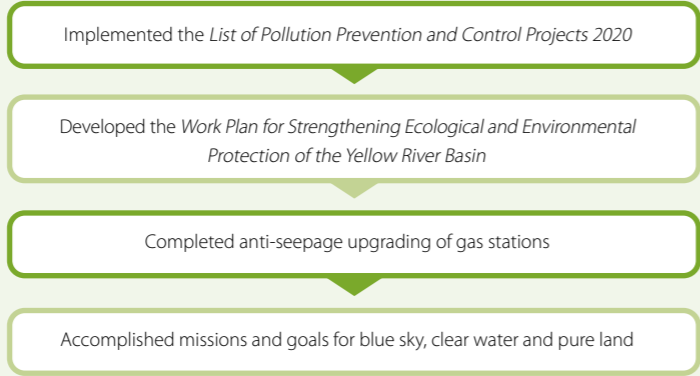
As a test unit for national enterprise land survey and in active response to the requirements of the Ministry of Ecology and Environment, CNPC has developed the *CNPC Work Plan for Soil and Groundwater Environmental Investigation*, and invite national-level experts to regularly conduct special training for corporate personnel to ensure that the participants master the management and technical requirements in a timely manner. By the end of 2020, CNPC had completed all investigations, with a pass rate of 100% as checked by the Chinese government. In February 2021, the Department of Soil Ecology and Environment of the Ministry of Ecology and Environment praised CNPC for its outstanding performance in the investigation of the soil pollution status of land of enterprises in key industries across the country.



CNPC Intelligent Environmental Management System

- Environmental risk management platform
- Pollution source online monitoring system
- Solid waste management and control platform
- Management System of Environmental incidents
- VOCs control platform
- Ecological environment hazard investigation and control dispatching platform
- Comprehensive VOCs management supervision platform

In 2020, we completed the Pollution Control Upgrade Plan



Case

Online monitoring of pollution sources

CNPC's online pollution source monitoring system is an advanced technology that is flexible, efficient, intuitive and intelligent. It integrates the Internet Plus and big data for automatic identification and judgment of missing and abnormal data, classification alarms for excessive emission abnormal data, intelligent prediction of pollutant emission data, calibration and statistics of multi-parameter emission data and other functions. With this system, the pollutant discharging units can realize all-round and intelligent management and control of major equipment and emission sources.

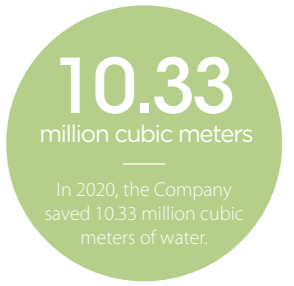
As of the end of 2020, 680 pollution sources were monitored through the network, all the key pollution sources on the List of Enterprises subject to Intensive Monitoring and Control of the State were put under control; all elevated sources in the Beijing-Tianjin-Hebei region and its surrounding areas were under control. The automatic monitoring of pollution sources covered all major equipment and pollution sources of CNPC.

Number of online monitoring points



Sustainable Use of Resources

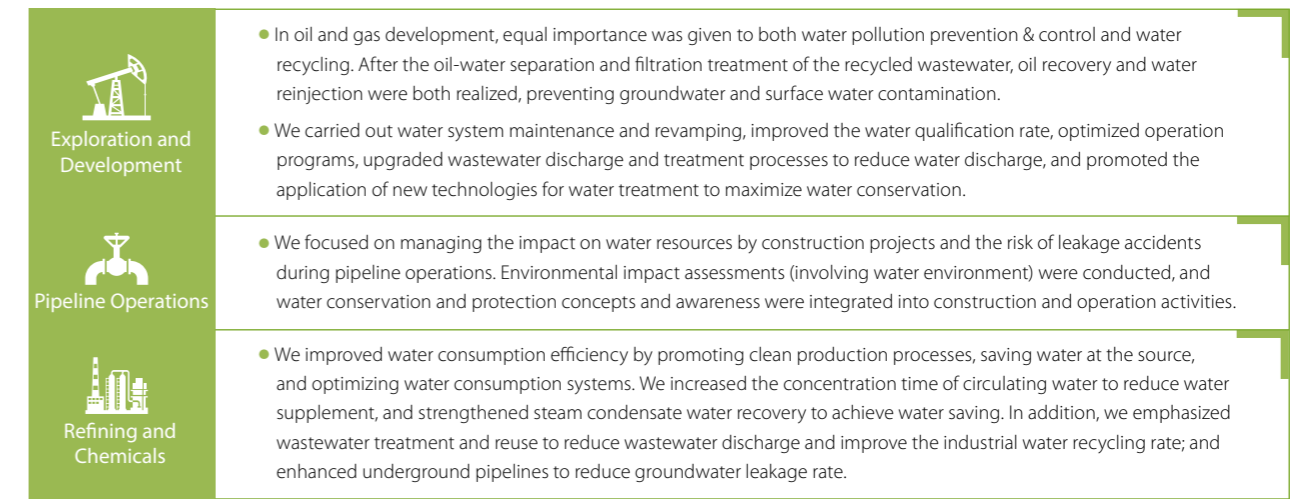
We attach great importance to the protection and rational utilization of resources. We strengthen the protection of water, conservation of freshwater and rational use of land, and strive to improve energy and material utilization efficiency to minimize resource consumption.



Water Resources

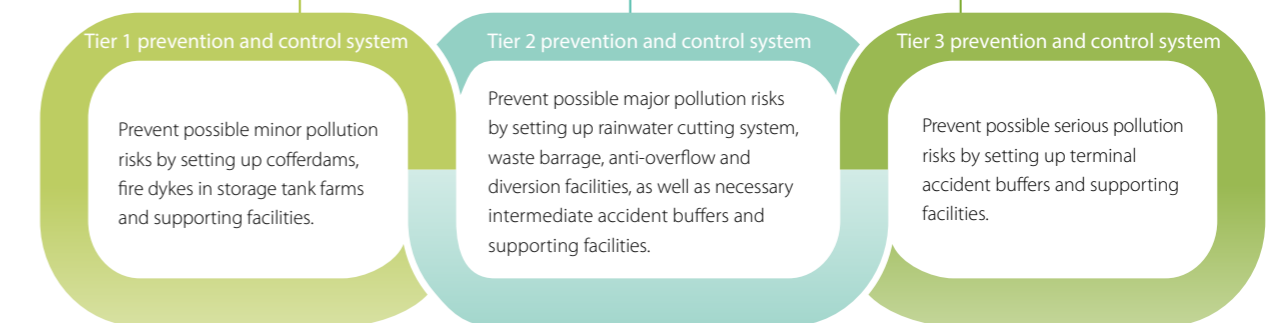
We endeavor to improve water utilization efficiency and realize sustainable use of water throughout various links in our production and operation activities. Through strengthening water utilization process management, adopting technologies for water-saving and wastewater treatment and recycling, and integrating water-saving indicators into performance evaluation and other measures, we worked to reduce the use of fresh water. Our fresh water consumption decreased by 4.47% year-on-year. Dushanzi Petrochemical Company was awarded the "Water Efficiency Leader among Key Water-using Enterprises in the Ethylene Industry in 2020" by four ministries including the Ministry of Industry and Information Technology.

Water Resources Management throughout the Industry Chain



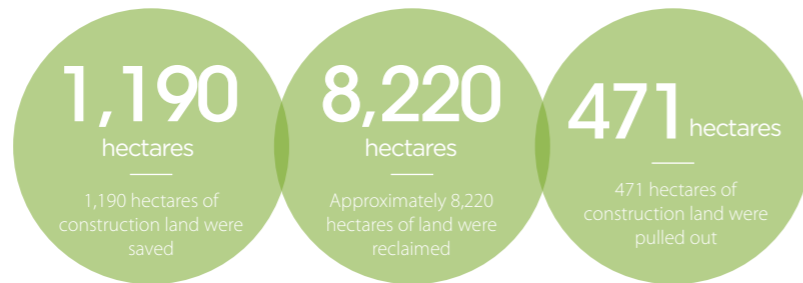
Reducing water pollution risks through three-tiered pollution prevention and control system

We set up a safe, timely and effective pollution prevention and control system, conducted environmental risk assessment, and adopted necessary prevention measures to control water pollution risks and prevent oil spill accidents.



Land Resources

Based on the principle of scientific siting, efficient use, proper protection, and timely restoration and through innovation in land-saving technologies and management models, we made careful and intensive use of land during production, strictly controlled land use growth, made good use of land in various ways, proactively reclaimed land, carried out environmental treatment and recovery in mining areas, and enhanced land use efficiency. In 2020, we saved 1,190 hectares of land.

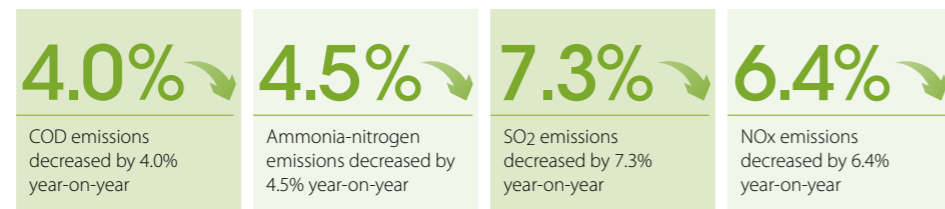


Waste Disposal and Ecological Restoration

We attach great importance to the supervision of hazardous waste and realize the whole-process management in key areas under ecological and environmental risks. We have established a unified whole-process management and control platform for hazardous waste, and put in place a three-level management and control mechanism for hazardous waste. We adopt the whole-process management and control for collection, storage, transportation, utilization and disposal of solid wastes such as oily sludge, drilling waste and used catalysts, and improve pollution prevention and control facilities. In 2020, our solid waste management platform was put into operation.

In 2020, we

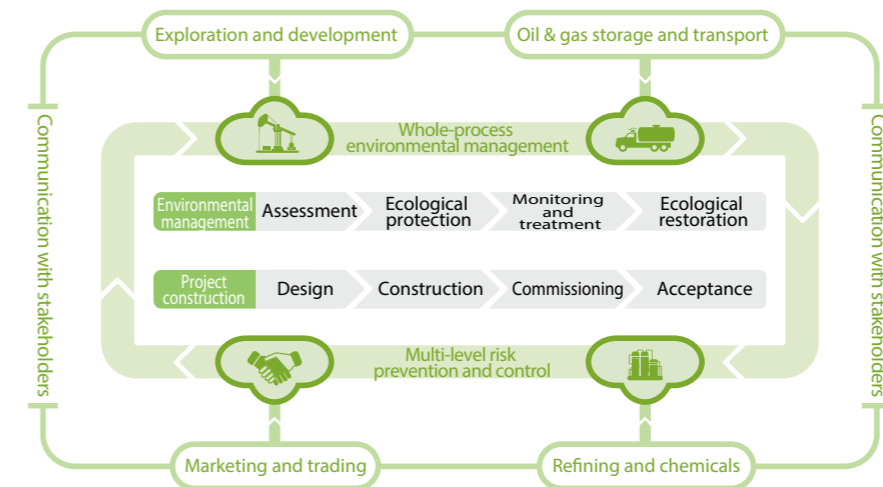
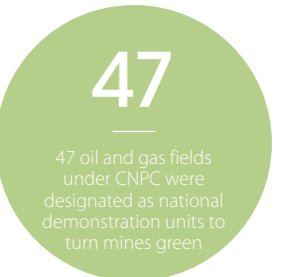
Strengthened VOCs emission control and promoted VOCs management and control and benchmarking actions of refineries. Refined oil sales companies carried out "oil unloading at night, off-peak refueling" in key areas in summer, which was highly recognized by the local ecological and environmental authorities.



Conservation of Biodiversity and Natural Habitats

We are devoted to reducing the potential influence on the environment and biodiversity during production and operation. We exercise management and control at source and implement environmental management in the full life cycle throughout the industry chain. We make an all-out effort to identify and address environmental pollution and ecological damage, and reduce the impact on the ecological environment by various means, including reducing noise and emissions.

We withdraw from environmentally sensitive areas in an orderly manner, do our utmost to reduce the occupation of cultivated land, protect water and land, and restore vegetation, so as to conserve the ecological environment in the working areas. In 2020, we demobilized 281 oil, gas and water wells in environmentally sensitive areas, and completed the anti-seepage reconstruction of 20,300 active service stations.



Protecting the Environment and Promote Green Development

Dagang Oilfield

Dagang Oilfield is located on the coast of the Bohai Sea, home to a variety of environmental forms such as wetlands, reservoirs, river courses, tidal flats, and farmland. Every year, hundreds of thousands of birds inhabit and stay in the Beidagang Wetland, including endangered birds such as Oriental Storks. To protect the local environment, Dagang Oilfield:

- Innovated production methods and implemented clean production. All wastewater and waste gas from fixed sources were discharged in compliance with specified discharge standards and all solid waste treated in compliance with standards
- Applied the technology "with no mud on ground", which doesn't need mud pit
- Changed the production mode from "one pad for one well" to "one pad for multiple wells", and kept the source far away from environmentally sensitive areas

Case

Daqing Oilfield

The Ecological Demonstration Zone of Daqing Oilfield was originally in an area with many dry lakes, saline-alkali land and other bare land, making its ecological treatment far more difficult and complex than other areas in the oilfield.

To address this challenge, Daqing Oilfield made preparations for voluntary tree planting and planted trees. Today, in the Ecological Demonstration Zone of Daqing Oilfield, there are:

- **346,000** seedlings
- **5.017** million purple osiers on the banks of rivers, canals and lakes
- More than **1,000** mu of Gesang flower
- More than **30** hectares of seedlings

Case

Create Green Fields and Build Ecological Demonstration Oilfields

Changqing Oilfield is China's largest oil and gas field. In the process of increasing production to 60 million tons, we continue to focus on the creation of green fields, strengthen the prevention and control of oil and gas field pollution and take concrete action to implement ecological protection and high-quality development in the Yellow River Basin.

Environmental protection	<ul style="list-style-type: none"> Nearly 1,000 oil, gas and water wells and dozens of stations have been demobilized from environmentally sensitive areas and ecological restoration has been carried out in time for the demobilized wells and stations 20 ecological environment protection zones and more than 800,000 mu of carbon sink forest were built in Longdong oil area 3 million square meters of green plants are added every year in the oil and gas development area, with a green coverage rate of 95%
Green production	<ul style="list-style-type: none"> 5 natural gas purification plants with exhaust gas treatment devices, reducing SO₂ emissions by thousands tons per year 142 site heating furnaces changed from coal (oil) to gas From 2018 to 2020, removed 3,968 coal-fired heating furnaces at the wellhead



Products and Service

Following the quality principle of "Integrity and Excellence", we strengthen the quality management system and improve process quality control to create brand products. In addition, we continue to promote high-quality development for the Company by consistently improving product, project and service quality.

Quality Control

In 2020, CNPC continued to enhance quality management, focusing on quality system audit, quality supervision and inspection, and quality culture building. No major quality accidents were reported.

Major Progress in Quality Management in 2020

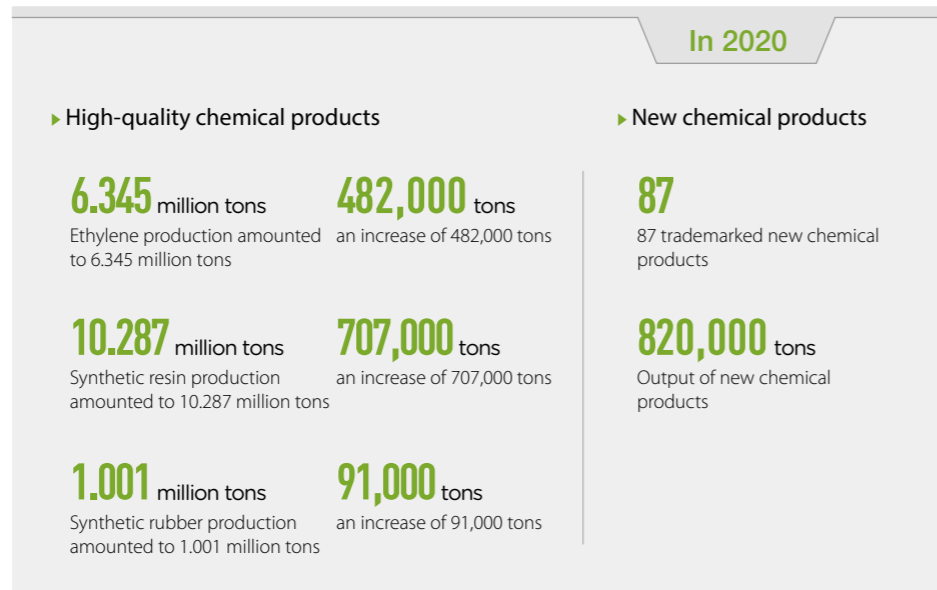
Key work	Content
Improve product quality	<ul style="list-style-type: none"> 25 aviation fuel production companies passed the airworthiness certification of civil aviation fuel issued by the Civil Aviation Administration 4 sets of jet fuel production equipment passed the jet fuel certification of the National Aviation (Naval) Fuel Appraisal Committee, adding 2.66 million tons of jet fuel per year Carried out quality supervision and random inspections such as special inspections over national VIB oil quality focusing on external oil production
Initiate centralized improvement of oil, gas and water well quality	<ul style="list-style-type: none"> Prepared the <i>Three-year Action Plan for Centralized Improvement of Oil, Gas and Water Well Quality</i> Initiated 4 special rectification actions (including the action for treating casing damage wells and casing deformation wells) Established the oil (gas) well engineering quality supervision station Clarified the seven red lines for the determination of unqualified well quality and cementing quality
Carry out quality culture building	<ul style="list-style-type: none"> 10,800 QC teams, 3,626 teams, 187,000 employees participated in mass quality activities Over 550,000 employees attended the quality management contest organized by the State Administration of State-Owned Assets Commission Conducted customer satisfaction surveys

Product Management

We provide consumers with products according to legal provisions and industrial standards in a responsible way. While providing products, we put emphasis on the influence on consumers and guarantee product safety. Meanwhile, we actively communicate with consumers, publish product safety risk evaluation results and make great efforts to protect consumers' legal interests.

Quality Products and Services

Providing Quality Products. By strengthening technological innovation and optimizing the product mix, we provided safe, reliable, high-quality and environmentally friendly products for our customers. In 2020, we further increased the proportion of high-end, high-performance products. The output of high-grade gasoline increased by 524% over 2015; the output of chemical products increased by 29% over 2015; the output of high-performance products such as PX, synthetic resin and synthetic rubber increased by 21.1%, 7.4% and 10%, respectively.



Promoting Service Level. We constantly improve consumer experience and provide consumers with convenient and efficient services. In 2020, we continued to promote smart service stations, and worked to meet consumers' all-round needs: "people, vehicle and life". As of the end of 2020, our 22,600 serve stations provided services throughout 31 provinces (municipalities and autonomous regions) and the Hong Kong SAR.



According to the China Brand Power IndexSM (C-BPI) 2020 brand ranking and analysis report released by Chnbrand, a renowned brand rating institute, CNPC ranked first by overall rating for the fourth consecutive year.

Service network	<ul style="list-style-type: none"> Our services covered 31 provinces (municipalities and autonomous regions) and the Hong Kong SAR Our sales capacity exceeded 110 million tons per year We provided services to 10 million consumers every day
Service category	<ul style="list-style-type: none"> We have 22,600 domestic gas stations We have 20,000 uSmile convenience stores We have issued more than 188 million Kunlun refueling cards
Consumer satisfaction	<ul style="list-style-type: none"> Customer satisfaction rate for follow-up calls of CNPC service hotline 95504 reached 97%

Supply Chain Management

We uphold the supplier management philosophy of global sourcing, open cooperation, resource sharing, mutual benefit and win-win relationships, and exercise a life cycle closed-loop management of suppliers. We incorporate environmental, quality and occupational health and safety management system certification into our Tier 1 supplier standards. We provide guidance to our suppliers on lawful and ethical business operation and fulfillment of corporate social responsibilities. Suppliers and contractors shall comply with CNPC's unified quality, environmental, health and safety standards and relevant anti-commercial bribery and anti-corruption policies and regulations, and continue to improve the reliability and environmental sustainability of products and services, and protect the human rights of employees to fulfill demand for personal development.

CNPC is committed to interconnection and interaction with its suppliers, resorting to various means to understand their concerns and claims via a well-established mechanism for constant communication. In 2020, we spent RMB 168.3 billion in procurement, and cooperated with 23,699 material suppliers at home and abroad.



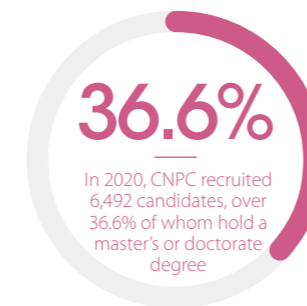
The proportion of Tier 1 suppliers certified by ISO9000, ISO14000 and ISO18000

Key Initiatives for Supplier Management in 2020

Improved supplier management systems	<ul style="list-style-type: none"> Strengthened the whole-process management of suppliers from supplier admission to supplier withdrawal, continued to optimize the resource structure of suppliers, and gave priority of access to energy-saving and environmentally friendly products and those with independent intellectual property rights Strengthened the supervision and risk control for suppliers over quality, safety, environmental protection and other aspects, and ensured suppliers to operate with goodwill, integrity and compliance
Promoted cooperation with suppliers and established a communication and coordination mechanism	<ul style="list-style-type: none"> Intensified cooperation with suppliers in multiple areas, and communicated with suppliers in various aspects such as environmental protection and sustainable development to seek more opportunities for cooperation Supervised suppliers' health, safety, environmental protection and compliance operations, and communicated with suppliers in a timely manner to improve the coordination in the supply chain
Optimized supplier assessment and promoted supplier performance improvement	<ul style="list-style-type: none"> Evaluated 4,223 products from 1,426 Tier 1 suppliers, with a dynamic quantitative evaluation rate of 100%; incorporated corporate strength, product innovation, and integrity and compliance into the evaluation system, performed classified management for suppliers (A, B, C and D), and applied the evaluation results to supply chain building
Strengthened due diligence and monitoring of third-party intermediaries/agents	<ul style="list-style-type: none"> Implemented professional management and dynamic supervision, strictly regularized market access, real-time online evaluation and annual evaluation, and established and improved the exit mechanism Launched special campaigns to investigate and punish officials and their relatives in violation of regulations for running enterprises, providing convenience and seeking benefits for relatives and friends Used big data platforms to cross-correlate the corporate information of traders, agents, and suppliers, and identified clues to problems Strengthened the functional application of the joint supervision information system, and actively supervised to find clues to problems

People-oriented Employee Development

Employees are our most valuable resource and asset, and the Company's development and success are attributed to the joint efforts of all our employees. Upholding the people-oriented concept, we attach great importance to protecting employees' legal rights and interests, build an effective platform for employees to develop, and promote employee localization and diversification. We care about the physical and psychological health and life of our staff, to make all employees benefit from our achievements and realize the common development of both our Company and employees.



Employees' Rights and Interests

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

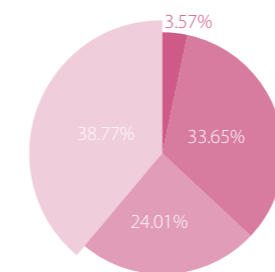
Employment Policies

CNPC always puts people first and values and safeguards the lawful rights and interests of the employees. We strictly comply with the *Labor Law of the People's Republic of China*, the *Labor Contract Law of the People's Republic of China* and the *Trade Union Law of the People's Republic of China*, relevant international conventions approved by the Chinese Government, and relevant laws and regulations of the host countries. We promote equal and non-discriminatory employment policies, and provide equal opportunities and fair treatment to all employees regardless of nationality, race, gender, religion or cultural background; resolutely prohibit child labor and forced labor; and always aim to promote the employment of women and ethnic

minorities. Specifically, we strictly implement the regulations on pregnancy, maternity and parental leave for female employees, and guarantee that the female employees enjoy equal compensation and benefits and career development opportunities. By the end of 2020, the Company had 65 female senior executives and 1,457 female middle-level managers.

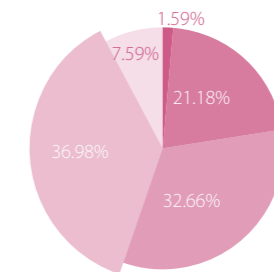
Compensation and Incentives

We intensified our efforts to reform the remuneration system, improve policies on enterprise annuity and supplementary medical insurance, and further improve the salary distribution system by linking it closely with performance appraisal results. In 2020, we made special incentive and restraint measures for quality and efficiency, improved the differentiated salary distribution mechanism, and promoted the dividend-based incentive policy in technology enterprises. We implemented the multi-factor salary distribution mechanism in a well-planned way, giving the top priority of income to the entities with tremendous benefit contributions and high input-output efficiency, to employees working at grass-roots level and in key positions, and to badly needed high-level, high-tech and highly-skilled talents.



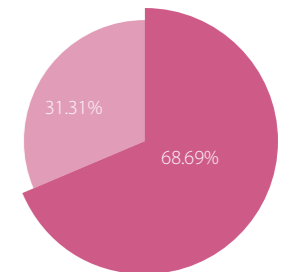
Education background composition of the workforce

- Master's Degree and above
- Bachelor's Degree
- Junior College
- Technical Secondary School and below



Age composition of the workforce

- 25 and under
- 26~35
- 36~45
- 46~55
- 56 and over



Gender composition of the workforce

- Male
- Female



Democratic Participation

We ensure that our employees play an important role through democratic management, participation and supervision. We have established the trade unions, put in place a democratic management system through workers' congress and adopted a transparent approach to factory affairs. Specifically, we have further standardized the content, procedures and model of our open system for factory affairs by clarifying rights and obligations, organizational system, and working processes for the workers' congress. By doing so, the Company has improved our enterprise democratic management.

We have established multiple channels to communicate with the employees, continued to implement democratic procedures, and solicited the employees' opinions by holding workers' congress, democratic discussion meetings, and employee representative symposiums. Besides, we guarantee the employees' rights to know, participate, manage, vote and supervise according to law, and encourage them to offer advice and suggestions for the enterprise development.

Career Development Platform

We provide a broad arena for employees to realize their self-value by addressing their need for professional development at different stages, respecting their career planning, and creating an innovative environment, system and mechanism and building a resource guarantee system for their development.

Education and Training

We adopt a "two-level planning and three-level training" management mechanism to make the employee training more extensive and effective. We carry out the "Internet Plus training" to tap the value of human resources. We deliver diversified and differentiated ways of job training through continuous innovation. Thus, a learning culture is created for the growth of both the Company and individuals, and the quality and capability of our workforce are improved.

In 2020, we kept performing high-quality training for our staff despite of the epidemic outbreak. Totally, we organized 5,600 in-person training programs (incl. 158 programs at the headquarters level), benefiting more than 20,000 employees.

Strengthened the building of standard systems for job training

- Held the first training program design competition from the perspective of standardized job training, which can serve as a collaborated and shared platform for talent cultivation
- Started to establish a qualification standard system for personnel cadres and defined the structure and sequence of relevant training system

In 2020, we

Promoted the "Internet Plus Training"

- Launched the "CNPC e-learning", a smart cloud learning platform integrating mobile learning, training management, and knowledge management
- Provided 252 training programs in form of live broadcast teaching, and online workshops/exams

RMB **1.45 billion**
training fund was provided in 2020

693,000 persons
attended in-person training

16,626,000 persons
attended Internet-based training

8,400 training programs
were provided in 2020

21 million class-hours
were delivered in 2020

100%
frontline personnel were trained

100%
high-caliber technical personnel and critical operational personnel were trained

Major Training Programs of "Four Types of Personnel" in 2020

Managerial Personnel	Technical Personnel	International Personnel	Skilled Personnel
<ul style="list-style-type: none"> CNPC Party School training classes Leadership improvement training courses Strategic leadership training courses Training courses for young and middle-aged managers Training programs for person in charge of Party building, Secretary of discipline committee and chief accountant Training programs for division-level cadres at key positions 	<ul style="list-style-type: none"> Courses for improving the capabilities of candidates for Key Talent Project Expert refresher programs in Tsinghua University, Beijing Institute of Technology and other colleges/universities Demonstration training programs for principal professional senior technical talents 	<ul style="list-style-type: none"> "Thousand People Training Project" for international talents 	<ul style="list-style-type: none"> Special training for innovation of frontline working techniques Academic seminars for technical experts Demonstration training courses for team leaders to improve their competence Demonstration training programs for high-caliber technical personnel Petroleum Craftsman Development Program

Rewards and Incentives

We provide spiritual and material rewards/incentives to employees through selecting model workers, advanced workers, technical experts and academic leaders, and encouraging our employees to enter for international and domestic award contests.

Individual/Collective Winners of National Awards in 2020

National Model Worker 36	National Outstanding Communist Youth League Cadre 1
National Advanced Collective for Fight against COVID-19 1	National Outstanding Communist Youth League Member 2
China Youth May Fourth Medal 1	National Youth Safety Demonstration Post 4
Winner of National "Ankang Cup" Contest 2	National May Fourth Red Flag Youth League Committee 2
National Young Professional Pacemaker 1	National May Fourth Red Flag Youth League Branch 1
National Young Post Expert 12	National Civilized Unit 9
National Ethical and Virtuous Model Youth 1	

We improve employees' vocational skills and professional abilities through the combination of training and competition such as vocational skills competitions. Through these measures, we promote the development of front-line employees.

Vocational Skills Competitions Held or Attended by CNPC in 2020

Vocational Skills Competitions Held or Attended	Awards
National Vocational Skills Competition for Oil and Gas Field Development	In more than 50 vocational skills competitions with a total of 250,000 participants, 47 gold medals, 75 silver medals and 112 bronze medals were granted at the CNPC level or above; 8 employees were named the "National Technical Expert"; over 500 employees were exceptionally promoted for their higher skills
The 12th National Vocational Skills Competition for Petroleum and Chemical Industry	
Vocational Skills Competition for Operators of 5 Mt/a Atmospheric & Vacuum Distillation Unit in Refinery	
The 29th Sun Yueqi Energy Science & Technology Award	1 winner of Grand Energy Prize and 20 winners of Youth Technology Prize
The 2nd National Award for Excellence in Innovation	1 winner of National Award for Excellence in Innovation

Case

Hongtu Road Service Station Awarded the "National Advanced Collective for Fight against COVID-19"

At the meeting to commend role models in China's fight against COVID-19, the Hongtu Road Service Station of PetroChina Hubei Marketing Company was awarded the "National Advanced Collective for Fight against COVID-19", recording the only filling station with this honor in China. This supreme honor represented the enormous contribution of the 20-personnel service team of Hongtu Road Service Station led by the manager Ma Ting, and all staff of PetroChina Hubei Marketing Company and even the entire CNPC in the anti-pandemic fight.

The Wuhan Hongtu Road Service Station is adjacent to Jinyintan Hospital and "Wuhan Livingroom" Makeshift Hospital, a special location putting it at the highest risk during the Wuhan pneumonia epidemic. To fight against COVID-19, the Station stayed open around the clock, with all personnel remaining at their posts, to (1) ensure the oil supply to ambulances in nearby hospitals, and such organizations as the epidemic control headquarters, and (2) provide home delivery services to the residents in nearby communities by delivering vegetables and other necessities of life in urgent need to the isolation points. During the 67-day fight against the epidemic in Wuhan, the Station supplied totally 93.9 tons of fuel oil via 36 trips to 334 vehicles of the Jinyintan Hospital and Wuhan Livingroom Makeshift Hospital.

Career Development

We attach great importance to the career planning of employees and support their career development to realize their value. In 2020, we continued to promote professional-rank personnel management and improve the mechanisms of dynamic job transfer and incentive mechanism to fully unleash the potential of employees and provide technical professionals with independent, unimpeded and stable career development paths. We implement the Oil Scientists and "Petroleum Craftsman" training programs and Outstanding Young Technician Training Project, so as to open channels for the growth of innovative talented people.

By the end of 2020, CNPC had 23 academicians at the Chinese Academy of Sciences and the Chinese Academy of Engineering, 569 on-the-job experts entitled to the Government Special Allowance, 185 chief technical experts, and 468 technical experts. We had set up 112 Skilled Expert Studios, including 28 National Skilled Expert Studios with 380 skilled experts.

In 2020, we

2

had 2 personnel selected as the members of the 8th Academic Degree Appraisal Group under the Academic Degree Committee of the State Council.

Progress in Improving the Professionals Development Mechanism in 2020

System reform

- The professional-rank personnel management was promoted.
- A special plan for personnel development in the "14th Five-Year Plan" period was established.
- Job setting and staff selection were completed in 15 enterprises/institutions.

Platform expansion

- Academicians, as strategic advisors, were gathered in academic and technical exchanges.
- The expert consultation program was conducted, with 44 suggestions proposed.
- RIPED was designated as a demonstration base for training innovative talents.
- BGP INC. was approved to build a demonstration base for attracting talents.
- PetroChina Petrochemical Research Institute was approved to establish a post-doctoral research workstation.

Environment optimization

- A total of 35 candidates for the Outstanding Young Technician Training Project were assigned to China University of Petroleum (Beijing) for selected courses.
- A total of 21 scientific and technological innovation talents were introduced.
- One personnel won the 2nd National Award for Excellence in Innovation.

Case

Liang Nanyu, a CNPC Cadre Devoted to the Poverty Alleviation in Shuanghu County, Tibet



Liang Nanyu is CNPC's 14th cadre dispatched in 2016 for paired assistance to Shuanghu County, Tibet, a place with sparse population (only 1 person/8 km²). During his term, Liang traveled more than 100,000 kilometers to all villages

in Shuanghu for purpose of poverty alleviation activities. While shifting the focus of support from infrastructures to people's livelihood and businesses, Liang paid attention to local capacity for independent development. In 2019, Liang saw the expiration of his term, but he decided to stay for another three years to continue the artemia cysts project and the efforts with local people.

Over the past four years, Liang worked hard with the people of Shuanghu to improve medical services and education and carry out businesses conducive to poverty alleviation. Finally, a CNPC model for poverty alleviation

integrating "basic research + ecological protection + industrial upgrading" was emerged. By virtue of this model, the Shuanghu County was eventually lifted out of poverty in 2019.

For good work performance, Liang was honored the "Most Beautiful Person to Support Frontier Regions", "Role Model of Central Enterprises", and "Advanced Individual in the Fight against Poverty".

"As CNPC members, we will follow the spirits of Daqing and 'iron man' in the petroleum industry all the time. We do not fear hardship, as long as we can let the people at an altitude of 5,000 meters live better!"

—— said Liang Nanyu

Local Hiring and Diversity

We embrace a respectful, open and inclusive culture, and are committed to the localization, professionalization and marketization of overseas employees. We abide by all laws and regulations of the host countries. We establish an optimal system for hiring, deployment, performance appraisal, incentives and penalties. We strive to attract and train top local talents and to provide them with a working environment conducive to their employee development.

Local Employment

We actively recruit and train local employees and do not discriminate against local candidates for managerial positions, providing local people with job opportunities. Professionals employed in our overseas projects involve multiple disciplines, such as exploration and development, engineering construction, international trade, finance, accounting and human resources management, covering over 80 countries/regions. As of late 2020, we had a total of 120,000 Chinese and foreign employees overseas, including 105,000 local and international employees, and representing an average local employment rate of 88% (95% for the investment business).

Respect for Cultural Diversity

We respect our employees' individuality, ability and varied experiences, and cherish their diversified talent. We make all efforts to eliminate the employment and occupational discrimination, create a relaxing and tolerant working environment, and promote the mutual respect and understanding among employees of different nations, areas and cultural backgrounds.

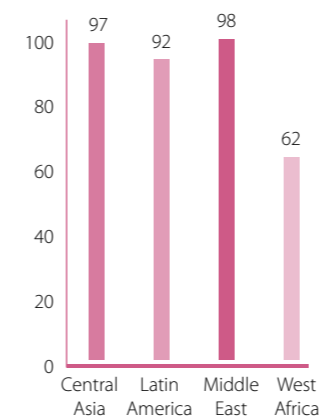
Case

"Training of Multicultural Management in a Multinational Company" in the Abu Dhabi Project

The Abu Dhabi Project is a big family with members mainly from Asia, Europe, America and Africa, who are different in skin color and cultural/religious backgrounds. The project company organized cross-cultural exchanges and training programs to help these diverse employees understand each other and thus mitigate any possible culture conflict.

A typical training program is the "Multicultural Management and Learning Organization Building in a Multinational Company", which was designed by the world's leading experts in partnership with well-known teams in cross-cultural communication and training. It comprises "pre-class preparation of questionnaires for access to information about trainees", "short-course lecturing", "one-to-one competence assessment", and "assessment report analysis and improvement". Through this program, the project company's managers were trained and assessed in respect of competence of work in a multicultural environment. Furthermore, each trainee was given suggestions on improvement. This program was highly recognized by trainees.

Proportion of local employees in CNPC's overseas business in 2020 (%)



Physical and Psychological Health

We cherish employees' life and attach great importance to their health. We strive to provide a favorable working environment for the physical and psychological health of our employees and have established a mental health platform and introduced a series of policies and measures to guarantee their physical and psychological health.

professional characteristics and experience in COVID-19 prevention and control.

Mental Health

We took measures to continuously improve the employee vacation system. We implemented the Employee Assistance Program (EAP), set up hotlines and website for psychological counseling, and carried out various forms of training on mental health improvement, in order to build a positive and healthy mindset for employees. In 2020, as the COVID-19 pandemic was raging overseas, we set up a team of psychological counseling experts and continued to promote the psychological hotlines for overseas employees. Our counseling service under the Employee Assistance Program (EAP) overseas has become an effective means for psychological assistance that most overseas employees and their families accept and trust. These efforts have ensured the mental health of overseas employees and the safe, stable operation of our projects.

Occupational Health

We attach great importance to staff occupational health protection. In 2020, we carried out pilot health risk assessments and occupational health surveys, and organized the event of the Publicity Week of the *Law on Prevention and Control of Occupational Diseases* to improve the occupational health status of employees. We issued the *Plan for Implementing the "Healthy China 2030" Outline*, specifying 12 main tasks and 38 specific activities, as well as the requirements for employee mental health, dietary health, and prevention and control of infectious diseases depending on our



Key Actions for Occupational Health in 2020

Popularization of occupational health knowledge	Organized the event of the Publicity Week of the <i>Law on Prevention and Control of Occupational Diseases</i>
Pilot health risk assessments	Conducted health risk assessments for employees at key positions and provided health interventions for employees with chronic diseases (e.g. hypertension, cardiovascular and cerebrovascular diseases, and diabetes) in PetroChina Tarim Oilfield Company and PetroChina Lanzhou Petrochemical Company
Occupational health surveys	Further gained access to basic information such as existing workplaces with occupational exposures, employees exposed to occupational hazards, hazard detection, and occupational health examinations through requiring enterprises to carry out self-inspections supervised by a professional company and verified by the headquarters, laying a foundation for scientific decision-making and effective occupational health work
Response to <i>Healthy China 2030</i>	Issued the <i>Plan for Implementing the "Healthy China 2030" Outline</i>
Overseas employee health management	Updated the <i>Administrative Regulations on the Health Examination and Evaluation of Employees to Work Abroad</i> , and provided health examination and evaluation for all employees to work abroad, with a total of 17,400 employees physically examined and evaluated and 648 employees in better health through health assessment
Overseas pandemic prevention and control	<ul style="list-style-type: none"> Established a four-tier joint prevention and control mechanism against COVID-19 involving the headquarters, professional companies, foreign-related enterprises and overseas projects, strengthened overall regional coordination, and ensured sweeping pandemic prevention and control for all areas and operations Set up 7 regional technical support groups to provide pandemic prevention guidance for overseas projects in different regions and countries, and organized 6 headquarters-level video seminars on pandemic prevention and control for overseas operations Established a pandemic prevention and control system for international operations, and took effective and well-targeted prevention and control measures Carried out a total of 5,333 video inspections as part of overseas pandemic prevention and control and a total of 52,490 training sessions; Performed overseas all-staff pandemic prevention and control training, established a training resource database, and provided training materials in 12 languages Sent 5 medical teams to Iraq, Kazakhstan, Uzbekistan, Chad, and Niger to help enhance on-site pandemic prevention and control capabilities

Case

CNPC's Battle against the Coronavirus Pandemic to Protect the Health and Safety of Overseas Employees

In response to the raging COVID-19 pandemic, we established a comprehensive physical and mental health protection mechanism for overseas employees through a series of measures. Specifically, we identified overseas projects' needs for materials, built remote medical support platforms, organized online pandemic prevention lectures, maintained contacts between overseas medical teams and domestic professional health institutions, and provided employees with physical health diagnosis. Moreover, we provided "one-on-one" online psychological consultation for more than 400 employees in key regions and projects overseas.

As of late 2020, we had no cluster cases and death due to COVID-19 reported in our overseas projects.

2,017 hours

Our psychological hotline provided services for over 2,017 hours

CNPC EAP Overseas

7,251 employees

Totally, 31 sessions of online psychological training and lectures were provided for 7,251 employees and their family members in 65 countries

Caring for Employees

We advocate a good work-life balance and make great efforts to create a healthy and comfortable living environment for our employees. We continuously improve the poverty alleviation and aid mechanism, in order to improve the employees' quality of life.

Employees Assistance

We continuously carried out employee help and support activities, focusing on the settlement of life difficulties of the employees, including retirees, employees' family members and family dependents of the deceased. In 2020, we got to fully understand the difficulties confronting employees in daily life, health status, children education, etc., and took targeted measures to help the employees in need, especially those in extreme poverty, through a variety of effective campaigns such as charity voluntary service and student subsidies.

Cultural and Sports Activities

We set up cultural and sports associations, which are responsible for organizing a variety of cultural activities, sport competitions and knowledge games to enrich employees' spare time and enhance their overall quality and team cohesion.

Case

Diverse Cultural and Sports Activities under the Concept of "Home Culture"

Guided by the concept of "Home Culture", PetroChina Tarim Oilfield Company organized diverse cultural and sports activities to enable the employees to enjoy a comfortable and happy spare time.

The Company has established four associations (e.g. the Table Tennis Association and the Badminton Association) and rolled out special campaigns such as garden parties and outings in spring. By participating these cultural and sports activities, the employees have gotten a deep awareness of "Home Culture".

Public Welfare

We always adhere to combining our business growth with sustainable development of the host countries in which we operate. We aim to become an outstanding business enterprise in the host country by attaching importance to people's livelihood and social progress, sharing development opportunities and resources with the local community, participating actively in the development of local communities and promoting harmonious economic and social development.

Targeted Poverty Alleviation

At the grand gathering to mark China's achievements in poverty alleviation and to honor its model fighters against poverty,

- CNPC Office of the Leading Group for Targeted Poverty Alleviation and Paired-Up Assistance and PetroChina Tarim Oilfield Company were awarded the "National Advanced Collective for Poverty Alleviation".
- Liang Nanyu and Bu Pengzhou were named the "National Advanced Individual in Poverty Alleviation".

Poverty alleviation is an important topic in sustainable development around the world and also one of our key concerns. We have responded positively to the initiatives of the United Nation's *2030 Agenda for Sustainable Development* and to the Chinese government's policies on poverty alleviation targeted at the improvement of people's livelihood, industrial development, intellectual development and medical care. By combining our business strengths with local resources and market advantages in areas receiving assistance, we have taken targeted measures to help them develop the local economy on their own.

We actively work out our solutions and make our contributions to poverty alleviation. In 2020, we invested RMB 172 million and continued to carry out fixed-point poverty alleviation and aid programs, and implemented 84 projects, including infrastructure reconstruction, education and training, healthcare, and industrial collaboration in 13 counties and districts in 7 provinces (municipalities and autonomous regions) of China - Xinjiang, Tibet, Qinghai, Chongqing, Henan, Jiangxi and Guizhou.

CNPC was honored as 2020 Responsible Corporate of the Year

- At the 16th International CSR Forum hosted by China News Service and News China, CNPC was honored as 2020 Responsible Corporate of the Year.

CNPC was honored the "National Award for Innovation in Poverty Alleviation"

- At the Poverty Alleviation Commendation Conference hosted by the State Council Leading Group Office of Poverty Alleviation and Development, CNPC was awarded the "National Award for Innovation in Poverty Alleviation" for its outstanding contributions to poverty eradication.



CNPC initiated a rural tourism project for poverty alleviation – "Vernacular B&B Town alongside Yellow River" in Jiangzhuang Village, Taiqian County, Henan Province. The project has brought a more attractive environment, smoother roads and better life to local residents.

Special Report

CNPC's Contributions to Poverty Alleviation

CNPC has an inherent sense of responsibility and mission for the cause of poverty alleviation, and has put it into practice for long. While working to secure sustainable, inclusive, lasting and fair economic growth through business activities, CNPC plays an important part in development-oriented poverty alleviation under the leadership of the Chinese government, and explores effective poverty alleviation models and paths. Since 1988, CNPC has invested a total of nearly RMB 7 billion aid funds, benefiting nearly 10 million people in 476 counties (cities) in 28 provinces (municipalities and autonomous regions) across China.

7 billion
CNPC has invested a total of nearly RMB 7 billion aid funds

476
benefiting nearly 476 counties (cities) in 28 provinces (autonomous regions and municipalities) across China

Poverty Alleviation through Industrial Development



For targeted poverty alleviation through industrial development, we endeavor to foster local businesses to create more job opportunities to local people and improve the local capability in independent development, thereby helping the poor earn more money and get rid of poverty. All the regions under CNPC's poverty alleviation program passed the national special assessment and inspection, totally shaking off poverty.

"Internet +" for poverty alleviation and opening up the sales channels for Balikun Cantaloupe

CNPC and China Foundation for Poverty Alleviation jointly created the Shanpin Commune · Balikun Cantaloupe Project in order to make use of the advantages of the cantaloupe industry in Santanghu Town, Balikun, Xinjiang Uygur Autonomous Region. With the help of CNPC's capital, technology and business philosophy, the cooperative organizations attracted local farmers to grow green, pollution-free, sweet and crisp cantaloupe, and through the "Internet + poverty alleviation" mode, selected e-commerce logistics platform to achieve online cantaloupe sales.

"Xiaobing Cooperative" as established by Yan Xiaobing joined the Balikun Cantaloupe Project. As of September 2020, "Xiaobing Cooperative" had attracted 110 farmers, the planting bases under it have reached 1,000 mu, and its aggregate sales of cantaloupe have reached RMB 8.6 million.

Poverty Alleviation through Medical Care



We strive to improve the medical conditions in poor areas through multiple measures, such as building/renovating township medical centers, making regular clinic visits, and training rural medical workers.



Poverty Alleviation through Improvement of People's Livelihoods

We focus on improvement of the living standards and the overall quality of life. To solve the prominent problems such as poor public facilities and less profitability of residents, we have assisted in the projects such as herders' housing, drinking water and irrigation.

Photovoltaic poverty alleviation

- We invested RMB 7.88 million in the construction of centralized PV power plant project in Hengfeng County, Jiangxi Province. From commencement of grid-connected power generation to June 2020, the profits reached nearly RMB 1.6 million, and dividends distributed to 16 villages (farms) exceed RMB 1.14 million.

Aided construction of industrial facilities

- We invested RMB 60 million to build the tourist center of Shuanghu County, Tibet, and the supporting facilities including the pedestrian streets, parking lots, and mobile life-support equipment, in a drive to boost the development of local tourism industry and the employment for herders.

Irrigation projects

- From 2016 to 2020, we funded the water-saving irrigation projects in Nileke and Qinghe counties of Xinjiang for 27,000 mu of arable land, nearly quadrupling the output of agricultural and sideline products per mu and benefiting 5,500 poverty-stricken people.



Poverty Alleviation through Intellectual Development

We are committed to boosting the talent pool and economic development in recipient regions, especially through improving labor skills and innovation-based entrepreneurship and business management capability.

Training for grassroots management and governance

- We trained 9,000 grassroots managers in cooperation with the Chinese Academy of Governance and the Academy of Rural Party Branch.

Training for innovation-based entrepreneurship and business management capability

- We delivered training courses on modern agriculture and other disciplines in cooperation with a number of institutions including China Foundation for Poverty Alleviation to more than 40,000 leaders in poverty alleviation and professional personnel.

Faculty capacity building

- We implemented training programs such as the "Teacher Training Program" and trained more than 7,700 educators in total.

Labor skills training

- We provided training for auto mechanics and maternity matrons for more than 2,000 people.

Supporting Education

Access to high-quality education is fundamental for improving the quality of life and achieving sustainable development. It is clear that education is one of the biggest drivers to sustainable development. We strive to carry out various activities and give young people equal opportunities for education to help them pursue their goals and boost their personal growth. Specifically, we set up scholarships, offer grant loans and subsidies to students from underprivileged families, improve teaching conditions in poor areas, and support scientific and cultural activities as well as relevant competitive activities. In 2020, we granted CNPC Scholarships of RMB 3.99 million to 635 excellent students.

In addition, we explore new models to support education, and call on the public to focus on and work together to achieve education equality. In cooperation with China Foundation for Poverty Alleviation (CFPA), Beijing Normal University Group and Tencent Foundation, we sponsored the Xuhang Program and the Teacher Training Program to help students from poor families complete their studies.

Case

Restoring Educational Dream in Shuanghu, Tibet

Children in Tibet have been enjoying 15 years of free education – from kindergarten to high school – since 2012. In Shuanghu County, however, only a small number of students (<10%) were enrolled in senior high school. Such a low enrollment rate was mainly attributed to the fact that most parents didn't think education could ensure a promising future for their children. Under this background, CNPC decided to sponsor the study of some Shuanghu children in Beijing, making the Shuanghu residents understand how education is important.

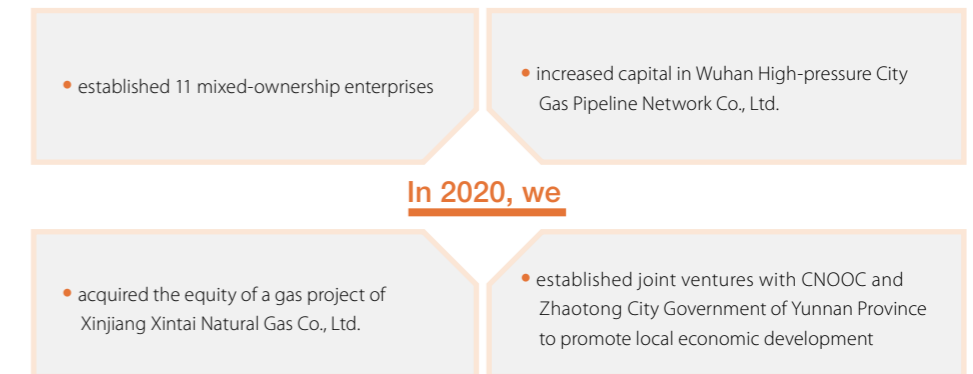
With the support of CNPC and some charitable educators, more than 40 Shuanghu children have been enabled to study in the Lhasa Beijing Experimental High School, the Lhasa Beijing Primary School, the High School Affiliated to Beijing Normal University and other schools. Upon the 2020 national college entrance exam, four Shuanghu students at Grade 3 in the Lhasa Beijing Experimental High School exceeded the undergraduate enrollment cut-off points, and one of them even surpassed the point for admission into key universities.

Promotion of Local Development

CNPC's development is inseparable from the support and help of the governments, communities and the general public. While providing a continuous and stable energy supply for economic development, we insist on the principle of open cooperation for mutual benefit, expanding our joint-venture cooperation with state-owned capital, social capital and foreign capital in the upstream, midstream and downstream sectors. During the process of developing and running our projects, we help to nurture local suppliers and contractors, thereby creating jobs, driving the growth of related businesses, and giving back to local people.

CNPC's outstanding JV projects in 2020

We actively and steadily promoted JV projects across the industry chain. Typically, we improved JV platforms for the segments of refining & chemical, marketing, and natural gas pipelines. We pushed for practical cooperation with private capital, financial capital, social capital, and large international companies in an all-round, multi-level and wide-ranging way, so as to give full play to the effect of capital accumulation and amplification.



Cultural Civilization

We encourage employees to participate in volunteer activities to help out people with difficulties so to advocate new trends in social civilization and contribute to the development of cultural civilization.

We encourage our employees to serve communities and participate in other volunteer activities. In 2020, we had 3,590 youth volunteer teams with 117,000 members.

Special Report

CNPC's "Hand in Hand" Platform for Public Welfare

We believe that each public welfare initiative will make a difference to the world. In 2016, together with the China Foundation for Poverty Alleviation, CNPC launched the "Hand in Hand" platform for funding public welfare innovation. The public welfare organizations, caring people and ordinary users are connected via the "Hand in Hand" app, helping the public realize the initiatives on public welfare.

Who We Help

We help the public realize their dreams for public welfare and promote the concept of "Public Welfare by All".

What We Do

- Idea collection: We collect ideas on public welfare initiatives both online and offline and determine the promising and valuable ones after appraisal.
- Financial support: We donate special funds to China Foundation for Poverty Alleviation in support of innovative, operational and socially influential public welfare initiatives.

2016-2020

3,919

public welfare ideas were collected

1,101

of which 1,101 went online

953

of which 953 were funded

Our Achievements

We cooperate with Beijing Shijia Education Group and selective schools (e.g. the Experimental High School Attached to Beijing Normal University) to guide and train the primary and middle school students to design and propose their ideas for public welfare. As of 2020, we performed a total of 130 programs in primary and secondary schools, extending the concept of "Public Welfare by All" across the campuses.

We set up the "Charity Future · CNPC Fund" to encourage college students to follow closely social issues and seek innovative and effective solutions, in order to drive the social progress. As of 2020, this program attracted more than 1,000 associations of over 140 colleges/universities nationwide.

In the past five years, we collected a total of 3,919 public welfare ideas, of which 1,101 went online and 953 were funded. The projects we funded were sourced from 30 provinces (municipalities and autonomous regions), such as Beijing, Inner Mongolia, Gansu, Sichuan, Guizhou, Guangdong, Fujian and Yunnan. These projects involve various entities/groups, such as colleges/universities, primary and secondary schools, communities, non-governmental organizations, and industry associations, covering adolescent education, elderly care services, environmental protection, community development, and other aspects.

Social Benefits

- A lower threshold is adopted to allow the public welfare programs accessible to more people. As of December 2020, more than 310,000 users were registered on the platform, with its influence to over 10 million people.
- The public welfare organizations and the benefiting populations are closely connected and interacted via the platform. Thus, the allocation of public welfare resources is optimized to make the public welfare initiatives more efficient and more socially influential.

The "Hand in Hand" platform was ranked in the "2019 Top Ten Public Welfare Initiatives" by ifeng.com for its innovation, professionalism and social influence.

"In Search of China's Van Gogh"



Autistic children, the children medically identified with mental disability, dubbed "Children of the Stars", are locked away in their own world. In 2017, CNPC began to, via its "Hand in Hand" platform and in cooperation with the World of Art Brut Culture (WABC), implement the program – "In Search of China's Van Gogh", under which the autistic children are taught and guided for drawing, as a way to express their voices.

"When initially operating the studio, we were overwhelmed by many problems. We almost decided to give up until we met CNPC and its "Hand in Hand"."

——said Gao Hua, a sponsor of WABC

Feedback

As a member of the photography group of Shijia Primary School, I am very happy that our photos successfully convey the love of rural migrant workers to their children left behind at home.

——Yao Yueli, a sponsor of the "Photography for Love" program

Thanks to the support of CNPC's "Hand in Hand" program, we can deliver courses to children in the Osteogenesis Imperfecta Ward every week. We'd like to work continuously with CNPC to present a wonderful world to the porcelain dolls in wards.

——Sunshine Porcelain Dolls Counseling



Contributions to the Development of Overseas Communities

We respect the cultures and conventions of the host countries in which we operate, and we are committed to establishing long-term and stable cooperative relations with the host countries, along with striving to become an excellent corporate citizen in local communities. We incorporate our development into local socio-economic growth and create socio-economic value to jointly promote the development and prosperity of local communities.

Enhancing Communication with Local Communities

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

Manage Our Impact in Local Communities

We strive to make a positive impact on community development through carrying out responsible operations, which is not only translating into more employment opportunities, more tax contributions, and more business opportunities to local suppliers, but also reducing the environment and social impact of production and operations on local communities as well as safeguarding the human rights of community residents.

Manage Our Impact in Local Communities

	Potential Positive Impact	Potential Negative Impact	How We Mitigate Potential Risks
Local Communities	Job Opportunities	Land Acquisition, Relocation, Environmental Impact	<ul style="list-style-type: none"> • Before the construction of a project, we conduct assessments of the social and economic impact, such as the requirements of local communities, human rights, cultural heritage, involuntary resettlement, etc. • We listen to the demands of local communities along the locations of our operations to protect the interests of residents. We uphold standard operation in land compensation, and make compensation plans by referring to the opinions of the local governments, our partners, and the local villagers. Specifically, compensation is paid before land use, and the compensation information is released timely to ensure operational transparency. • We prioritize the hiring of locals on the island, conduct skills training for them, arrange them to participate in project construction and increase their income. • We strictly follow safety and environmental protection regulations, formulate management systems on environmental protection that involve participation of all stakeholders and closely monitor environmental impact throughout the entire operations. We immediately restore the surface right after the completion of the operation so as to minimize the impact of production activities imposed on ecological environment.
Capacity Building for Local Businesses and Industries	<ul style="list-style-type: none"> • Business Opportunities • Capacity Building • Technology Transfers 	We may neglect local products and services and fail to share advanced technology with the local communities.	<ul style="list-style-type: none"> • By leveraging local social resources, we actively support the development of local enterprises, focus on local sourcing of products and services, and strengthen cooperation with local enterprises in terms of technical services to promote the development of relevant SMEs. • We support the talent training program of petroleum industry within the host country.
Community Consultation and Participation	Residents adjacent to operation locations will be given a fair chance to express their concerns and understand how they will be affected.	We may overlook the concerns raised by communities surrounding operation sites.	<ul style="list-style-type: none"> • We set up the Community Committee to provide public welfare assistance to the community residents and supervise the progress and implementation of public welfare projects. • We have established a joint communication mechanism connecting companies with government associations, companies with community associations, and companies with employee to strengthen engagement with stakeholders.
Social Investment	We conduct early consultation with community members when implementing social investment in order to meet actual needs and bring long-term benefits.	Our social investment may overlook the actual demands and fail to bring long-term benefits.	<ul style="list-style-type: none"> • We plan reasonable community investment projects based on the local socio-economic development plans of the host country and the needs of community residents.

Community Welfare

We take an active role to help improve the living conditions of local people, and make donations to education, healthcare and other public welfare programs to achieve harmonious and mutual development. In 2020, we actively supported host countries in their fight against COVID-19 by way of donations, services, and experience sharing.

Iraq

Through the Halfaya Project in Iraq, we implement socially influential public welfare projects that directly benefit local communities, with the support of "Community Contribution Fund". In 2020, we built 5 km asphalt roads for the Muer Village in Halfaya, facilitating the travel of more than 1,500 villagers.



South Sudan

In early 2020, some African countries were hit hard by the invasion of locusts. We donated funds, pesticides and necessary materials to South Sudan and Pakistan to help them kill the locusts.



Peru

In Peru, we actively coordinated local governments and communities in fighting against the pandemic, and also donated necessary protective equipment.



Case

Female Volunteers for Healthcare

In 2020, we launched the program "Female Volunteers for Healthcare" in Rumaila, Iraq. A total of 43 female volunteers were selected and trained for hygiene and health knowledge and symptoms of related diseases, so that they could help the families in local communities understand how to live healthily. The volunteers visited nearly 1,000 homes every month, benefiting more than 4,000 residents.



Local Environmental Protection

We strongly believe in the importance of striking a balance between business development and environmental protection. Therefore, we strictly comply with the laws and international standards on environmental protection in the countries in which we operate, and pay attention to protection of local ecological environments during the production operation.

Case

Restoration of soil and vegetation in Kazakhstan

Kazakhstan is rich in land resources, but mostly arid with annual precipitation <300 mm. As such, preventing desertification is one of the priorities in Kazakhstan's sustainable development. PetroKazakhstan Inc. (PK) applied the advanced biological restoration technology to restore vegetation on a 4.2-acre polluted land, subject to the government's environmental requirements.

Promotion of Localization

We proactively promote localization and take the procurement of local products and local services as a priority in order to offer local contractors and service providers a chance to participate in the projects, promoting the development of local small and medium-sized enterprises and creating employment opportunities for local communities. In Kazakhstan, since 1997, we have invested US\$ 30.1 billion in oil and gas development, contributed over US\$ 48 billion in taxes, and provided US\$ 400 million in social welfare funding.

Case

Cultivation of Local Talents in Turkmenistan

In Turkmenistan, we actively cultivate local employees in respect of vocational skills through a variety of means, such as experience sharing by excellent internal employees and training by external experts. As of late 2020, we had trained more than 45,000 local employees, and promoted hundreds of local employees to middle-level managers. We adopt a recruitment policy prioritizing local residents, creating more than 22,000 job opportunities in Turkmenistan.

Tax Payments According to Law

We strictly comply with the laws and regulations in the countries where we operate, pay taxes to local governments according to law, and contribute to the development of local economies. In countries where the Extractive Industries Transparency Initiative (EITI) standard is implemented, such as Iraq and Mongolia, our local companies actively participate in the multi-stakeholder groups and publish information on our projects and tax payments to provide details that far exceed the minimum disclosure requirements prescribed by the EITI. We support and follow the Base Erosion and Profit Shifting (BEPS) initiative and the CNPC Tax Policy and pledge to pay tax according to the law in areas where we operate and create value, in order to strive to achieve sustainable development and to contribute to socioeconomic development. In 2020, we paid a total of RMB 38.43 billion in taxes overseas.

Protecting Indigenous Rights

Before the construction of a project, we conduct assessments of the social and economic impact, such as the requirements of the indigenous people, human rights, cultural heritage and involuntary resettlement. We try our best to protect all the rights and interests of the indigenous people. We uphold standard practices in land compensation, and make compensation plans by referring to the opinions of the local governments, our partners, and the local villagers. Specifically, compensation is paid before land use, and the compensation information is released timely to ensure operational transparency.

Case

Living Improvement for Aboriginals in Nenets Autonomous Okrug

The Nenets are aboriginal reindeer herders mostly inhabiting Siberia and migrating around the Arctic tundra. They live on nothing but reindeer meat, with bread as a rare food. While operating in Yamal, we strive to help local aboriginals improve their social and living standards and ecological environment.

Ecosystem conservation

We respect the natural environment and biodiversity in the Arctic. We use multiple techniques (e.g. pile foundations for structures) to protect the permafrost. We keep long-term monitoring of the discharge of waste water, waste gas and solid waste, according to the environmental monitoring plan.

We try to protect the biodiversity in the work area. We have prepared the local biodiversity action plan according to the Equator Principles, specifying the protective measures for animals/plants and the ecosystem across the area. In partnership with the Arctic Council, we have launched the "Healthy Tundra", a campaign to leverage the traditional knowledge and skills of indigenous residents to promote ecological restoration. Our contribution to improving the ecosystem in the Arctic region has been recognized by the international community.

Financial assistance

Every year, the Nenets migrate with their reindeers across the Yamal Peninsula – to the northernmost in summer and the southernmost in winter, two ranches thousands of kilometers apart. In 2020, after negotiations with the aboriginals, we built 13 crossing points for reindeer migration in our project area, 5 points more than originally planned, greatly facilitating the long-distance reindeer migration. In addition, we transported aboriginals for 10 times via helicopters, and provided 10 tons of gasoline, 30 tons of diesel and 280 cubic meters of wood fuel to help improve local living conditions.

Social development plan

We assist the Nenets Autonomous Okrug in developing its social development plan for aboriginals, in order to improve local employment, early childhood education and medical care.



Outlook for 2021

In 2021, the world economy will pick up as the COVID-19 vaccine rollout ramps up and relatively loose fiscal and monetary policies provide some support for economic recovery. China will witness normal economic performance along with the regular epidemic prevention and control and normal macroeconomic policies. Despite the complex and volatile domestic and international environment, we will make progress while maintaining stability, commit ourselves to the strategy of innovation, resources, market, internationalization, and green and low-carbon development, and keep enhancing our sustainability, so as to open up new prospects for the building of a world-class integrated international energy company and contribute to the global energy transition, China's energy revolution and China's aim to peak carbon dioxide emissions by 2030 and achieve carbon neutrality by 2060.

We will unwaveringly deepen the reform according to the three-year action plan. We will translate our achievements in deepening reform into strengths in professional development and market-oriented operation. We will optimize and improve six major systems of corporate governance, and continue to enhance our governance efficiency.

We will foster development advantages and consolidate our resource base. We will make efforts to maintain steady growth in domestic crude oil production and rapid growth in natural gas production and to push for the clean, low-carbon transition. We will strengthen integrated and coordinated development of upstream and downstream sectors, domestic and overseas operations, and production, refining, marketing, storage and trade, so as to create new drivers for the Company's value enhancement and sustainable development and the Company's ability to ensure national energy security.

We will press ahead with the Three-year Action Plan for Special Ratification of Work Safety, improve the QHSE management system, and promote energy efficiency as the resource of first priority under the green and low-carbon development strategy. We will develop a timetable for peak carbon emissions, actively explore technologies and measures for carbon neutrality, and promote pollution prevention and ecological protection. We will take efficient control measures to improve the quality of products, projects and services. We will strive to play a leading role in delivering clean energy and promoting ecological progress, and steadily improve our safety and environmental performance.

Being "people-centered", we will actively rely on talents to make the Company strong. We will protect the legitimate rights and interests of employees, build effective platforms for their development, improve their working and living conditions, and care about their physical and psychological health. We will ensure that the corporate development offer greater benefits to all the employees in a fair way.

We will remain committed to public welfare through educational donations, disaster relief and staff voluntary activities. Through project development and construction, we will promote local employment, boost local economic and social development, and contribute to the full implementation of the rural strategy as a petroleum company.

The year 2021 marks the start of China's "14th Five-Year Plan". In the new stage, we will adopt the new development philosophy and integrate into the new development paradigm. Also, we will strive for new and steady horizons for self-reliance and self-improvement in science and technology, higher business performance, green and low-carbon transition, and corporate governance. We will step up efforts to build a world-class integrated international energy company, so as to make fresh contributions to China's national energy security and economic and social development.

Performance Data

Performance indicators	2016	2017	2018	2019	2020
Finances and operations					
Total assets (RMB 100 million)	40698	40987	41325	42357	40887
Owner's equity attributable to parent company (RMB 100 million)	20980	20426	19993	19696	19786
Operating revenues (RMB 100 million)	18719	23403	27390	27714	20871
Taxes and fees payable (RMB 100 million)	3497	3774	4212	4045	3158
Newly-added proved oil reserves (10,000 tons)	7881	6007	7076	7720	6670
Newly-added proved gas reserves (100 million cubic meters)	1351	949	1293	1258	1409
Crude oil production (including overseas equity output) (10,000 tons)	16298	17133.8	17636.6	18102.7	17864.2
Natural gas production (including overseas equity output) (100 million cubic meters)	1213	1287.3	1380.2	1503	1603.5
Crude oils processed (including overseas crude oils processed) (10,000 tons)	19167	19917	20736	20796.7	19182.7
Output of refined oil products (including overseas output) (10,000 tons)	13132	13672	14482	14943.7	13067.4
Ethylene output (10,000 tons)	559	576	557	586.3	634.5
Lubricant output (10,000 tons)	116	164	160	163	157.5
Sales of refined oil products (domestic sales) (10,000 tons)	11303	11416.3	11735.8	11959.4	10650.7
Number of service stations (domestic)	20895	21399	21776	22365	22612
Safety					
Total number of accidents	270	283	214	249	176
Fatality rate (person/million working hours)	0.0025	0.0048	0.0032	0.0024	0.0018
-Fatality rate (person/million working hours)- employee	0.0024	0.0025	0.0025	0.0012	0.0023
-Fatality rate (person/million working hours)-contractor	0.0026	0.0119	0.0045	0.0048	0.0008
Fatality rate per thousand vehicles in traffic accidents (‰)	0.085	0.069	0.050	0.0783	0.0569

Performance indicators	2016	2017	2018	2019	2020
Environment					
COD emissions (10,000 tons)	2.87	2.85	2.63	2.48	2.38
NH ₃ -N emissions (10,000 tons)	1.15	1.08	1.01	0.87	0.83
SO ₂ emissions (10,000 tons)	12.75	12.36	11.42	10.45	9.69
NO _x emissions (10,000 tons)	13.21	11.94	11.09	10.25	9.59
Energy saved (10,000 tons of TCE)	95	88	86	82	79
Water conserved (10,000 cubic meters)	1339	1241	1213	1084	1033
Land saved (hectares)	1135	1180	1253	1247	1190
Staff					
Number of employees in service (10,000 employees)	157.70	152.26	144.84	141.95	130.45
Percentage of female staff (%)	34.2	33.9	33.3	32.4	31.3
Percentage of ethnic minority employees (%)	6.2	6.2	6.3	6.3	6.4
Percentage of local employees (%)	82	83	84.4	84.92	88
Occupational health examination ratio (%)	98	98.5	99.97	99.62	99.23
Hours of mental health counseling hotline served	1034	1289	1200	1200	2017
Training funds spent (RMB 100 million)	14.9	16	22.4	19.8	14.5
Total training time (10,000 hours)	-	-	-	-	2100
Number of employees trained (10,000 employees)	-	-	-	102.3	69.3
Public welfare					
Total contribution (RMB 10,000)	62140.6	108572	72092.6	85432	71795
-Poverty alleviation (RMB 10,000)	19767.4	21817	23291	24388	23224
-Disaster relief (RMB 10,000)	191.9	7975	1154	4421	1271
-Education (RMB 10,000)	8955.9	10091.9	4937	8269	10544
-Charity donation (RMB 10,000)	23984.5	46611.8	37806.6	43933	30264
-Environmental charity (RMB 10,000)	9240.9	22076.3	4904	4421	6492
Number of material suppliers	24609	25208	25420	23623	23699
Purchase expenditure (RMB 100 million)	1144	1517	1924	2180	1683

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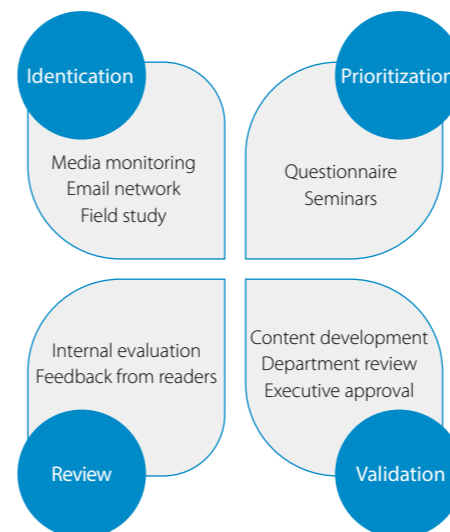
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Approach to Reporting

Definition process of the contents

The contents in this report were selected and disclosed based on their substantiality, integrity and balance principle, and taking into account the concerns of stakeholders and the Company's great influence on the society. They exert substantial impact on the Company's sustainable development.



1. The Company pays close attention to the views of its stakeholders, and collects their comments through community visits, periodical reports, field study and online communication. It makes suggestions on the topics of the report by taking into account stakeholders' major concerns.
2. We assess the Company's sustainable development strategy and cover major social, economic and environmental events related to our strategies, risks and opportunities.
3. We refer to UN SDGs and the social responsibility initiatives and standards proposed by NGOs for topic selection. These include ISO26000 (Guidance on Social Responsibility).
4. Topics are selected based on the comprehensive assessment of stakeholders' concerns and their impact on the Company's strategies. The time span and the scope of impact for each specific topic are clearly defined to ensure the accuracy of the information disclosed.