



2022
ENVIRONMENTAL, SOCIAL
AND GOVERNANCE REPORT

STATEMENT OF THE BOARD OF DIRECTORS

The following is a statement from the Board of Directors (the “Board”) of PetroChina Company Limited (hereinafter referred to as “PetroChina”, the “Company”, “we” or “us”) made in accordance with the requirements of the Environmental, Social and Governance Reporting Guide (the “ESG Reporting Guide”) of the Stock Exchange of Hong Kong Limited (HKEX).

The Board places strong emphasis on sustainable development management and has integrated environmental, social and governance (“ESG”) into the Company’s operation. The Company has established an effective ESG management mechanism and has formed a governance structure featuring clear hierarchy and labor division, which allows the Company to effectively control ESG related risks and continuously improve our own corporate governance standards.

Responsibilities of the Board in Respect of ESG Governance

As the highest decision-making body in respect of the ESG issues, the Board has ultimate responsibilities for the ESG governance of the Company. The Board has established the Sustainable Development Committee (the “SDC”) consisting of three directors, with Mr. Huang Yongzhang, executive director and president of the Company, serving as the chairman, and responsible for overseeing the implementation of ESG policies, strategies and targets, and reviewing the Company’s ESG Report.

ESG Management Approach and Strategy

The Company places strong emphasis on risk management of ESG issues. We integrate macro policy environment, industry developments and trends, expectations and demands of stakeholders into our ESG risk identification analysis. We carry out stakeholder engagement and professional research through various channels to determine the focus areas and management measures of ESG risk control, and integrate ESG considerations into the management system of our daily operations, conduct regular review and supervision of ESG work progress, in order to continuously improve and enhance ESG management standards.

Targets, Indicators and Progress Review

The Company has formulated medium and long-term targets and quantitative indicators for ESG matters, covering governance system and capabilities, green and low-carbon transformation, greenhouse gas (“GHG”) emissions, sustainable use of resources, pollutant emissions, health and safety, and human resources. We conduct progress review on a regular basis. We incorporate benefits, operations, energy conservation, emission reduction, health, safety and environment (HSE) and compliance management as assessment indicators into the annual performance evaluation of the Company’s management. We have engaged PricewaterhouseCoopers Zhong Tian LLP to conduct independent assurance on certain ESG performance indicators of the Company to ensure the reliability of these performance indicators (see Page 111 for details).



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ABOUT THE REPORT

Reporting Period

This report covers the activities the Company undertook in 2022 pursuant to its ongoing commitment to fulfil its ESG responsibilities during the period from January 1, 2022 to December 31, 2022. For continuity and comparability, this report provides explanations on past and future initiatives on particular issues.

Scope of the Report

Unless otherwise specified, the relevant data contained in the report covers the Company and its wholly-owned and holding subsidiaries.

Explanation of Information

All information contained in this report has been taken from PetroChina's official documents and statistics as well as performance reports and statistics gathered from the Company's affiliated enterprises. It takes into account the Company's development priorities and stakeholders' concerns. This report has been reviewed and approved by the Board on March 29, 2023. The Board and all directors of the Company accept legal responsibility for the truthfulness, accuracy and completeness of this report and assure that there are no misrepresentations, misleading statements or material omissions herein.

Forward-looking Statements

Besides historical facts, any mention and description of events that may or could occur, including but not limited to conditions, targets, estimations and business plans, are considered to be forward-looking statements. The impact of external variables may result in actual developments or trends that are different from those expressed in forward-looking statements. Forward-looking statements contained in this report are made as at December 31, 2022. PetroChina is not obliged to or responsible for modifying any of the aforesaid forward-looking statements.

Standards of Reference

This report has been prepared in accordance with the Shanghai Stock Exchange Guidelines on Self-Regulation for Listed Companies and the ESG Reporting Guide issued by HKEX. Information disclosure is made with reference to the Recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) issued by TCFD, the Sustainability Reporting Guidance for the Oil and Gas Industry (2020) jointly issued by the International Petroleum Industry Environmental Conservation Association (IPIECA) and the American Petroleum Institute (API), the GRI Sustainability Reporting Standards (2021) issued by the Global Sustainability Standards Board (GSSB) and the Ten Principles of the United Nations Global Compact (UNGC) together with other guidelines.

Reporting Principles

This report observes the principles of materiality, quantitative, consistency and balance in accordance with the requirements of the ESG Reporting Guide of HKEX.

Materiality

This report adopts a materiality analysis methodology to select the ESG issues that are matters of concern both internally and externally.

Basis for Assessing Material Issues

Internal aspect

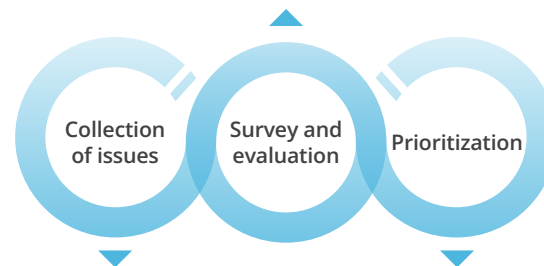
- Board and management discussion and evaluation of material ESG issues
- Awareness of the materiality of ESG-related issues across management departments

Stakeholder aspect

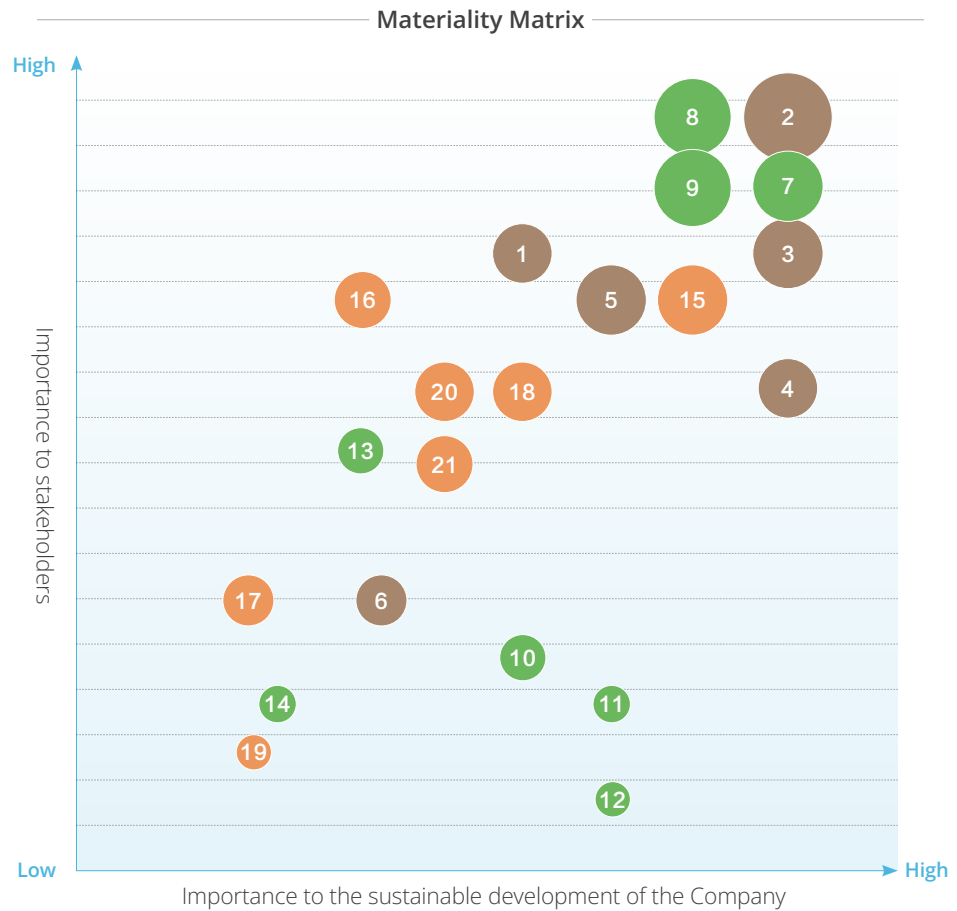
- Assessment of external ESG related policy requirements and trends
- ESG related concerns and feedback from stakeholders such as investors, customers, professional institutions and media

Materiality Analysis Procedures

- The Company engaged with investors, employees, customers, ESG investment and ratings agencies through various channels such as community interviews, periodic reports, field surveys, thematic workshops and online communications (see Section 5 of Chapter 1 of this report for details) to consider the demands of stakeholders and listen to their feedback, allowing them to evaluate the importance of the respective issues from their own perspective.
- During the year, the Company held over 150 ESG related seminars, conferences, surveys and engagements. Stakeholders expressed greater concern over Board governance, compliant operations, operating results, climate change, carbon emissions management, energy transition and safety.



- The Company collected key issues on ESG related matters by making reference to the regulatory requirements of the listing venues, policies adopted at the place of business, ratings and feedback of international rating agencies, international advocacy standards, media reports, industry benchmarking analysis, and expectations from governments, investors, employees, customers and other stakeholders, and taking into account the strategic development planning of the Company.
- The Company comprehensively evaluated the results from the above procedures and prioritized material issues based on the two aspects of “importance to the sustainable development of the Company” and “importance to stakeholders”, and accordingly determined the period and extent of impact of each issue to ensure accuracy in the disclosure of information.
- We identified a total of 21 material issues that have a significant impact on the Company. For the ranking of material issues, please refer to the materiality matrix (chart) on page 4.



| Governance | Environment | Society |
|-----------------------------|-------------------------------|--------------------------|
| ① Board governance | ⑦ Energy transition | ⑮ Safety |
| ② Compliant operation | ⑧ Climate change | ⑯ Human rights |
| ③ Operating results | ⑨ Carbon emissions management | ⑰ Service quality |
| ④ Technological innovation | ⑩ Waste management | ⑱ Health |
| ⑤ Integrity risk prevention | ⑪ Water resources | ⑲ Employee training |
| ⑥ Supply chain management | ⑫ Oil spill risk management | ⑳ Remuneration |
| | ⑬ Biodiversity protection | ㉑ Community contribution |
| | ⑭ Land resources | |

Quantification

The Company conducts quantified performance management for material ESG issues, which covers governance, safety, climate change, the environment, our employees, and society. Please refer to the relevant chapters of this report for details.

Consistency

This report observes the principle of consistency to ensure comparability with historical data. In 2022, the scope of statistics and method of calculation for the remaining ESG performance indicators disclosed in this report remain consistent with those in the previous year without any material adjustments.

Balance

This report aims to reflect the Company's ESG management and control strategies and performance in an objective and comprehensive manner, and to enhance the transparency of its ESG information.

Enhancing the Report

In order to address the concerns of our investors and comprehensively reflect the Company's ESG governance and practices, our 2022 report specifically enhanced the description of our work in Board governance, ESG performance management, technological innovation, response to climate change, green and low-carbon transformation, ecological environment and biodiversity protection, human rights protection, community engagement and social welfare investment, which are issues of concern to our investors at large and rating agencies. For the first time, we have dedicated a separate section for the discussion on "Climate Change and Energy Transition" and enhanced information disclosure on climate-related matters under the TCFD framework. In this year's report, we have added 19 new disclosures of performance data covering areas such as safety, climate change, environment, employee and society.

Availability of the Report

This report is available in simplified Chinese, traditional Chinese and English. In the case of any discrepancy, the simplified Chinese version shall prevail.



To view or download an electronic copy of this report, please visit our Company's website www.petrochina.com.cn where further information is also available.

ABOUT US

PetroChina Company Limited is a joint stock limited company incorporated on November 5, 1999, upon the restructuring of the former China National Petroleum Corporation (now China National Petroleum Corporation Limited, abbreviated as “CNPC”). The American Depositary Receipts (“ADRs”), H-shares and A-shares issued by our Company were listed on the New York Stock Exchange (“NYSE”) on April 6, 2000, the Hong Kong Stock Exchange (stock code: 857) on April 7, 2000 and the Shanghai Stock Exchange (stock code: 601857) on November 5, 2007, respectively, of which, the ADRs were delisted from the NYSE on September 8, 2022, EST. PetroChina is one of the major oil and gas producers and distributors in China, and also a significant player in the global oil and gas industry. We engage in a wide range of activities related to oil, natural gas and new energy and new materials.



Our Honors



Our Strategic Focus

Innovation, Resources, Market, Internationalization, Green and Low-carbon



Our Mission and Values

Pursuing green development and supplying energy, Fueling customers' growth and powering people's happy life with new energy

- | | |
|---|--|
| <p>FORTUNE</p> | <ul style="list-style-type: none"> • “FORTUNE Global Top 500” Number 4 |
| <p>Petroleum Intelligence Weekly</p> | <ul style="list-style-type: none"> • Global Top 50 Petroleum Companies Number 3 |
| <p>Brand Finance</p> | <ul style="list-style-type: none"> • “Most Valuable Oil & Gas Brands” Number 3 |
| <p>China Securities “Golden Bauhinia” Award</p> | <ul style="list-style-type: none"> • Excellent Listed Company • 2022 Excellent Entrepreneur • Excellent CEO of the Listed Company |
| <p>Institutional Investor</p> | <ul style="list-style-type: none"> • Oil & Gas Industry Most Honored Companies Number 1 • Best ESG Number 1 • Best CFO Number 1 • Best Investor Relations Enterprise Number 1 • Best Investor Relations Team Number 1 • Best Investor Relations Professionals (Individual Award) |
| <p>Corporate Governance Asia “Asia Excellence Award”</p> | <ul style="list-style-type: none"> • Best Investor Relations Company • Best Environmentally Responsible Company • Best CEO of Asia • Best Investor Relations Officer |
| <p>China Association for Public Companies</p> | <ul style="list-style-type: none"> • Best ESG Practices |

BUSINESS STRUCTURE



Oil, gas and new energy business

Exploration, development, transportation, production and sales of crude oil and natural gas; new energy business.

Domestic Oil and Gas Business

PetroChina is the leader of China's oil and gas exploration and development. We operate in numerous major oil and gas producing regions such as Daqing, Changqing, Tarim, Southwest China, Xinjiang and Liaohe. In 2022, our domestic crude oil output amounted to 767.4 million barrels and marketable natural gas output amounted to 4,471.3 billion cubic feet, with a total oil and natural gas output equivalent of 1,512.6 million barrels.

Overseas Oil and Gas Business

The Company is engaged in oil and gas exploration and production in many countries over the world. Currently, we have established five international oil and gas cooperation zones in Central Asia-Russia, the Middle East, Africa, Latin America and Asia-Pacific. Our international oil and gas cooperation continued to grow in scale while operational quality has also improved. In 2022, oil and gas production of the Company's overseas businesses amounted to 172.8 million barrels of oil equivalent.

New Energy Business

The Company actively promotes integrated development of oil, gas and new energy in order to build an "oil, gas, thermal energy, power, hydrogen" integrated energy company with robust development in new energy businesses such as wind and photovoltaic ("PV") generation and geothermal energy. In 2022, the Company added 10.06 million square meters of geothermal heating installations. Along with wind and PV generation installations of total size over 1.4 million kW, our new energy development in China has the capacity to replace 8 million tons of standard coal per year.



Petrochemical and new materials business

Refining crude oil and petroleum products; production and sales of basic, derivative and other petrochemical products and new materials business.

The Company owns 14 ten-million-ton-level refining bases in China. In 2022, we processed 1,212.7 million barrels of crude oil and produced 105.354 million tons of refined oil.

The Company is engaged in producing six major categories of chemical products: synthetic resin, raw materials of synthetic fiber and polymers, synthetic rubber, urea, organic and inorganic compounds, with thousands of trademarked products. Among such categories, our production capabilities of products such as ethylene, synthetic resin and synthetic rubber are ranked among the best in China. In 2022, we produced 31.568 million tons of chemical products and 855,000 tons of petrochemical new materials in China.



Sales business

Sales and trading of refined products and non-oil products.

The Company operates over 20,000 service stations in China covering 31 provinces (including autonomous regions and direct municipalities) and the Hong Kong Special Administration Region. We actively develop international trading business and have established three major oil and gas operation centers in Asia, Europe and the Americas. In 2022, the Company's total refined products sales amounted to 150.649 million tons, of which domestic sales accounted for 105.164 million tons.








Natural gas sales business







Transportation and sales of natural gas.

The Company has a natural gas sales network with coverage across China. In 2022, the Company's natural gas sales amounted to 260.284 billion cubic meters, of which domestic sales accounted for 207.096 billion cubic meters.

PETROCHINA AND UNITED NATIONS (UN) 2030 AGENDA SUSTAINABLE DEVELOPMENT GOALS (SDGs)

| UN SDGs | Our initiatives and performance |
|---|---|
|  | <ul style="list-style-type: none"> • Providing comprehensive and high quality assistance for rural revitalization based on five focus areas of industry, talent, culture, ecology and consumption • In 2022, we launched 1,080 rural revitalization projects and invested over RMB400 million in funding • Launching the featured local industry promotion initiative in 10 designated assistance counties by combining natural resources in the assistance areas • Supporting the development of rural tourism and recreational agriculture in poverty alleviation regions to help build a development ecology model which integrates the primary, secondary and tertiary industries • Facilitating employment in poverty alleviation regions. In 2022, we helped 4,326 people from 10 counties to obtain migratory employment |
|  | <ul style="list-style-type: none"> • Supporting the building of agricultural irrigation facilities, corn drying plants and smart granaries to strengthen food security in remote regions • Providing funding and technical support for agriculture, husbandry and food processing industries in remote regions • Launching a comprehensive “Consumption as assistance and empowerment” initiative and making use of our own sales network to boost sales of unique agricultural products |
|  | <ul style="list-style-type: none"> • Implementing the Outline of the “Healthy China 2030” Plan and issuing the Guidance on Strengthening Employee Health Management to safeguard occupational, physical and mental health of our employees and building a healthy enterprise • Percentage of health records created for employees at 100%, detection rate of occupational health hazards in the workplace at 100%, percentage of employees exposed to occupational health hazards receiving health checks at 99.15% • Undertaking several initiatives including helping remote regions improve rural clinic infrastructure, arranging for medical institutions to conduct mobile clinical visits and training rural healthcare professionals, in order to improve healthcare conditions in remote regions • Innovating healthcare assistance models to provide healthcare insurance and subsidies for treatment and rehabilitation of serious cases to families in difficult economic conditions in order to alleviate their burden • Partnering with professional institutions to launch healthcare support programs such as the “Kids Care” program and the “Internet + healthcare” project |
|  | <ul style="list-style-type: none"> • Helping youths in underdeveloped regions access equal education opportunities by establishing specialist schools, innovating student support models and connecting various forms of education resources, leading joint efforts in addressing the issue of fair education • Providing assistance to students in difficulties as well as helping to train primary and secondary school teachers and administrators based on our “Xuhang Program” and “Teachers Training Program”, so as to improve cultural development and growth potential in remote areas. In 2022, our “Teachers Training Program” helped to train over 20,000 education workers in 10 designated assistance counties • Launching skills training programs specific to different regions and talents in order to help the impoverished find employment and start businesses. We established our own “Rural Revitalization Workshop” training platform and formulated over 300 sessions on rural revitalization and specialist skills based on the needs of assistance regions. During the year, our training platform recorded 197,000 visits • Offering our scholarship program for the 22nd consecutive year. Throughout the year, we provided a total of RMB4.47 million in scholarships for 685 excellent university students in 17 higher education schools including the China University of Petroleum |
|  | <ul style="list-style-type: none"> • Observing the principle of gender equality and treating employees of different genders equally • Strictly complying with the relevant provisions relating to maternity leave and lactation leave and protecting the rights and interests of female employees |



| UN SDGs | Our initiatives and performance |
|---|--|
|  | <ul style="list-style-type: none"> • Providing assistance to communities in the construction of the water-saving irrigation projects and promoting agricultural development in local regions • Implementing the “Sweet Community” and other clean drinking water projects, assisting in the building of wells in local areas and addressing issues related to difficulties in access to drinking water in the communities |
|  | <ul style="list-style-type: none"> • Making strong efforts in securing oil and increasing natural gas production to contribute to China’s energy structure optimization. Domestic marketable natural gas output amounted to 207.096 billion cubic meters, increasing by 5.9% over the past year • Importing natural gas resources through multiple channels • Promoting the development of new energy and new materials, actively expanding our new energy businesses in geothermal heating, wind generation, PV generation, hydrogen fuel and charging stations. Our new energy development in China has the capacity to replace 8 million tons of standard coal per year |
|  | <ul style="list-style-type: none"> • Maintaining a "people first" approach, treating each and every employee with respect and fairness, optimizing our remuneration and welfare system, safeguarding the legal rights of our employees and providing smooth promotion paths for employees to develop their careers • Making strong efforts in implementing our strategy of strengthening the enterprise through talents. During the year, total training time amounted to 15.1 million hours and average training time per employee amounted to 37.9 hours • Promoting the construction of people’s livelihood projects to improve the living and working conditions of frontline employees, securing the personal benefits of employees and enabling the income of employees to grow simultaneously with the development of the Company • Fostering local suppliers and contractors during our construction and operation to create more jobs for local people and promote the development of local economy |
|  | <ul style="list-style-type: none"> • Implementating innovation strategies extensively, optimizing our R&D innovation system, strengthening key core technology research to achieve breakthroughs, develop technology innovation capabilities and talents, focusing on technological cooperation, exchanges, standard setting, protection of technological intellectual property, and transformation and application of research achievements, etc. • Establishing new research institutes in Shanghai, Shenzhen and Japan • Percentage of invention patents and applications for invention patents under the Patent Cooperation Treaty continues to increase • Employing 27,913 R&D personnel, with an R&D expenditure amounting to RMB28.718 billion during the year, representing a 21.0% increase as compared to the corresponding period last year and accounting for 0.9% of our operating revenue • Conducting digitalization transformation based on three major lines of business development, management reform and technology empowerment, facilitating the digital and intelligent development of the Company, developing smart oil and gas fields, smart refining and smart sales, and supporting industrial transformation and upgrading |
|  | <ul style="list-style-type: none"> • Prohibiting child employment and forced labour, and no event involving child employment and force labour reported • Opposing any form of discrimination in gender, region, religion, nationality, etc., and the proportion of female employees and foreign employees in overseas projects reached 24.54% and 96.69% respectively |
|  | <ul style="list-style-type: none"> • Managing community impact, helping to create job opportunities, contributing to tax revenue and growing together with the community • Improving infrastructure in remote areas and developing unique industries to promote local economic and social development • Performing the responsibilities and mission of an official oil and gas partner, providing all-weather and all-round support and services on clean energy supply for the preparation and holding of the Beijing 2022 Olympic and Paralympic Winter Games, and “lighting” the first hydrogen-fueled “green” torch in Winter Olympics history |

UN SDGs

Our initiatives and performance





- Incorporating environmental risks into our internal control risk system to eliminate potential large-scale environmental pollution and ecosystem destruction events
- Using natural resources on a sustainable basis and improving energy usage efficiency. During the year, we saved 8.71 million cubic meters of water, 1,280 hectares of land, and energy equivalent to 710,000 tons of standard coal
- Strictly monitoring the generation of waste and discharge of pollutants from our production processes to enhance pollution control standards and performance



- Establishing a Leading Group on Carbon Peak and Carbon Neutrality
- Establishing a three-step green and low carbon transformation path of “clean energy substitution, strategic succession and green transition” and setting a low-carbon goal of endeavoring to achieve “near-zero” emissions by around 2050
- Formulating a carbon peak action plan setting out four major initiatives and ten major tasks
- Strengthening carbon emissions management and carbon risk response, optimizing our carbon emissions control system, participating in the establishment of a carbon market, accomplishing year-on-year reduction in GHG emissions and methane emissions intensity of our units in China
- Organizing active tree planting and reforestation activities to create carbon sinks and carbon neutral forests to provide forest carbon offsets
- Maintaining deep involvement in activities of the Oil and Gas Climate Initiative (OGCI) and China Oil and Gas Methane Alliance
- Conducting comprehensive research on Carbon Capture and Storage / Carbon Capture, Utilization and Storage (“CCS/CCUS”) and striving to promote the commercialisation of CCS/CCUS
- Attending the side event on “Nature-based Solutions for Synergistic Governance of Climate and Biodiversity” at the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27), where we introduced to the audience PetroChina’s innovative practices to promote synergistic governance of climate change response and biodiversity conservation





| UN SDGs | Our initiatives and performance |
|---|--|
|  | <ul style="list-style-type: none"> • Adhering to the environmental protection philosophy of clean development, continually carrying out environmental control and monitoring projects to protect the ecological environments and biological diversity in the business locations |
|  | <ul style="list-style-type: none"> • Strictly complying with local environmental protection policies and laws and regulations governing the prohibition of poaching, picking, trading of nationally protected wild animals and plants and wildlife products as well as the protection of local rare species and biological diversity • Formulate and publish regulatory and management systems such as Ecological Protection Action Plan and Prohibitions Regarding Ecological and Environmental Protection • Continuously improve biodiversity protection system and incorporate biodiversity risk into project life cycle management • Launching a wide range of biodiversity protection projects to protect wildlife habitats |
|  | <ul style="list-style-type: none"> • Fully implementing the Anti-commercial Bribery Manual, the Integrity and Compliance Manual, the Employee Handbook and the Corporate Culture Manual together with other systems and regulations, abiding by business ethics, adhering to the principles of honesty and trustworthiness, equal consultation, mutual benefits, promoting “Trading under the Sunshine” and striving to maintain fair and just competition order in business activities |
|  | <ul style="list-style-type: none"> • Strengthening the ESG management of the supply chain • Participating the activities of the China Oil and Gas Methane Alliance • Partnering with OGCI member companies to share technology and experiences in order to promote global climate governance • Participating actively in China’s methane monitoring pilot projects and conducting study on “China’s oil and gas industry methane emissions control targets and methods by 2030” |



MESSAGE FROM THE CHAIRMAN



Thank you for reading this report as well as for your interest in and support to PetroChina now and over time.

Time flies fast. With concerted efforts and a determined endeavour, we have been through a significant albeit unusual year of 2022. In the past year, the world experienced unprecedented, rapid, and intensifying changes. The highly volatile international energy prices posed setbacks to the energy transition initiative and brought additional uncertainty to the development of the energy industry. In the midst of a complex situation, we nevertheless managed to withstand serious tests such as oil price volatility, floods and other natural disasters, overcame challenges brought about by changes in international affairs, and achieved remarkable results in terms of corporate governance, business expansion, scientific and technological innovation, green transition, and energy security. We broke new records in production, operations, reform and developments, achieved historic breakthroughs as well as record highs in our performance. In this critical year for the 14th Five-year Plan, we improved our Company's overall sustainability performance.

Setting our sights on the carbon peak and carbon neutrality goals, we made all-round efforts to expedite our transition towards a green and low-carbon economy. Energy production and consumption are major contributors to climate change. Our focus is on achieving "near-zero" emissions by around 2050. We enhanced the top-level design of our green and low-carbon transformation strategy, and formulated and issued the Green and Low-carbon Development Action Plan 3.0, pursuant to which, we established a three-step path to energy transition that consists of the "clean energy substitution, strategic succession and green transition" stages. As such, the outline of a green industry plan centered around six bases and five major projects has been determined. Believing in the principle of "construction

before destruction", we strive to meet the society's growing energy consumption demands, while accelerating our transition towards a green and low-carbon economy. In the past year, our Company continued to optimize our two major industrial chains and made strong efforts to implement our strategy of increasing gas production while stabilizing oil output. As a result, our crude oil output has increased for the fourth consecutive year, and our natural gas capacity has been growing at an even faster pace. Domestic sales of natural gas amounted to 207.096 billion cubic meters during the year, which contributed to the optimization of China's energy structure. By rapidly scaling up the development of new energies, adopting a hybrid energy system that integrates wind, solar, gas, and electrical powers, and speeding up plans to develop geothermal, hydrogen and CCUS technologies, we have completed wind and PV installations of over 1.2 million kW in size, bringing our total installations to over 1.4 million kW in size, and an overall capacity for developing and utilizing new energies that amounts to 8 million tons of standard coal per year. A major breakthrough was also achieved in the strategic layout, transition and upgrading of petrochemical and new materials business, which increased our new chemical materials output by 56%. Moreover, the integrated energy service stations that we established for the purpose of selling oil products, and the "people-vehicle-living" ecosphere that we built are starting to show results. To strengthen cooperation at multiple levels and multiple directions, we actively participated in global actions against climate change, such as taking part in the carbon reduction projects operated by the Oil and Gas Industry Climate Initiative (OGCI) and the China Oil and Gas Methane Alliance, hosting public welfare activities in joint collaboration with the China Greening Foundation and other organizations, enhanced disclosure of climate information under the framework developed by the Task Force on Climate-

related Financial Disclosure (TCFD), and, together with industry partners, international organizations and the general public, we contributed our efforts to combat climate change. We also took active steps to become a green company. By strengthening the control of both intensity and total volume of energy consumption and greenhouse gas (GHG) emissions, making strong efforts in energy conservation and emissions reductions, and accelerating the substitution of clean energy for fossil energy, we facilitated the transition of our production processes towards green and low-carbon technologies. We completed the three-year remedial plan for rectifying our production safety issues, under which, we promoted the prevention and control of pollutants, and continued to fight the battle against pollution to keep our skies blue, waters clear, and lands clean. We also stepped up our efforts to protect the ecological environment and biodiversity, promote the harmonious coexistence of humanity and nature, to help create a Beautiful China. In 2022, Domestic GHG emissions per unit of oil and gas production, methane emission intensity and energy consumption decreased by 4%, 11%, and 0.45% respectively over the past year. No major safety and environmental incidents happened during the year.

We focused on reform and continuous innovation to modernize our corporate governance structure and governance capacity.

In pursuit of our strategic goal to become a world-class international energy company, we improved the top-level design of our corporate governance and continued to modernize our corporate governance structure and governance capability. We continue to improve the Company's governance structure, organizational structure, operating mechanism and system. Not only was our overseas business management system fully reformed, but our major businesses were also efficiently synergized, gradually showing the benefits of resource sharing, system integration, and coordination. The new energies and new materials business segments were established one after another, accumulating momentum for our Company's long-term development. We also strengthened our compliance and integrity risk prevention management, improved our ESG risk management and control, to steadily drive our risk management capabilities forward. Staying committed to empowering our Company through innovation, we carried out vertical reforms of the science and technological system, created more effective recruitment, training, and incentive programs for talents in science and technology, generated enthusiasm among scientific and technical personnel for innovation, and strived to create a new ecology for scientific and technological innovation. A ten-year action plan for important foundational research was launched, pursuant to which, we firmly established multiple research institutes that serve to advance research on new energies and new materials, and made substantial progress and achievements in key and core technologies such as geothermal power, hydrogen power, and energy storage. Our computerized system now supports an integration of applications as well as shared services, thereby allowing us to accelerate the pace of digital transformation and smart development, to build a digitally smart PetroChina.

We maintain a mutually beneficial win-win strategy to create longstanding values for stakeholders.

Adhering to a human-centered approach in our development, we stay committed to pursuing green development and supplying energy, to fueling customers' growth and powering people's happy life with new energy. We practice sincere cooperation with stakeholders and share the fruits of our business growth. We actively respond to China's rural revitalization strategy, and focus on developing the five key areas of industry, talent, culture, ecology, and consumption to improve the livelihood of the rural population in a comprehensive and high-quality manner. With the implementation of over 1,400 projects related to rural revitalization and social welfare during the year, benefitting more than 11 million people, we continue to make solid progress in poverty alleviation. In addition, we powered the Beijing 2022 Winter Olympics and Winter Paralympic Games with green energy by helping to ignite the first environmental-friendly Winter Olympics torch in history with our hydrogen fuel. We made every effort to ensure clean energy supply throughout the games, and sponsored 200,000 tons of Chinese Certified Emissions Reductions (CCERs) to offset carbon emissions, to assist the Games in achieving their carbon neutral goal. As always, we prioritize the lives and safety of our employees as well as their physical and mental well-being. We furthered our efforts to build a healthy and safe enterprise, protect the rights and interests of employees, facilitate their career growth, strive to improve the working and living conditions of our employees, and guarantee that all employees as well as the general public can reap the fruits of our Company's development. Moreover, we are committed to a mutual gains approach, hence we strengthened our communication and cooperation with host country governments, partners and communities, invested more on the welfare of communities, nurtured local development potential, and facilitated local economic and social development.

At present, the world is undergoing an era of volatility and change, with changes in the world, changes in the times, and unprecedented historical changes. In 2023, the macroeconomic situation in and outside China will become more complex and volatile. Instability, uncertainty, and unpredictability will become the norm. In the face of coexisting opportunities, risks and challenges for development, the energy industry will nevertheless continue to move forward and carry out full-scale reforms. Embracing high quality sustainability, PetroChina will make every effort to improve its energy capacity and efficiency, technological innovation, global competitiveness, modern corporate governance, global impact, and leadership skills as an outstanding entrepreneur, with the aim of swiftly becoming a world-class international energy company, fully promoting economic and social development, and working hand in hand with stakeholders to create a better future.



PetroChina Company Limited Chairman of the Board

CORPORATE GOVERNANCE

At PetroChina, we advocate value creation, upholding fundamental principles and breaking new ground, legal and regulatory compliance, collaboration, participation, and shared benefits as our governance doctrine. Through improvements to the modern enterprise system with Chinese characteristics and strong efforts to promote modernization of governance system and capabilities, we ensure that our decision-making is scientific, our checks and balances are effective, our operations are standardized and our supervision is powerful. We continue to improve corporate competitiveness, innovative capabilities, controlling power, influence and risk management capabilities. Sustained improvement in the effectiveness of our governance allows us to promote high quality development of the Company, fulfil our social responsibilities, and safeguard the interests of the relevant stakeholders of the Company.

The UN Sustainable Development Goals





SUSTAINABILITY MANAGEMENT

In support of international standards and initiatives such as the UN Global Compact, the UN's 2030 Agenda for Sustainable Development, and in pursuit of sustainable development, we advocate delivery of clean, reliable and affordable energy to the public in a responsible, sustainable and ethical manner, abide by laws and regulations, respect human rights, protect the environment and make contributions to the economic and social development of the locations with our business presence.

We guide and manage the efforts in respect of sustainable development through the work of the Shareholders' meetings, the Board of Directors and its special committees, the Supervisory Committee, and the management team led by the President. The philosophy of sustainability and our emphasis on high quality development are deeply integrated in the entire process of our business operation for effective control of environmental, safety and social risks, as well as continuous improvement of our sustainable development capabilities.

Progress Made on Sustainable Development Management in 2022

Strengthening corporate governance

- Strengthening the ESG control functions of the Board so as to further improve the structure of the Board
- Value-oriented headquarters essentially established with structure and organization continuously undergoing optimization and adjustment
- Launching the "Year of strengthening compliance management" initiative, addressing specific operational and business compliance management issues to eliminate potential compliance risks
- Strengthening risk assessment, having audit reports and risk management reports reviewed by the Board and passing relevant resolutions
- Convening ESG work seminars

Promoting green and low-carbon transformation

- Incorporating green and low-carbon transformation, energy conservation and emissions reduction, ecological and environmental protection into our Company's 14th Five-Year Plan
- Establishing a Leading Group on Carbon Peak and Carbon Neutrality and a Leading Group on New Energy and New Materials Business Development with monthly meetings to study, strategize and promote carbon emission peak and carbon neutral work as well as new energy and new materials business development
- Publication and implementation of the Company's Green and Low-carbon Development Action Plan 3.0
- Enhancing the Company's new energy and new materials organizational structure, renaming and establishing the Oil, Gas & New Energies Branch and the Refining, Chemicals & New Materials Branch, and establishing the new energy and new materials business segments
- Commencing action on building a green enterprise, conducting annual evaluation for our subsidiaries on ecological and environmental protection and sustainable development aspects, and incentivizing our subsidiaries to expedite green and low-carbon transformation
- Incorporating response to climate change and green and low-carbon transformation and development into compulsory training material for senior management, conducting promotion and training on green and low-carbon transformation policies and technologies on all our employees
- Establishing the Wisdom Pool Research Institute in Japan while facilitating the establishment and operation of our New Materials Research Institute in Shanghai and New Energy Research Institute in Shenzhen
- Establishing a GHG monitoring center, planning a carbon assets management platform, strengthening basic management of carbon emissions, promoting regulated management of carbon assets and development of carbon asset projects

Fulfilling social responsibility

- Observing business ethics, respecting and protecting human rights, caring for employees and committing to greater social contributions
- Promoting community engagement, implementing community investment projects, supporting rural growth and developing local sustainable capabilities

Sustainable Development Committee

The Sustainable Development Committee under the Board is responsible for overall planning supervision of ESG issues of our Company. Mr. Huang Yongzhang, the executive director and the president of our Company, serves as the chairman of the committee, and Mr. Jiao Fangzheng, the executive director and chief geologist of our Company, and Mr. Ren Lixin, the executive director and senior vice president of our Company, serve as members of the committee.



Responsibilities of the Sustainable Development Committee

- ◆ To work on the sustainable development of our Company (including but not limited to environmental, social and governance matters), to identify and assess major risks and impacts on the sustainable development of our Company, to enhance risk management (including that in respect of environmental, social and corporate governance), and to make relevant proposals to the Board
- ◆ To supervise our Company's commitments and performance on addressing climate change, ensuring health and safety and environmental protection and fulfilling social responsibilities in relation to key issues, and to make relevant proposals to the Board
- ◆ To examine the approach and strategies, goals, measures and relevant key issues in respect of the sustainable development of our Company, and to supervise and review the implementation of the sustainable development goals
- ◆ To review the environmental, social, and governance report and the health and safety and environmental protection report of our Company annually and to make relevant proposals to the Board
- ◆ To monitor important information concerning sustainable development, assess significant impacts of environmental, social and governance issues on relevant stakeholders, monitor the Company's relevant safety and environmental risks, formulate response measures, and make relevant proposals to the Board
- ◆ Other matters as delegated by the Board



Significant Work Performed by the Sustainable Development Committee During the Year

- ◆ Convening Sustainable Development Committee meetings to consider the resolution on the 2022 ESG Report of our Company and the resolution on the 2022 Health and Safety and Environmental Protection Report of our Company and passing the respective resolutions
- ◆ Convening ESG work seminars, discussing ESG targets and formulating a three-year action plan for ESG work

ESG Performance Review and Management Remuneration

The Company incorporates various indicators relating to benefits, operations, energy conservation, emission reduction, HSE and compliance management into our management performance review. The results of the review are linked to their remuneration. In particular, emissions reduction indicators carry 10% weighting and up to 10 points may be deducted for non-performance of relevant indicators, while for safety, environmental protection and compliance management indicators, 5 points would be deducted for non-performance of each indicator. In 2022, we have incorporated energy consumption, GHG emissions and pollutant control into the annual performance review for the heads of relevant departments and subsidiaries and implemented performance review and granted awards on new energy and new materials business development, in order to further promote our Company's green and low-carbon transformation.

Management Performance Review

| Category and weighting | KPI | Weighting |
|---|---|---|
| Benefits (60%) | Economic value-added | 15% |
| | Average investment capital rate of return | 10% |
| | Net profit | 15% |
| | Profit before tax | 10% |
| | Free cash flow | 10% |
| Operations (30%) | Domestic oil and gas equivalent reserve conversion rate | 10% |
| | Oil and gas output | 10% |
| | Net profit per capita | 10% |
| Energy conservation and emission reduction (10%) | Energy savings | 2% |
| | Water savings | 2% |
| | Chemical oxygen demand (COD) | 1.5% |
| | Ammonia emissions | 1.5% |
| | Sulphur dioxide emissions | 1.5% |
| | Nitrogen oxides emissions | 1.5% |
| HSE and compliance management (mandatory) | Fatality rate per million work hours | 5 points deducted for non-performance of each indicator |
| | Major safety production liability incidents | |
| | Major environmental liability incidents | |
| | Investment planning control | |
| | Internal control system operation evaluation | |

GOVERNANCE FRAMEWORK

Ever since its incorporation, PetroChina has set in place a corporate governance framework in compliance with regulatory requirements and international practices, and such a framework has been improving from time to time by considering the actual operating circumstances and building a corporate governance system based on “statutory and transparent powers and responsibilities, coordinated operations, effective

checks and balances”, so that the modernization of the corporate governance system and governance capabilities could be continuously enhanced. The respective authorities and responsibilities of the Shareholders’ meeting, the Board of Directors and its special committees, the Supervisory Committee, and senior management headed by the President have been clearly defined. Such a management structure allows for close coordination and is highly effective.

We actively optimize the legitimate decision-making mechanism in keeping with laws and regulatory requirements, enhance the assessment of such a mechanism, set up and improve the retrospective and lifelong accountability system of decision-making. We keep on improving monitoring and checking exercising of power and following the principle of consistency of power and responsibility. We clearly delineated the limits of authority at different levels and set out a list of duties and powers. We made well-coordinated use of internal monitoring resources of legal affairs, internal control, auditing, internal inspection and inspection tour. We reinforced self-monitoring by means of double checking by dedicated departments and cross checking between superior and subordinate departments. We receive social supervision voluntarily to procure well-grounded decision making, appropriate authorization, well-controlled exercise of power and disciplinary action against any abuse of power.

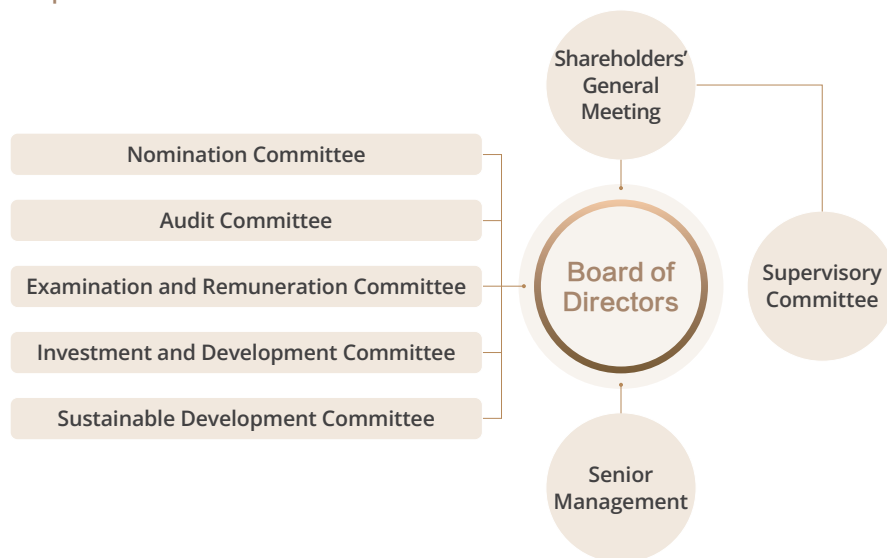


The governance system of our Company meets the requirements of the Company Law of the People's Republic of China ("Company Law"), the Securities Law of the People's Republic of China ("Securities Law"), the relevant provisions of the China Securities Regulatory Commission, the regulatory requirements of stock exchanges where shares of our Company are listed and the Articles of Association of PetroChina (hereinafter referred to as "Articles of Association").

In 2022, the Company held one shareholders' meeting, where 11 resolutions were considered and approved. The shareholders' meeting complied with regulatory rules and statutory procedures, and the resolutions adopted are legal and valid. For details, please refer to the relevant announcement on our website.

The Company complies with the relevant rules of the Shanghai Stock Exchange Self-regulation Guidelines 5 - Transactions and Connected Transactions, and the continuing connected transactions between the Company and its connected persons are governed by the principle of fair, equitable and open pricing. Such transactions will not adversely affect the Company's future financial situation or operating results, nor will they result in any reliance on its connected persons or affect the Company's independence. For more details about connected transactions in 2022, please refer to our annual report for 2022.

Corporate Governance Structure Chart



Shareholders and Shareholders' Meeting

The Shareholders' meeting is the highest authority in the Company, exercising functions and powers in accordance with the law. PetroChina's Shareholders' meeting is held annually to ensure that all shareholders enjoy equal status and exercise their rights effectively.

Protection of Shareholders' Rights and Interests

We attach great importance to the protection of shareholders' rights and interests, especially the legitimate rights and interests of minority shareholders. Since 2018, the Company has been implementing a "cumulative voting system" for election of directors and supervisors, strengthening the power of minority shareholders and promoting active participation of shareholders in the governance of the Company. Independent directors also actively participate in the governance of the Company, providing independent advice and contributing to the protection of the rights of minority shareholders. We continue to provide positive returns to our shareholders. In 2022, we paid a historic dividend of RMB0.42 per share (tax inclusive) totaling RMB77.34 billion, an increase of 86.5% over the past year.

At the time of our listing, the Company and CNPC entered into a continuing connected transaction agreement. We update the particulars (including the service scopes and transaction amounts) of the continuing connected transactions with CNPC on a regular basis in accordance with regulatory requirements and submit these to the Board and the shareholders' meeting of the Company for approval. The historical transaction amounts of the continuing connected transactions in the past years were all within the caps approved by the shareholders' meeting of the Company and the Board and disclosed in our annual report every year. In order to ensure the fairness and reasonableness of the connected transactions, CNPC, as a connected shareholder of the Company, abstained from voting on resolutions concerning connected transactions in the shareholders' meetings. For details of the Company's shareholding structure, please refer to the Company's 2022 annual report.

Directors, Board of Directors and Board Special Committees

The directors are elected at our shareholders' meetings and are accountable to the shareholders of the Company. The term of office is three years, renewable at the end of the term upon re-election and re-appointment. Directors act in the interest of shareholders as a whole, strictly adhere to the principle of diligence, integrity and pragmatism, and conscientiously perform their duties. Currently, the Company has 11 directors, including four independent non-executive directors. The proportion of independent directors comply with regulatory requirements. For details of changes in our Board composition, please refer to the Company's 2022 annual report.

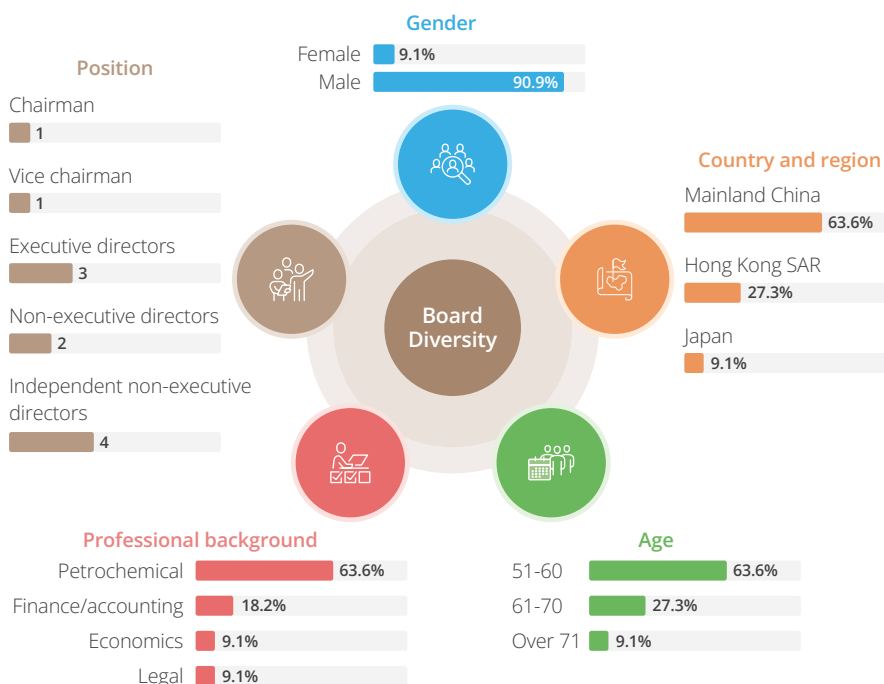
A total of seven Board meetings and 10 meetings of special Board committees were held in 2022 with 36 Board resolutions being passed, as detailed in our website and our annual report for 2022.

Board of Directors and Special Committees

The Board of Directors sets up five special Board committees, namely the Nomination Committee, the Audit Committee, the Examination and Remuneration Committee, the Investment and Development Committee, and the Sustainable Development Committee (the composition, division and work of each Board committee is detailed in our annual report for 2022). The above-mentioned committees are mainly responsible for providing support to the Board in decision-making. The Directors sitting on the special Board Committees focus on matters according to their division of duties and make proposals for the improvement and enhancement of the management level of the Company.

Board Diversity

We implement the Diversification Policy of the Composition of the Board of Directors, so that Board members are engaged based on the operational model and work requirements of the Company, while taking into account their nationality, gender, age, cultural and educational background and professional experience. The Company continuously optimize the Board composition so as to further improve the decision-making capabilities and standards of the Board. For details of Board members, please refer to our website and our annual report for 2022.



Independent Directors

Our independent directors perform their duties with diligence and loyalty and provide advice for the operation of the Board and the business development of the Company by making use of their professional knowledge and rich experience of their respective field and experience, effectively protecting the interests of our shareholders as a whole.

For details of the attendance by independent directors at the Board meetings, please refer to our annual report for 2022.



Participation of Independent Directors in Corporate Governance

- ▶ Performing duties in strict accordance with relevant Chinese and overseas laws, regulations and the Articles of Association, carefully reviewing resolutions and relevant documents submitted by the Company, actively participating in shareholders' meetings, board meetings and committee meetings, providing independent and objective advice, protecting legal rights of shareholders as a whole, in particular minority shareholders at large
- ▶ Reviewing the Company's regular reports, overseeing the Company's information disclosure in accordance with relevant laws, regulations and the Company's information disclosure management system to ensure true, accurate and complete information disclosure
- ▶ Actively understanding the Company's state of operations, financial performance and progress of major projects through teleconferences, engagements with senior management and correspondences
- ▶ Closely monitoring relevant updates from regulatory authorities and feedback from investors, media and the public, promoting sufficient concern and understanding by management of stakeholder concerns, in particular connected transaction limits and investment budget planning

Supervisors and Supervisory Committee

The term of office of our supervisors is three years, renewable at the end of the term upon re-election and re-appointment. No supervisor may concurrently hold the position of a director, President, Vice President or Chief Financial Officer. In accordance with the Company Law and the Articles of Association, the supervisors shall attend meetings of the Supervisory Committee and sit in on Board meetings on a non-voting basis. They shall report to the Shareholders' meeting, submit the Supervisory Committee's work reports and relevant proposals. As at the end of 2022, the Company's Supervisory Committee consisted of 8 supervisors, 4 of which were employee representatives.

The Supervisory Committee is accountable to the Shareholders' meeting. The Supervisory Committee formulated the Organization and Rules of Procedures for the Supervisory Committee and the Rules on Supervisors' Performance of Duties, setting out the manner, content, requirement and standard of appraisal with respect to performance of duties by the supervisors. All supervisors are urged to monitor the Company's finances and the legality and compliance of the directors and senior management of the Company in performing their duties with due diligence.

Executive Body

The Company's executive body is headed by the President and is composed of Senior Vice Presidents, Vice Presidents, a CFO and Secretary to the Board, etc. They are appointed by and held accountable to the Board of Directors. They implement Board resolutions and organize the day-to-day production and business activities of the Company in accordance with the Company Law and the Articles of Association of PetroChina on the strength of authorization by the Board.

In 2022, the Company held five Supervisory Committee meetings and considered resolutions relating to the Company's financial report, ESG report, profit allocation budget, CEO operating results evaluation, election supervisory committee chairman, passing 15 resolutions, all of which were in compliance with the provisions of the Company Law of the People's Republic of China and the Articles of Association and were legal and valid.

GOVERNANCE

The Company emphasizes intensification, specialization and integration and has established a management system incorporating structural, organizational, operational, institutional and supervisory aspects, where responsibility is commensurate with authority and is scientifically sound, lean, efficient and vibrant, to strengthen the restrictions on and the supervision of the exercise of power. The Company aims at achieving clear-cut control objectives, effective integration of resources and optimal efficiency and effectiveness in order to promote the improvement of our environmental, social and corporate governance performance and to achieve sustainable growth.

CASE STUDY

Sustaining In-depth Reform to Promote Modernization of the Company's Governance System and Capabilities

Starting from 2020, the Company established a leadership panel on comprehensive in-depth reform for sustained in-depth reform of the Company. A series of progress has been made in reforming important areas and key sections.

Improving and reforming top-level design

We published the Guiding Opinion on Modernization of Corporate Governance System and Capabilities, specifying the Company's optimization strategy and governance principles, as well as specific missions for establishing structural, organizational, operational, institutional and supervisory systems, thus formulating the top-level design of our corporate governance, significantly enhancing governance effectiveness.

Accelerating the establishment of a new high-efficiency organization model

We bolstered the functions of the Company's headquarters as the center of our strategy, decision-making and management, and continued to optimize the division of functional roles, organization structure and personnel assignment, thus making great strides in the establishment of a value-based headquarters. Further, we optimized and adjusted our overseas business system and made significant progress in the internationalization of our headquarters, contributing greatly to quality development of our overseas businesses. We continued to focus on strategic transformation of the Company and improve our new energy and new materials organizational structure.

New pace of development with marketization reforms and operation system transformation

We comprehensively strengthened marketing efforts, optimized production and operation coordination system and established a smart operation center, thus facilitating our transformation from a "production model" to a "business management model". We fully implemented term limits and contract management system for management staff, allowing us to reassign bottom-ranked management and terminate employment of incompetent staff, thus continuously improving our marketized employment system, as well as our market-oriented, efficiency-centered production business operation system and quality efficiency incentive mechanism.

Horizontal and vertical reform of technology system and mechanism

We implemented the Guiding Opinion on Independent Strengthening of High-level Technology and Enhancing Technological Innovation, which determined our specific reform targets and path for technology system and mechanism reform. We revised the Company plan for rewarded scientific technology, increasing bonus for significant technology contribution, thus improving the incentives for technology personnel innovation and creativity. We devoted efforts to develop world-class research institutes and world class innovative enterprises. With the establishment of several research institutes focused on new energy and new materials, we have accomplished landmark achievements in major technological barriers, thus expediting our digital transformation and smart development.



Compliance training coverage rate

Compliance Management

The Company incorporates compliance with laws and compliance into the 14th Five-Year Plan, specifying the concept of compliance with laws and regulations of the “supremacy of laws, compliance as the priority, honesty and good faith, and safeguarding rights according to the law”, and sets out ever more rigorous compliance management system continuously. We have strictly implemented laws and regulations as well as government regulatory requirements, incorporated compliance requirements into systems and processes and established comprehensive, operationally effective hierarchical compliance management system, striving to improve a compliance risk control system covering the whole chain and process and devoting full efforts to develop a compliance culture with PetroChina characteristics. We actively promote the implementation of compliance management requirements and responsibilities, and continuously improve the Company’s operation level in compliance with the law and regulations.

Key Actions in Compliance Management in 2022

- 

Launching the “Year of Strengthening Compliance Management” initiative, addressing specific operational and business compliance management issues to fully address and rectify non-compliance issues and eliminate potential compliance risks
- 

Strengthening and improving our compliance management system based on seven aspects of compliance system establishment, responsibility implementation, risk management, business compliance, supervision and accountability, resource security and culture training
- 

Organizing and formulating department and position compliance responsibility checklist, compliance review checklist, compliance risk checklist and procedure control checklist, ensuring compliance responsibility and enhancing risk control effectiveness
- 

Improving compliance guidelines on focus businesses
- 

Revising and improving the evaluation criteria for legal and compliant operations with strong enforcement and strengthening compliance as a guiding value
- 

Organizing a wide-range of compliance training and promotion with comprehensive coverage

Rules and Regulations System

The Company continues to optimize and improve the rules and regulations system and build a system of rules and regulations which encompasses all aspects of production, operations and management and is complete, scientific and standardized and operates effectively. The Company strictly implements the external regulatory requirements, meets the requirements for the improvement of management, continuously optimizes and improves the rules and regulations in the fields of financial funds, projects construction, material supply, bidding management, safety and environmental protection, quality and health, etc., and promotes the improvement of the system.

In 2022, the Company conducted 1,018 internal audit projects and submitted three reports on the relevant work to the Board and the Audit Committee.

Internal Control and Risk Management System

The Company attaches great importance to the construction and supervision of internal control and risk management systems. The Board of Directors and Audit Committee regularly listen to reports on internal control work, organize the identification and assessment of major and significant risks, determine control measures and formulate solutions, and ensure that the Company's internal control system is complete and effective. In 2022, the Company revised our risk management plan and procedures management plan, optimized our internal control system design, published our corporate internal control management manual and guidelines, adding guidance and principles to our revised corporate handbook and ensured that our internal control system design has been updated for compliance and effectiveness. The Company maintains an issue-based approach, with in-depth analysis of causes and enhanced risk alerts. In 2022, the Company passed an external audit for 17 consecutive years.

Integrity Risk Prevention

The Company places great emphasis on integrity risk prevention. We comply strictly with the laws and regulations of the country in which our business is conducted as well as international conventions to promote legal operations and compliance management. We treat our business partners, customers, suppliers, contractors and counterparts with integrity, respect and equality, oppose any form of commercial bribery and require our business partners to follow the requirements pertaining to the Company's integrity risk prevention policies.



Coverage of integrity risk prevention training for staff (including members of the Board and all employees)

Note: Employees include dispatched workers

The Company has formulated and implemented rules and regulations such as the Anti-commercial Bribery Manual, the Integrity and Compliance Manual, the Employees Manual, the Corporate Culture Manual, the Punishment Regulations for Management's Violations and Non-compliance, Compliance Management Measures, Self-Discipline Convention Applicable to Bidding and Tender Activities, Supplier Management Measures, etc., to regulate the behavior of employees and the Company.

Main Measures of the Company's Integrity Risk Prevention

Strengthening standardized operations

- Strictly complying with the rules of procedure for the Shareholders' meeting, the Board of Directors and its Special Committees, the Supervisory Committee and the management, etc., with all decisions such as major project arrangement and large-amount capital operations discussed collectively
- Strengthening the development of systems such as compliance management and prevention and control of integrity risks, strengthening real-time supervision in focus areas and key sections to achieve full supervision coverage
- Strictly implementing systems and regulations relating to procurement of materials, management of contracts, tendering and bidding, use of expenditure and internal control of funding and a full supervision mechanism from preliminary prevention, work supervision to post evaluation

Strengthening supervision and inspection

- Strengthening regulation and supervision of management in the exercise of authority, establishing a unified mechanism, organizing regular coordination meetings, in order to establish a system based on coordination, information sharing and joint efforts
- Strengthening the supervision of managers, especially the "top leaders" at all levels; requiring all employees to sign a pledge to be clean professionals; formulating and implementing articles on supervision

Strengthening compliance management

- Establishing robust compliance control procedures for the review, approval, implementation, audit, supervision and training of business partners and carefully selecting suppliers, contractors, agents, distributors and business partners with complete qualifications and sound reputation
- Carrying out due diligence on business partners, fully understanding and continuously paying attention to and evaluating the integrity and compliance performance of business partners, closely monitoring changes in their financial and credit status and regularly evaluating their ability to perform obligations
- Promoting compliance concepts, requirements and culture to business partners through signing compliance agreements and providing compliance warranties

Strengthening education and training

- Providing education and training for Directors and all employees on integrity risk prevention laws and regulations
- Conducting integrity education activities at different positions to establish a long-term integrity education system
- Providing business partners with various forms of compliance and anti-commercial bribery training

Upholding Business Ethics

The Company abides by business ethics and market rules, and adheres to the principle of honesty and credibility, equal consultation, mutual benefit and common development, and promotes transactions with high business integrity and transparency, in order to maintain fair and impartial competition in our business activities. We strictly comply with the Anti-monopoly Law of the People's Republic of China, the Anti-unfair Competition Law of the People's Republic of China, the Supervision Law of the People's Republic of China, and relevant laws and regulations of the country where we do business, as well as the UN Guiding Principles on Business and Human Rights and other international principles and initiatives.

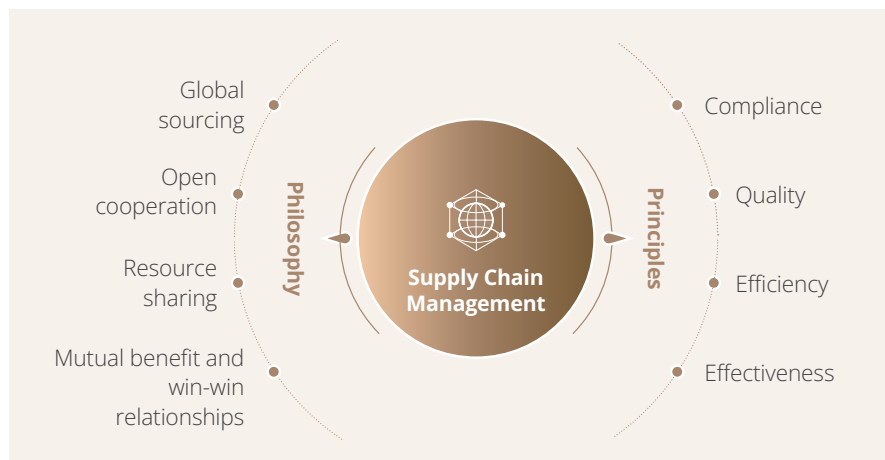
Code of professional ethics formulated by the Company

- Code of Professional Ethics for Senior Management Personnel of PetroChina Company Limited
- Code of Professional Ethics for Employees of PetroChina Company Limited

For more information, please refer to the Company website.

SUPPLY CHAIN MANAGEMENT

The Company maintains global sourcing, open cooperation, resource sharing, mutual benefit and win-win relationships as the basis of our supplier management philosophy and adheres to the principles of compliance, quality, efficiency and effectiveness, implementing full cycle closed loop management from access to exit. We formulate and constantly improve the Regulations on the Management of Engineering Construction Projects, the Regulations on the Management of Material Supply, the Regulations on the Management of Tendering and other relevant regulations, as well as a series of implementation measures and standards, so as to strengthen the compliance management of suppliers. We practice responsible procurement and incorporate green and low-carbon development into our entire materials supply chain management, fully identify and control the possible environmental and social risks in the supply chain, such as safety and health, labor rights, environmental protection and business ethics and constantly improve the quality of suppliers.



In 2022, we organized random quality inspection of 814 batches of materials procured and strictly dealt with non-conforming suppliers and products.

We review and monitor our suppliers for their business ethics and compliant operations practices as well as performance records, and incorporate the relevant indicators into our supplier evaluation system. During the year, we completed 226,595 orders with 100% dynamic quantitative assessment of our suppliers.

Supply Chain Management

21,890

Number of materials suppliers

2,185

Number of tier 1 manufacturers

98.03%

Percentage of tier 1 manufacturers certified by the Quality Management System (ISO9001)

94.14%

Percentage of tier 1 manufacturers certified by the Environmental Management System (ISO14001)

93.14%

Percentage of tier 1 manufacturers certified by the Occupational Health and Safety Management System (ISO45001)

Note: Data only includes suppliers involved in domestic business of the Company and does not include those involved in our international business

Major Supplier Management Measures

Supplier access

- We provide guidance to our suppliers on strengthening lawful and ethical business operation, observing business ethics and corporate social responsibility. We require suppliers to comply with the relevant policies and regulations on anti-commercial bribery, conduct necessary due diligence on suppliers and include compliance performance in the contract as a prerequisite for access
- We have formulated over 80 supplier access basic conditions, requiring all suppliers to comply with our unified quality, environmental, health and safety standards, obtain requisite nationally recognized quality management system accreditations, occupational health and safety management accreditations and environmental management system accreditations, so as to continuously improve product and service reliability as well as environmental sustainability
- We give priority to energy-saving and environmentally friendly products, expressly specifying priority in procurements to energy-saving, environmentally friendly and low-carbon materials, encourage the use of environmentally friendly packaging, promote green procurement and give extra bonus points in assessment for the same
- Suppliers are required to protect labor rights and satisfy development needs
- We organize on-board training on business ethics, prevention and control of integrity risks and quality, health, safety and environment (QHSE) for all new suppliers and promote the Company's operation and management concepts
- We require suppliers to sign a letter of commitment for access, covering 100% of our suppliers

Supplier supervision

- We have optimized our whole-process management of suppliers and formulated a routine management and supervision mechanism for suppliers to strengthen identification and prevention of environmental and social risks and to promote the performance improvement of suppliers
- We have conducted reviews on business ethics and compliant operations practices as well as performance records for suppliers and incorporated the relevant indicators into our supplier evaluation system. We continue to increase enforcement of penalties on suppliers who fail to comply with laws and regulations
- In 2022, we completed 226,595 orders with 100% dynamic quantitative evaluation of our suppliers

Supplier exit management

- We have revised the administrative measures for dishonest behavior of bidders and regularly published information of offenders on the column for dishonest behavior on the bidding and tender website of the Company
- For issues related to the quality, compliance, integrity and corruption of our suppliers, the supplier may be subject to four types of exit treatment from suspension of product trading right, suspension of trading right of supplier, to revocation of product access or revocation of supplier access depending on severity

Supplier communication

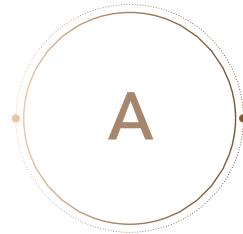
- We ensure unobstructed and effective communication mechanism with suppliers and understand supplier concerns and claims through various channels
- In 2022, we continued to strengthen strategic procurement relationship with 18 domestic and international suppliers, including China Baowu and Siemens, expanded the cooperation areas and levels with suppliers, carried out active exchanges in various aspects such as green environmental protection and sustainable development and opened more avenues for potential cooperation
- We pay attention to the health, safety, environmental protection and compliance operations of suppliers and communicated with suppliers in a timely manner, enhancing the synergy level of the supply chain

COMMUNICATING AND INTERACTING WITH STAKEHOLDERS

We are dedicated to enhancing the quality and profitability of our development to maximize returns to our shareholders and value for our stakeholders, and to achieve our common goal of win-win cooperation and harmonious development.



Conducted over 150 interactions with institutional investors and ESG rating agencies



Received "A" rating in information disclosure by SSE for 8 consecutive years

Communication aspect

Methods and channels



Quality information disclosure

- ▶ Improving management systems for the disclosure of information
- ▶ Establishing a working system of regular and extraordinary reports



Enhancing communication through various channels

- ▶ Actively participating in major international conferences and forums, where we delivered addresses to share PetroChina's experiences and professional insights
- ▶ Regularly engaging with investors and media through shareholders' meetings, media sessions, investor hotline, company website, new media platform, tele-conference, email and fax
- ▶ Actively participating in consultations, feedback and opinion on regulatory authority policies
- ▶ Holding discussions with ESG investment and ratings agencies
- ▶ Listening to consumer feedback and opinion through Open to Public Day, Gas Station Open Day, questionnaires and customer service hotlines, etc.
- ▶ Communicating with employees through workers' congress, labor unions at all levels, various training activities, feedback mailbox and other channels so as to understand employees' appeals
- ▶ Participating in exchange and cooperation with industry organizations such as OGCI and the China Oil and Gas Methane Alliance







Enhancing Engagement to Jointly Tackle Climate Change

In response to the increasing concern from our stakeholders on tackling climate change and promoting energy transformation, the Company actively engaged with institutional investors and international organizations, briefing them about the Company's work and progress in enhancing ESG management and participation in climate action.

In 2022, the Company engaged in active and effective exchange with the CA100+ investor group (including 10 institutions such as Harvest Fund Management) on energy transition paths, carbon emissions control, new energy and new business developments, CCS/CCUS and hydrogen fuel development.

Progress made in 2022

- ◆ Published quarterly, interim and annual financial reports
 - ◆ Published ESG report
 - ◆ Published 160 announcements on our website (please refer to the Company website)
 - ◆ Received "A" rating in information disclosure by SSE for 8 consecutive years
-
- ◆ Mr. Dai Houliang, chairman of our Board, was invited to attend and speak at the 2022 BRICS business forum panel discussion themed "Accelerate green transition and promote global sustainable development", the CNPC International Cooperation Forum at the China International Import Expo where he delivered a speech on the feature of "Expanding open cooperation, jointly tackle challenges, protecting energy supply safety in a green and low-carbon transformation", the International High-level Forum on Green and Low-carbon Energy Revolution where he shared our practical experience with green and low-carbon transformation
 - ◆ Participation in HKEX policy consultation
 - ◆ Communicated with MSCI
 - ◆ Actively participated in ESG-related work of the China Association of Public Companies (CAPCO), with Mr. Wang Hua, our financial controller and secretary to the Board elected as deputy head of the CAPCO ESG committee, where he shared the experiences of the Company at the inaugural meeting. Our case study "Implementing Green and Low-Carbon Development - Contributing to the Carbon Peak and Carbon Neutrality Goals" was selected by CAPCO as the best ESG practice case
 - ◆ Participated in the ESG initiation meeting organized by the China Petroleum and Chemical Industry Federation
 - ◆ Participated in the China Social Responsibility 100 Forum series of events
 - ◆ Active and effective engagement with the Climate Action 100+ ("CA100+") investors' group on issues such as energy transformation paths and carbon emissions control
 - ◆ Effectively communicated with our shareholders
 - ◆ Organized PetroChina Open Day for the fifth consecutive year

| Stakeholders | Expectations | Communication approach |
|---|---|---|
|  Governments | <ul style="list-style-type: none"> • Providing stable energy supply • Promoting harmonious economic and social development • Taking on leadership role in terms of brand and technology • Paying taxes according to law | <ul style="list-style-type: none"> • Contributing company experience • Conducting strategic cooperation with relevant departments • Attending seminars and forums |
|  Shareholders | <ul style="list-style-type: none"> • Standardizing corporate governance • Ensuring stable business growth • Promoting sustainable development | <ul style="list-style-type: none"> • Fulfilling obligations on statutory information disclosure • Organizing non-deal roadshows and other communication activities • Issuing regular reports and organizing results announcement conferences and investors conferences |
|  Employees | <ul style="list-style-type: none"> • Guaranteeing basic rights • Providing career development • Improving remuneration and welfare | <ul style="list-style-type: none"> • Electing employee representative to join the Supervisory Committee • Establishing labor unions at all levels • Convening employee representatives' meetings and making reports • Organizing employee training programs • Setting up a complaints and feedback system |
|  Customers | <ul style="list-style-type: none"> • Providing safe, environmentally friendly and high quality products • Improving the quality of services on a continuous basis • Operating with integrity | <ul style="list-style-type: none"> • Carrying out activities to protect consumers' interests • Publicizing commitment to quality services • Providing 956100 hotline services • Conducting customer satisfaction surveys |
|  Business partners | <ul style="list-style-type: none"> • Conducting fair and transparent procurement • Pursuing win-win cooperation | <ul style="list-style-type: none"> • Holding tender meetings • Holding large cross-border business negotiations and technical exchange meetings • Using electronic trading platforms • Sharing managerial practices and technical standards • Conducting contract negotiations and routine meetings • Conducting training for business partners • Holding ordinary business meetings |
|  NGOs | <ul style="list-style-type: none"> • Improving sustainable development management • Taking on social responsibilities such as poverty alleviation and environmental protection • Actively tackling climate change | <ul style="list-style-type: none"> • Contributing company experience • Participating in NGO activities • Promoting international communication |
|  Communities | <ul style="list-style-type: none"> • Promoting employment growth • Protecting community environment • Promoting community economic development • Respecting community culture and traditions | <ul style="list-style-type: none"> • Establishing a comprehensive community engagement mechanism and actively holding dialogues with local communities • Paying attention to community feedback and improving social effectiveness • Conducting publicity and education • Fulfilling notification obligations and increasing information disclosure |

| Key actions | |
|--|---|
| <ul style="list-style-type: none"> • Complying with the applicable laws and regulations in the jurisdictions where we operate and operating with integrity and compliance • Ensuring stable oil and gas supplies | <ul style="list-style-type: none"> • Participating in policy discussions organized by the government on climate change, energy conservation and emission reduction • Promoting local employment and nurturing local talents • Paying taxes according to law |
| <ul style="list-style-type: none"> • Operating in a responsible manner to maintain a good reputation • Holding general meetings | <ul style="list-style-type: none"> • Ensuring equal treatment of shareholders and valuing the opinions of minority shareholders and providing feedback to the Company's management in a timely manner • Strengthening management over investor relations and communicating with minority shareholders in various ways |
| <ul style="list-style-type: none"> • Enhancing employee training and skills development • Organizing vocational skill contests • Conducting occupational health checks | <ul style="list-style-type: none"> • Promoting local employment in overseas operations • Providing a career development platform for employees • Protecting employee safety |
| <ul style="list-style-type: none"> • Enhancing quality management and properly handling customer complaints • Protecting customer privacy • Providing quality services and improving product and service quality | <ul style="list-style-type: none"> • Increasing the supply of clean fuel, such as natural gas, high-standard gasoline, geothermal heating and hydrogen fuel • Prioritizing the supply of oil for disaster relief and agricultural production actively • Organizing PetroChina Open Day activity |
| <ul style="list-style-type: none"> • Strengthening centralized procurement management to provide suppliers with equal competition opportunities • Enhancing communication and coordination with contractors and strengthening the QHSE management of contractors by creating a safe and healthy working environment | <ul style="list-style-type: none"> • Opening the investment field • Holding high-level forums |
| <ul style="list-style-type: none"> • Paying attention to concerns of the public through various forms of communication • Playing an active role in participating in and supporting international environment protection standardization | <ul style="list-style-type: none"> • Participating in a wide range of forums and conferences • Attending the 27th Conference of the Parties of the United Nations Framework Convention on Climate Change Side Event |
| <ul style="list-style-type: none"> • Managing impact on communities and conducting social and environmental impact assessments • Fulfilling social responsibility and investing in community welfare • Participating in disaster relief and reconstruction and providing financial support for education and poverty alleviation • Supporting and driving the economic and social development of areas where businesses are located with large projects construction | <ul style="list-style-type: none"> • Supplying clean energy such as natural gas to remote regions • Inspiring employees to provide voluntary services • Expanding local procurement • Providing job opportunities and training for the local community |

TECHNOLOGICAL INNOVATION AND DIGITAL EMPOWERMENT

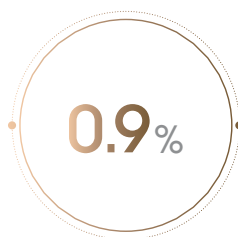
Innovation is our primary strategy and the basis for our entire development vision. Our goal is to deepen technological and digitalization innovation through optimizing allocation of innovation resources, building a dynamic and open innovation ecology, enhancing overall efficiency of the innovation chain, strengthening technological innovation to support leadership capabilities. We expedite deep integration of digital technology and operations in order to achieve steady progress in digital transformation and smart development.

Technological Innovation

Technological innovation drives the transformation of our production methods towards a green and low-carbon future, addressing global issues such as energy supply, carbon emissions reduction and improving efficiency. We continuously strengthen planning and top-down design as well as our efforts in overcoming key technology barriers, optimizing our technological innovation management system, building an innovative technology enterprise and innovation platform and facilitating the development of the centers for generating original technology.



R&D expenditure
for the year



Ratio of the annual R&D expenditure bears to
the operating revenue of the Company



R&D personnel



Technological Innovation

3,700

3,700 patents applied,
3,584 invention ones

96.9%

Percentage of invention
patents applied

1,598

1,598 patents granted,
1,470 invention ones

92.0%

Percentage of invention
patents granted

3

Received one Silver Award
and two Outstanding
Awards at the 23rd China
Patent Awards

5

Led the formulation and
revision of five international
standards which were
officially published

13

Accomplished seven
landmark technology
achievements and six major
technological progress

Technological Innovation Initiatives and Progress

| Key initiatives | Major progress |
|--|--|
| <p>Enhancing top-level design</p> | <ul style="list-style-type: none"> Formulating our Technology and Innovation to Support Carbon Emission Peak and Carbon Neutrality Implementation Plan, focusing on four main carbon reduction avenues of energy conservation and enhancing efficiency in operations, clean energy substitution, engineering carbon sequestration and structural optimization to establish a low carbon and zero carbon technology system |
| <p>Expediting establishment of research institutes and innovation platforms</p> | <ul style="list-style-type: none"> Accomplishing intermediate results with establishing the original technology generation centers Establishing the Wisdom Pool Research Institute in Japan Expediting the establishment and operation of our new materials research institute in Shanghai and new energy research institute in Shenzhen |
| <p>Facilitating green and low-carbon and new energy technological development</p> | <ul style="list-style-type: none"> Expediting technological breakthrough and application demonstration in focus areas such as hydrogen fuel, energy storage, geothermal power, coal associated resources, CCS/CCUS, energy conservation and environmental protection Accomplishing major technological progress in CCUS full whole industrial chain key technology, geothermal high efficiency integrated utilization key technology, wide temperature tolerance high efficiency lithium-titanate battery materials and battery manufacturing technology |
| <p>Strengthening innovative talent workforce</p> | <ul style="list-style-type: none"> Connecting with top R&D institutes in China and overseas to attract top technology talents Strengthening cooperation with higher education schools to nurture young and innovative talents |
| <p>Valuing IP protection and management</p> | <ul style="list-style-type: none"> Building a comprehensive IP management and support service organization through the establishment of PetroChina IP management office and three IP support centers Discussing and formulating the Company's IP Development Plan (2023-2030), IP Work Evaluation Plan and Patent Award Evaluation Plan |

Digital Empowerment

Digital transformation is a major strategic initiative in the Company's drive towards modernization of the Company's governance system and capabilities. We strongly promote digitalization, networking and smart development, utilizing digital technology such as cloud computing, IoT, 5G, big data and AI to integrate digital technology into corporate governance and business development under key directions of smart technology and product innovation, in order to drive enterprise digitalization transformation and smart development as a part of our efforts to strongly promote corporate digitalization and intelligentization.

PetroChina adheres to the general principles of "value orientation, strategic leadership, innovation drive and platform support", focuses on the aspects of "business development, management reform and technology empowerment", conducts business model restructuring, management model reform and business model innovation, facilitates the building of smart oil and gas fields, smart refinery and smart sales and develops user-based, data-based and innovation-driven new production methods, new business models, new industrial ecology, so as to achieve industrial transformation and upgrade as well as value growth.



Digital Transformation and Intelligent Development

| | Target | Progress |
|--|--|--|
|  <p>Business development</p> | <p>Collaborative optimization of oil and gas business chains</p> <p>With the goal of maximizing the overall benefits of the upstream and downstream business chains and the value of shareholders, carrying out optimal allocation of resources and overall planning of operating results and linkage of emergency response</p> | <ul style="list-style-type: none"> ▶ Leveraging our PetroChina Intelligent Operation Command Center to promote the unified scheduling, optimized operation and process monitoring of production operations and build early warning models, thus improving emergency response capabilities ▶ Developing software and hardware with expanded capacity and improved functionality based on cognitive computing platform, in order to build a unified, open and expandable AI platform for the Company |
| | <p>Transformation and upgrading of main businesses</p> <p>Integrating the Internet, big data, artificial intelligence and other technologies with the Company's business, and focusing on the construction of smart oil and gas fields, smart refining and sales in order to help the industrial transformation and upgrade</p> | <ul style="list-style-type: none"> ▶ Optimizing digital transformation top-down design for our oil and natural gas and new energy, refining, chemicals and new materials, sales, natural gas sales business segments, organizing unified scenario models, optimizing pilot unit implementation plans which expedite standardization, regularization and modularization, in order to build implementation models that can be replicated, extended, operated and used as reference • Smart oil and gas fields: Building an oil and gas direct management model based on "production command center + unattended stations", facilitating integrated management of focus areas such as production sites and operation sites • Smart refining: Preliminarily constructing a comprehensive 3D digitalized design, delivery and digital twin integrated factory for the Shaanxi Yulin ethane-to-ethylene smart factory, which significantly enhancing labor productivity and reducing energy consumption • Smart sales: Actively building a customer-oriented full membership system and developing extensive digitalized integrated marketing |
| | <p>Management reform</p> <p>Promoting the improvement of decision support, operation management, collaborative office, collaborative R&D and shared services through digitalization, and pushing forward the modernization and transformation of the corporate governance system and governance capabilities</p> | <ul style="list-style-type: none"> ▶ Further applying the big data analysis platform project on financial and accounting supervision as well as auditing ▶ Basically establishing our global shared services system, continuing to promote the application of shared services platforms in areas such as finance and human resources, in order to facilitate centralized, streamlined and standardized processing of similar operations, in turn driving our transformation into high quality management ▶ Continuously developing electronic sales services and optimizing online business transactions and service platform functions, so as to effectively enhance precision marketing capabilities, management standards and scientific decision-making |
|  <p>Technology empowerment</p> | <p>Creating a first-class industrial Internet system in the energy and chemical fields to empower digital transformation with technologies</p> | <ul style="list-style-type: none"> ▶ Increasing application of our cloud technology platform in order to continuously improve PetroChina's cloud resource computation and storage capacities based on PetroChina's four major data centers ▶ Further optimizing our data management system and continuing to build our data governance and data lake systems |

CLIMATE CHANGE AND ENERGY TRANSITION

Climate change is a global issue for all humanity and requires the combined efforts and response of the whole world. China has proposed the vision of building a human community with a shared future and set out clear carbon emission peak and carbon neutrality goals, requiring energy industries to accelerate their transformation. PetroChina firmly implements China's policies on carbon emission peak and carbon neutrality, actively participates in global climate governance, promotes the transition to a green and low carbon model on a strategic level in the Company's overall development, vigorously develops clean, low-carbon, safe and highly-effective energy sources, continuously enhances carbon emission management and control, and strives to play an integral role in the state's efforts to achieve carbon emission peak and carbon neutrality goals and to safeguard energy security.

The UN Sustainable Development Goals







RESPONSE TO CLIMATE CHANGE



We have supported and initiated the following plans and initiatives related to climate change

- Paris Agreement
- China's National Program for Addressing Climate Change
- China's Politics and Actions for Addressing Climate Change
- China Technology Strategic Alliance for Carbon Dioxide Capture, Utilization and Storage (CTSA-CCUS)
- Oil and Gas Climate Initiative (OGCI)
- Carbon Peak and Carbon Neutrality Declaration of China's Petroleum and Chemical Industry
- China Oil and Gas Methane Alliance

We agree with the temperature goal set out in the Paris Agreement and strive to firmly implement the goals and action plans proposed by the Chinese government to achieve carbon emission peak and carbon neutrality, and by leveraging our own energy resources, we intend to carry out the carbon emission peak action plans systematically, one step at a time. We have continued to improve our governance mechanism for addressing climate change, incorporating it into our overall development strategy. We have also improved our risk management procedures and its implementation plans and collaborated with other institutions on climate change issues to actively and steadily contribute to the carbon emission peak and carbon neutrality goals.


Climate Governance


The Board attaches great importance to climate change-related risks and opportunities. We pay close attention to policies, laws, technology, and market changes related to the global and China's transition to a low-carbon economy. In our annual policy research, we take into consideration the impact of climate risks and the low-carbon economic transition policy to identify and assess the real challenges and potential impact of climate change on our Company. Our Company also incorporates green and low-carbon initiatives into our overall development strategy and established a Leading Group on Carbon Peak and Carbon Neutrality. Through monthly meetings, we study, deploy, and implement action plans to support these initiatives, continuously strengthen the management of climate-related risks, improve our carbon emission management and control system, develop low-carbon industries, improve clean energy supply, create effective capacity building programs for the management team and skills training programs for all employees, and actively participate in the cooperation across the global oil and gas industry in tackling climate change.


Our Company's Climate Governance Process


| Organization | Responsibilities |
|---|--|
| <p>Board of Directors</p> | <ul style="list-style-type: none"> Formulating and reviewing our Company's green and low-carbon development strategy, major action plans, risk management policies, and annual budgets, as well as supervising our Company's achievement of carbon emission reduction goals |
| <p>Management</p> | <ul style="list-style-type: none"> Reviewing reports and recommendations submitted by specialized management departments and submitting opinions and suggestions on strategies, planning and management to the Board of Directors Implementing our Company's green and low-carbon development strategies, paths and action plans proposed by the Board of Directors |
| <p>Strategic planning and low carbon management department</p> | <ul style="list-style-type: none"> Formulating policies and carrying out studies on green and low-carbon development, analyzing climate risks and opportunities, as well as providing opinions and suggestions to our Company's management based on our Company's low-carbon management status Implementing our Company's management goals and action plans related to low-carbon management |
| <p>Branches (Subsidiaries)</p> | <ul style="list-style-type: none"> Implementing the low-carbon development plans, tracking and monitoring the achievement of the objectives of the entity in accordance with the overall deployment and target decomposition of our Company |


Key Actions Taken by the Board and the Management to Govern Climate Risks

- 

Incorporated green and low-carbon initiatives into our Company's overall development strategy
- 

Established a Leading Group on Carbon Peak and Carbon Neutrality and a Leading Group on New Energy and New Materials Business Development, which are responsible for convening monthly meetings to study, deploy, and implement relevant action plans
- 

Incorporated indicators for energy consumption, greenhouse gas ("GHG") emissions etc. into the annual performance evaluation of our Company's headquarters and branches (subsidiaries), and embedded response to climate change as a mandatory module in the training program of Senior Management members
- 

Established the Wisdom Pool Research Institute in Japan, accelerated the building and operation of the Research Institute for New Energies in Shenzhen and the Research Institute for New Materials in Shanghai, and conducted more research on green and low-carbon strategies and technologies
- 

Promoted the standardized management of carbon assets and the development of carbon asset projects

Strategic Response

Incorporating green and low-carbon initiatives into its overall development strategy, our Company established a three-step path to energy transition, which consists of the "clean energy substitution, strategic succession and green transition" stages. We incorporated measures to transition to green and low-carbon energy, energy conservation and carbon reduction in our overall 14th Five-Year Plan and issued Green and Low-carbon Development Action Plan 3.0 to further detail the implementation methodologies and measures for achieving carbon emission peak and carbon neutrality.

We have systematically identified major climate risks that have an impact on our Company's strategies in terms of reputation, market, technology, operation, policies and regulations, and physical factors, and formulated corresponding countermeasures to enhance our ability to address potential climate risks and opportunities at the strategic level.

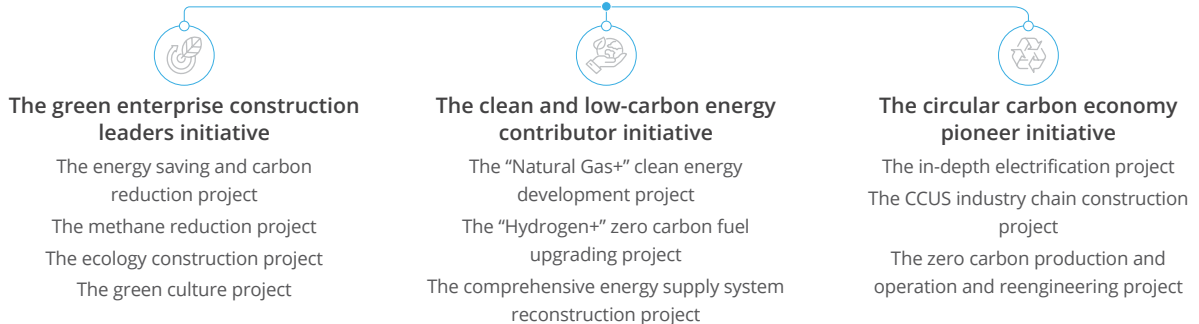
Major Climate Risks Identified by the Company and our Corresponding Countermeasures

| Risks | Factors | Measures |
|---------------------------------|--|---|
| Reputation | <ul style="list-style-type: none"> Having a low-carbon footprint helps energy companies build their reputation and is a major concern of stakeholders. If our Company fails to meet its low-carbon development goals or fails to ideally meet such goals using the expected routes and measures, our reputation and image may be adversely impacted | <ul style="list-style-type: none"> Actively and steadily transitioning into a green and low-carbon company Improving the disclosure and transparency of information related to climate change Facilitating all-round communication and exchange |
| Market | <ul style="list-style-type: none"> Public attention on climate change may drive market preference for low-carbon products and services, thereby affecting demand for fossil fuels The rapid development of alternative energy sources, new energies and new products may put competitive pressure on our Company | <ul style="list-style-type: none"> Vigorously developing clean energy sources, promoting high-quality and sustainable development of our natural gas business and promoting the transformation and upgrading of refining companies Taking into account climate-related factors in our investment decisions and increasing investment in new energies and alternative energies |
| Technology | <ul style="list-style-type: none"> Low-carbon transition will increase our Company's cost of technological innovation | <ul style="list-style-type: none"> Increasing investment in technological innovation, and vigorously developing low-carbon and energy-saving technologies Establishing research institutes that focus on the technological research of new energies and new materials |
| Operation | <ul style="list-style-type: none"> The carbon emission policy may affect our Company's cost expenditure and profits | <ul style="list-style-type: none"> Actively promoting clean energy substitution in our production process, and accelerating our Company's transition to green and low-carbon energy Strengthening the management of carbon assets and actively participating in the construction of the carbon emission market |
| Policies and regulations | <ul style="list-style-type: none"> The Chinese government will impose stricter environmental and safety regulations in the future, and mandate higher standards for refined oil products. Compliance with the new regulations and standards will increase our Company's compliance cost | <ul style="list-style-type: none"> Paying close attention to the changes in policies and regulations related to carbon trading Strictly complying with the relevant laws and regulations, and actively participating in standard setting Improving the management of low-carbon development and the risk control of safety and environmental protection at our Company |
| Physical factors | <ul style="list-style-type: none"> Natural disasters such as typhoons (hurricanes), storm surges and floods caused by climate change may directly prejudice our Company's assets and business operation, and disruptions to the supply chain may affect our Company indirectly. In particular, natural disasters may damage corporate assets in coastal areas, and exacerbate water shortages in water-scarce areas | <ul style="list-style-type: none"> Closely monitoring and regularly updating climate data, and issuing timely warnings Improving emergency disaster drills to reduce the impact of natural disasters on our Company's production and operation Strengthening our supply chain management to establish a supply chain with better resilience Transferring asset risks by insurance, expanding scope of insurance and transferring natural risks at a reasonable insurance cost |

PetroChina's Transition Path to Green and Low-Carbon Energy



Action deployment ("Three major initiatives", "Ten major projects")



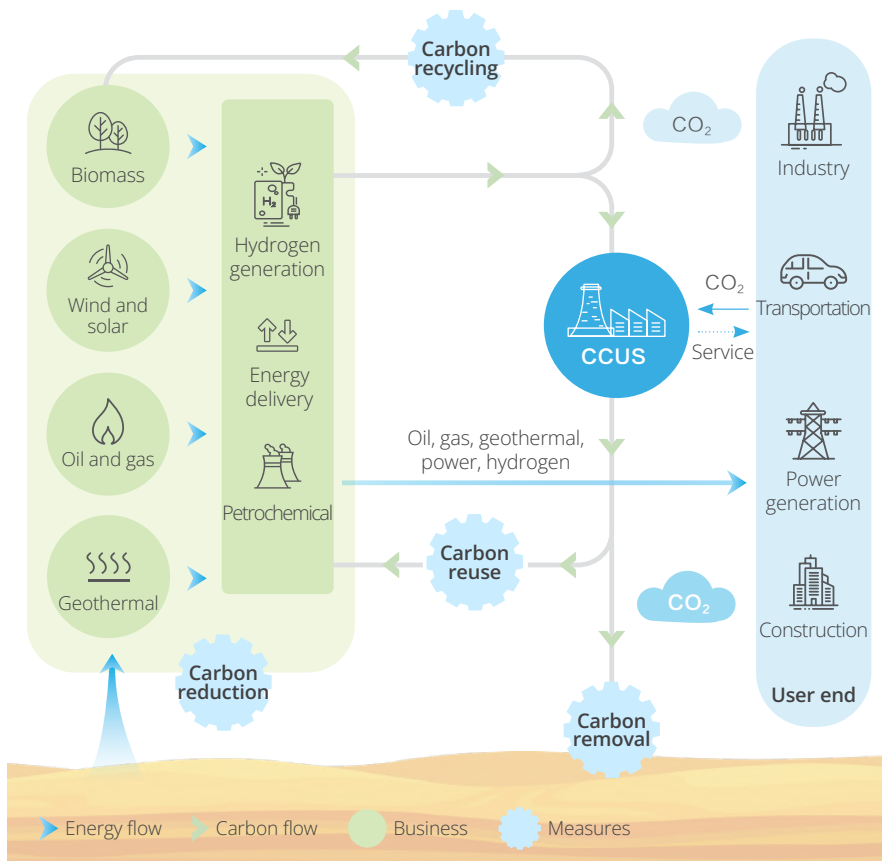


The Green and Low-carbon Development Action Plan 3.0

In 2022, our Company issued the Green and Low-carbon Development Action Plan 3.0, where we proposed the concept of developing a “circular carbon economy”. We intended to create three innovative projects, namely, the “Natural Gas+” Clean Energy Development Project, the “Hydrogen+” Zero Carbon Fuel Upgrading Project, and the CCUS Carbon Negative Industry Chain Construction Project. We also deployed and implemented three major initiatives, namely, the Green Enterprise Construction Leaders Initiative, the Clean and Low-Carbon Energy Contributor Initiative, and the Circular Carbon Economy Pioneer Initiative, as well as a total of ten major projects under such initiatives.

PetroChina’s Development Path Towards a Circular Carbon Economy



At its core, the circular carbon economy consists of four principles, i.e. carbon reduction, carbon reuse, carbon recycling and carbon removal (collectively, the 4Rs), as proposed in the G20 Summit in 2020. By continuing to optimize our energy and carbon flows, PetroChina focuses on implementing reformed measures to reduce carbon emissions and reutilize carbon as a resource. We are actively exploring new energy sources, new materials, and new industries with the aim to establish a CCUS industry chain, to accelerate our transition towards clean energy supply and a scalable carbon industry, and progress on our path towards a green and low-carbon future.



Climate Risk Management

Our Company incorporates risks related to climate change into its list of comprehensive risk management and control measures. Every year, we identify, analyze and assess climate risks, formulate risk management and control strategies and procedures, track and report risk events on a regular basis, and adjust risk prevention and control strategies in a timely manner. We strictly monitor the implementation of climate risk management and include GHG emissions as part of the framework of the annual performance evaluation for relevant departments of our Company and responsible persons from each branch/subsidiary. Their performance obligations are accounted for, evaluated, and fulfilled each year.

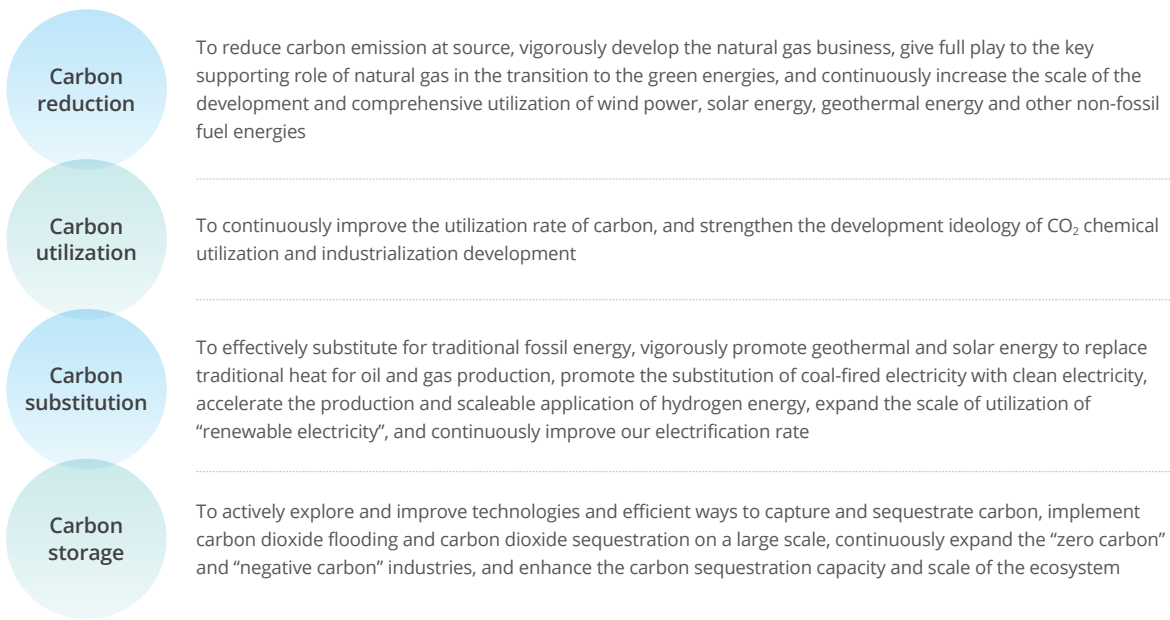
Indicators and Objectives

| Indicators | Objectives | Progress in 2022 |
|--|---|--|
|  <p>GHG emissions</p> | <ul style="list-style-type: none"> Strive to achieve “near-zero” emissions by around 2050 Keep the amount of GHG emissions at 169 million tons of carbon dioxide equivalent (“tCO₂e”) or lower in 2022 | <ul style="list-style-type: none"> Total GHG emissions was 160 million tCO₂e |
|  <p>GHG emission intensity</p> | <ul style="list-style-type: none"> Reduce GHG emission intensity | <ul style="list-style-type: none"> Domestic GHG emissions per unit of oil and gas production was 0.24 tCO₂e/toe, representing a decrease of 4% |
|  <p>Methane emission intensity</p> | <ul style="list-style-type: none"> Reduce methane emission intensity by 50% as compared to 2019, to 0.25% in 2025 Reduce methane emission intensity by 20% as compared to 2025, to 0.20% in 2035 | <ul style="list-style-type: none"> Methane emission intensity was 0.40%, representing a decrease of 11% |

CURBING CARBON EMISSIONS

Paying close attention to our carbon emissions and carbon footprint arising from our production and operation, we continued to enhance our carbon emission management system by implementing the Guiding Opinions on Strengthening Greenhouse Gas Emission Management and Control, Measures for Management of Carbon Trading, the Management Measures for the Statistical Assessment of Greenhouse Gas Emissions, and the Management Measures for the Voluntary Greenhouse Gas Reduction Project, and by establishing the “1+3” carbon emission mechanism of our Company. We also continued to improve our GHG accounting and inspection system, adopted an assessment model to review our carbon emission controls annually, strengthened our carbon asset management, actively participated in carbon market transactions, carried out research and development activities related to CCUS technologies and the implementation of demonstration projects, promoted its application in business settings, actively planning forestry carbon sequestration, and collaborated with other industries to reduce carbon emissions, in an effort to contributing to the fight against climate change.

Moving Towards Carbon Neutrality



CASE STUDY

Striving to Construct a “Zero-Carbon” Desert Highway

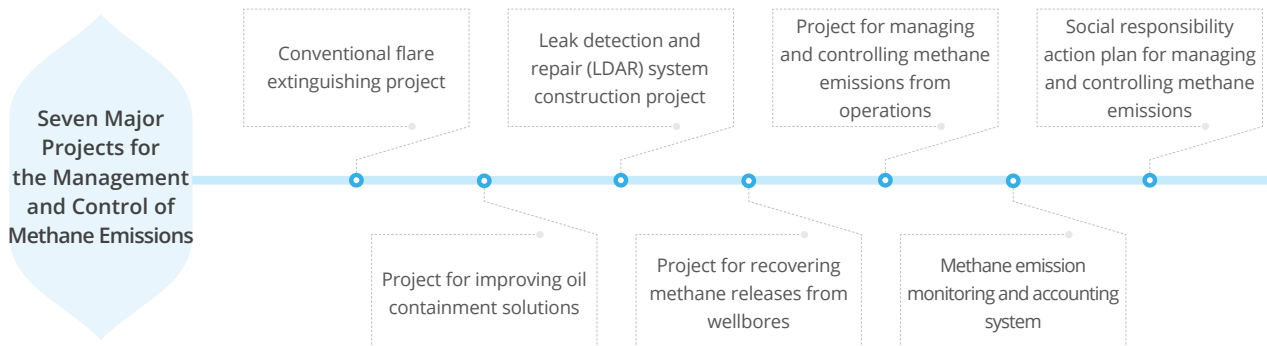
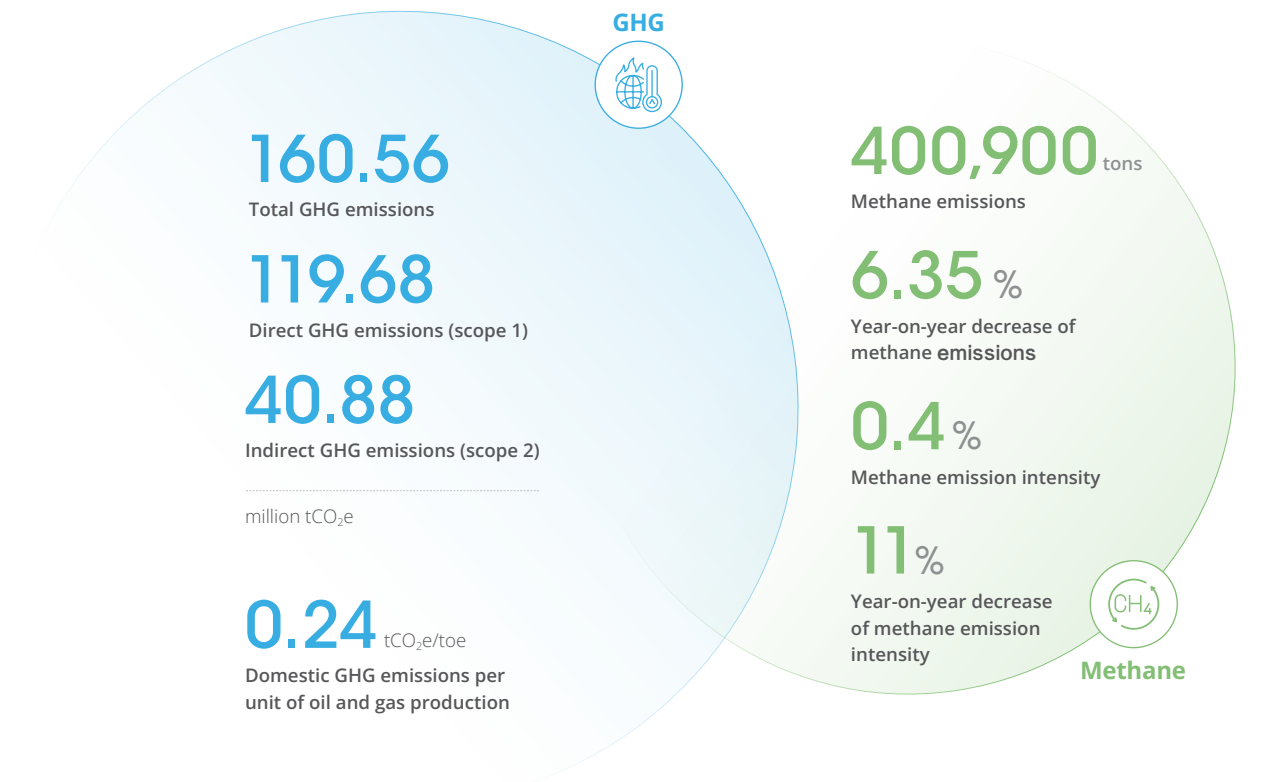
The responsibility of greening and irrigating the shelter belt along both sides of the Taklamakan Desert Highway lies with PetroChina’s Tarim Oil Field. The long belt of vegetation stretches 436 kilometers; and is equipped with a well station approximately every 5 kilometers to water the entire green belt through drip-irrigation. The well stations and pumps were powered by diesel fuel previously.

In June 2022, 86 photovoltaic generators were newly installed in the Taklamakan Desert hinterlands. With more than 10,000 solar panels, these generators convert solar power into an endless supply of electricity used for irrigation, providing a greener source of water supply to the 436 kilometers of shelter belt. Therefore, with the way that the shelter belt is irrigated and maintained, we are achieving carbon neutrality. Based on our calculations, the shelter belt can absorb approximately 20,000 tons of carbon dioxide annually. The negative carbon emissions can offset the carbon emissions previously arising from our vehicles, thus providing a new solution for China to manage its deserts and maintain its desert highways and forging a new path of “zero-carbon” desert highway construction.



Carbon Emission Management

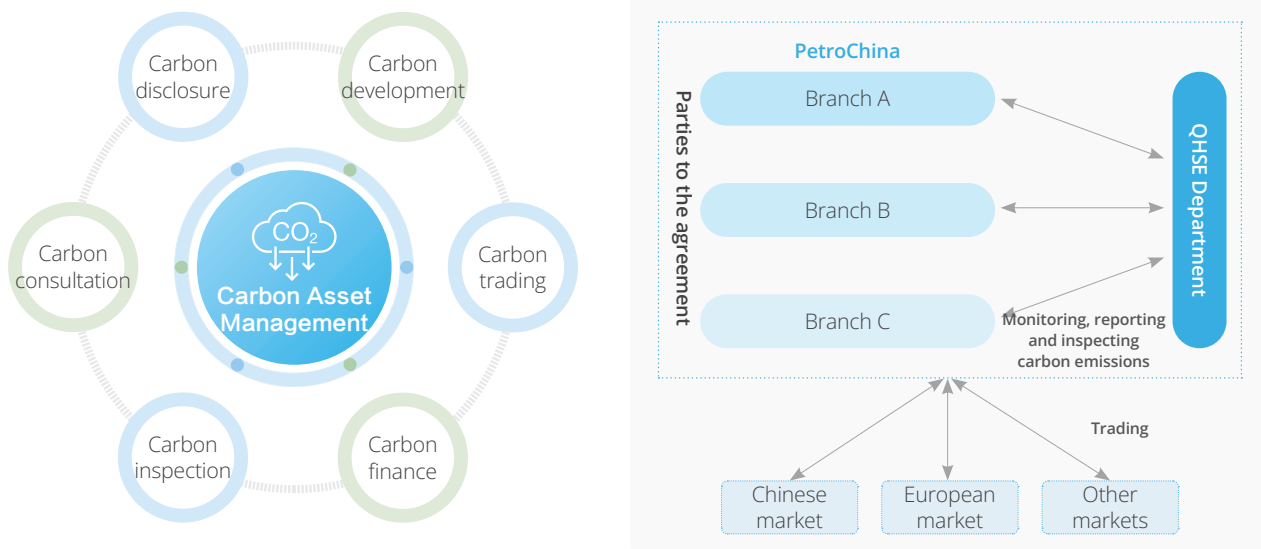
Our Company implements a dual-control system for managing our total carbon emissions and intensity. The amount and intensity of carbon emissions associated with each branch/subsidiary are individually recorded. In addition, the energy-saving, emission reduction, pollution reduction and carbon reduction performances of every branch/subsidiary are reflected on their performance contracts. In accordance with the national GHG inspection and accounting standards, we set up a GHG inspection and accounting mechanism and founded the GHG Inspection and Accounting Center; we account for GHG emission data on a quarterly basis and conduct GHG inspections regularly. We also actively implement methane control measures to reduce methane emissions. In 2022, our domestic GHG emissions per unit of oil and gas production and our methane emission intensity recorded a year-on-year decrease of 4% and 11%, respectively.



Carbon Asset Management

Our Company is an active participant in the construction of the Chinese carbon market and is one of the first ten companies to engage in carbon market transactions in China. We developed and launched a platform for managing and controlling carbon assets, strengthened the centralized management of carbon assets, standardized the compliance control of carbon trading companies, facilitated the standardized management of carbon assets and the development of carbon asset projects, actively followed up on and complied with national policies related to voluntary carbon reduction, and encouraged our branches/subsidiaries and business units to develop carbon reduction projects on a voluntary basis according to the national policies.

PetroChina's Carbon Asset Management System

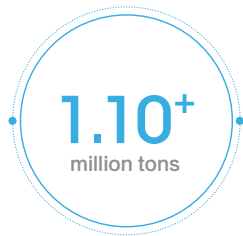


CASE STUDY

CCER Project at the Daqing Oil Field North I-2 Natural Gas Treatment Plant

Pursuant to the Interim Measures for the Administration of Voluntary Greenhouse Gas Emission Reduction Transactions, voluntary emission reduction transaction projects shall be filed and registered at the competent department of the state, under the register of voluntary emission reduction transactions of the state. The registered emission reduction activities are called "China Certified Emission Reduction(s)" (CCER(s)).

The Daqing Oil Field North I-2 Natural Gas Treatment Plant Project meets the requirements under the CCER scheme. The methodology adopted for this project is coded CM-029-V01, namely, the recovery and utilization of gas from oil wells that would otherwise be flared or vented. The project was successfully filed and registered with the National Development and Reform Commission ("NDRC") on May 12, 2016, and has entered the production phase. At present, we have completed 6 project inspections, observing a total carbon reduction volume of approximately 2.16 million tons.



Annual CO₂ injection of
CCUS projects

Our Company conducts extensive research on key technologies related to every component of the CCUS industry chain, and has effectively enhanced carbon capture and utilization technologies:

- Energy consumption for carbon capturing and regeneration reduced by 20%
- Carbon dioxide flooding volume increased by 20%
- Accuracy of calculating thermodynamic parameters reached 90%

Carbon Capture, Utilization and Storage (CCUS)

Our Company actively explores technologies and efficient ways to capture and sequester carbon, and continues to step up our efforts to research and promote key technologies related to every component of the CCUS industry chain. As such, we efficiently enhanced our carbon capture and utilization technologies, facilitated the implementation of demonstration projects related to CCUS technologies and its application in business settings, and achieved great results. In 2022, our Company implemented several CCUS projects in Jilin, Daqing, and other oil fields. The gas injection capacity of these oil fields significantly increased, with over 1.10 million tons of CO₂ injection per year.

CASE STUDY

Developing a Circular Economy and Planning the Construction of CCUS Industry Chain

Our Company took the initiative to develop a CCS/CCUS industry chain by conducting extensive research and development on whole-industry-chain technologies and taking the lead in the construction of CCUS demonstration projects and the strategic planning of a CCUS regional industrial center. Having set up the CCUS industry chain, we will be able to accelerate the provision of cleaner energy and the establishment of a scalable carbon industry, facilitate the transition of the industry towards a green and low-carbon future, and help achieve the carbon emission peak and carbon neutrality goals.

Conducting research on advanced CCUS technologies

We developed technologies and equipment related to the effective capture, transportation, injection, and storage of carbon dioxide. We deployed new and advanced carbon capture technologies such as the use of organic amine absorbents and solid absorbents, developed technologies for long-range and large-capacity carbon transportation and storage, data simulation, integrated air monitoring, and succeeded in capturing, utilizing and storing low concentrations of carbon dioxide. Moreover, we participated in the global research projects on direct air carbon capture and storage (DACCS), bioenergy with carbon capture and storage (BECCS), and ocean carbon sequestration. We also established and perfected a standardized system for CCUS processes.

Making plans to create a CCUS regional industrial center

With the aim to promote a cleaner use of fossil fuel energies and upgrade the industry chain to reach net-zero emissions, we carried out strategic planning to construct CCUS regional industrial centers in priority locations such as Songliao, Junggar, Ordos, Tarim, Hainan. We also participated in the construction planning of OGCI's global CCUS regional industrial center and explored the regional CCUS commercialization model.

Applying CCUS technologies to improve recovery rate and build a "near-zero" emission demonstration zone for the petroleum and petrochemical industry

Leveraging the strengths of the integrated oil field and refinery businesses, we integrated the resources of different oil and gas fields and refining companies, such as those in Xinjiang, Changqing, Daqing, Jilin, and the Bohai Economic Rim, and applied carbon capture, utilization and storage and enhanced oil recovery (CCUS-EOR) technologies to utilize the carbon produced and captured by refining companies on oil and gas extraction. We also increased oil recovery rates through carbon dioxide flooding and built a "near-zero" emission demonstration zone for the petroleum and petrochemical industry. In 2022, our CCUS project at Jilin Oil Field had a carbon injection capacity of 800,000 tons, and an annual oil production capacity of 200,000 tons. At present, an accumulative total of 2.77 million tons of carbon dioxide has been injected into the oil field under the project, making it the largest carbon injection in China. The recovery rate of crude oil was increased by more than 25%, which is the equivalent to the discovery of a new oil field of the same scale.

In 2022, two of our branches/subsidiaries were recognized as National Award in Excellence in Greening Initiative, and two individuals were recognized as Award of Excellence in Greening to Workers.

30,804
hectares

Total area of our Company's existing green spaces

1,327
hectares

Area of newly added green spaces during the year

1.562
million

Number of trees planted during the year

376,000

Total number of tree-planting volunteers during the year

Forestry Carbon Sequestration

Our Company actively lays out plans to build carbon sequestration forests and carbon neutral forests, with the aim to achieve carbon neutrality through carbon compensation. We prepared and issued the 14th Five-Year Plan for Green Development, the PetroChina's Carbon Neutrality Guidebook, and the PetroChina's Guidebook for Carbon Sequestration Forest Construction. These strategies, together with the construction of a "zero-carbon" demonstration zone, help us build carbon sequestration forests and carbon neutral forests. We actively participated in the "Tree Planting to Achieve Carbon Neutrality" campaign and helped reduce carbon emissions through tree planting. In 2022, 10,635 mu of carbon sequestration forests and carbon neutral forests were planted by our Company.

CASE STUDY

Tree Planting to Achieve Carbon Neutrality

On the 44th Arbor Day (March 10, 2022), the "Tree Planting to Achieve Carbon Neutrality" campaign, initiated by CNPC and jointly hosted with the China Greening Foundation, was officially launched.

The campaign took place on the "Tree Planting Volunteers" website, the fundraising platform of the China Greening Foundation, to raise funds from PetroChina's employees and the public for voluntary tree-planting and the construction of carbon sequestration forests and carbon neutral forests. The campaign's goal is to raise RMB 100 million over a 5-year period to plant 15,000 mu of forest land.

Our employees actively participated in the campaign. As of the end of 2022, more than RMB 17.8898 million was donated by our employees, retired employees, warm-hearted public and social organization, accounting for 47% of the total online donations received by the China Greening Foundation during the year. The planting of the first 3,550 mu of forest land has commenced.



Strengthening Cooperation on Emission Reduction

Our Company actively advocates for and implements a sustainable development model characterized by low energy consumption, low pollution, and low emissions. Together with CNPC, our parent company, we participate extensively in international collaborations in combating climate change, especially strengthening the collaborations with OGCI and sharing technologies and experiences with other member companies, to contribute our efforts to addressing climate change issues and helping the oil and gas industry transition to a low-carbon future.

We promoted and participated extensively in the work of China Oil and Gas Methane Alliance. We standardized the Alliance's workflow, organized and convened annual technological exchange meetings, invited experts to deliver special reports on methane management and control technologies, prepared annual reports for the Alliance, and fostered collaborations between Alliance member enterprises to control methane emissions. As a result, the influence of the Alliance continues to increase.



Annual OGCI Collaboration Progress



- ◆ March 2022, Mr. Dai Houliang (Chairman of the Board of our Company) and the CEOs/chairmen of the remaining OGCI member companies entered into the OGCI Zero Methane Emissions Initiative, demonstrating their commitment towards achieving zero methane emissions. The initiative is currently endorsed by 17 signatories and 39 supporters, including enterprises, institutes, and government departments.
- ◆ In a joint effort between CNPC and OGCI, an investment fund named OGCI China Climate Investments was officially launched in Hainan Province in April 2022. It will invest in technologies and business solutions that may have a significant impact on global GHG emissions in China to help combat climate change.
- ◆ Details about PetroChina's participation in the OGCI and other experiences in fulfilling our social responsibility obligations are presented under the section headed "Case stories" on CNPC's official English website. For more information, please visit CNPC's English website: <http://www.cnpc.com.cn/en/>.



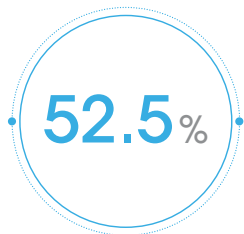
LOW-CARBON TRANSITION

We have adopted the “green and low-carbon” policy as one of the five key strategies of our Company and equally prioritize our new energies and new businesses and our oil and gas businesses with an aim to help our Company transition to a low-carbon energy model. Our Company prepared a development plan for our new energies and new businesses, which sets clear the path of transitioning to a green and low-carbon economy based on carbon emission peak and carbon neutrality principles and hard constraints. The plan also sets out measures to steady oil supply and increase gas capacity, accelerate the building of new energy and new business portfolios, coordinate the development of different renewable energy systems (oil, gas, thermal energy, power, and hydrogen energy), substitute clean energy for fossil fuels, and strive to create a green and low-carbon future for PetroChina.

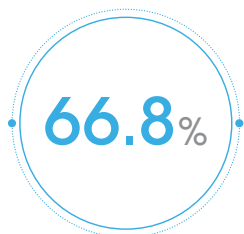
Our Objective

In 2025, the proportion of natural gas in our total domestic oil and gas output reaches

55%



Proportion of natural gas in PetroChina's total domestic oil and gas output



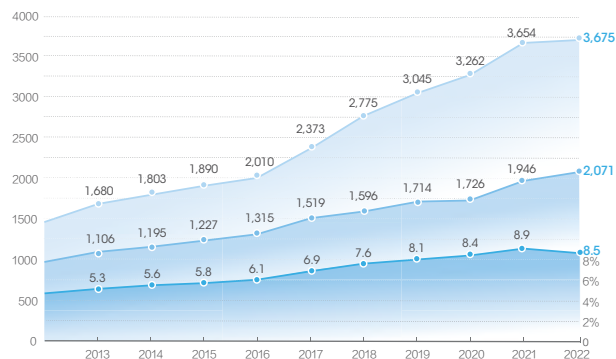
PetroChina's share in domestic natural gas output

Natural Gas Development and Utilization

Natural gas is our Company's strategic, growing, and value-added business, which plays a key supporting role in the process of energy transition, and is also a bridge for the transition from fossil energy to clean energy. The vigorous development and utilization of natural gas are a foundation project that runs through the process of green and low-carbon transition and development of our Company. Our Company stands firm on setting natural gas as the strategic focus of our green development, continues to step up our efforts to explore and develop natural gas, and promotes the exploration and development of conventional gas and unconventional gases such as tight gas, shale gas and coalbed methane. In addition, our Company imports natural gas through multiple channels and speeds up our construction of liquid natural gas (“LNG”) terminals and gas storage tanks to create a diverse energy supply system.

In 2022, we produced 145.5 billion cubic meters of domestic natural gas, representing a year-on-year increase of 5.6%, of which the domestic saleable natural gas volume was 126.61 billion cubic meters, representing a year-on-year increase of 5.9%. We increased imports of pipeline gas and LNG and continuously improved the natural gas marketing network, so that the gas supply covers 31 provinces (municipalities and autonomous regions) and the Hong Kong Special Administrative Region. We sold 207.096 billion cubic meters of natural gas domestically during the year, which contributed to the optimization of China's energy mix and the construction of a Beautiful China.

Green Power and Improving Energy Mix



■ Proportion of natural gas in China's primary energy consumption mix ^① (%)
 ■ Natural gas consumption in China ^② (100 million cubic meters)
 ■ PetroChina's domestic natural gas sales volume (100 million cubic meters)

Note: ①② are estimated data in 2022.

Source: Energy Statistics by CNPC Economics and Technology Research Institute



Investment in new energies and new businesses



Year-on-year increase in investment in new energies and new businesses

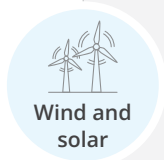
New Energies and New Businesses

We take the development of new energies as a new driver for the transition towards a green and low-carbon future. We have set up a New Energies and New Materials Business Development Working Group, led by Mr. Dai Houliang, Chairman of the Board. We have also strengthened the strategic planning for the development of new energies and new businesses and the construction of a business management system, and accelerated the expansion of new energy businesses such as geothermal energy, wind and solar power, hydrogen energy, and battery charging (swapping) stations. While we were accelerating the building and operating of the New Materials Research Institute in Shanghai and the New Energies Research Institute in Shenzhen, we also set up the Wisdom Pool Research Institute in Japan in 2022 to further provide technical support for the development of new energies, new materials, and new businesses. In 2022, PetroChina's new energy development and utilization capacity reached the equivalent of 8 million tons of standard coal per year.

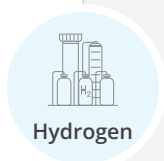
Development Progress of New Energies and New Businesses in 2022



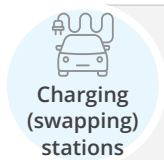
- ◆ Newly added geothermal heating area of 10.06 million square meters, amounting to 25 million square meters in total, replacing 575,000 tons of standard coal annually
- ◆ The first medium and deep-level geothermal heating project in Beijing commenced construction successfully



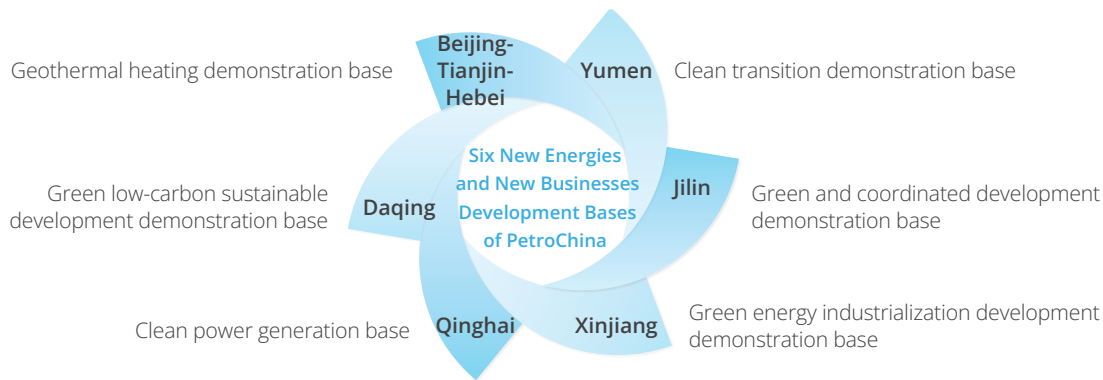
- ◆ Acquired permit to connect 10.20 million kW of clean power grids
- ◆ Constructed wind and photovoltaic of an installed capacity of more than 1.20 million kW, with an aggregate installed capacity of more than 1.40 million kW
- ◆ Construction of the Yumen Oil Field 300 MW Photovoltaic Generation Project was substantially completed
- ◆ Built our Company's first self-designed and self-constructed floating photovoltaic power generation project in Daqing oil field with an installed capacity of 18.7 MW
- ◆ Our first wind power project — Jilin 150,000 kW wind and photovoltaic project was connected to the grid
- ◆ Collaborated with State Power Investment Corporation Limited to acquire a 900,000 kW offshore wind power project in Guangxi



- ◆ Conducted preliminary studies on 4 hydrogen purification projects, of which, the Sichuan Petrochemical Project has been completed and put into operation
- ◆ Lit the first environmentally friendly, hydrogen-powered torch at the Winter Olympic Games, continuing to supply clean hydrogen energy for the Beijing Winter Olympics and the Paralympic Games, with the accumulative amount totaling 161 tons
- ◆ Our high-purity hydrogen capacity increased by 1,500 tons/year, and the total high-purity hydrogen capacity reached 3,000 tons/year
- ◆ We constructed more hydrogen refueling stations. In 2022, 23 new hydrogen refueling stations (comprehensive service stations) were put into operation, we currently have 35 hydrogen refueling stations (comprehensive service stations) in total



- ◆ 416 battery charging (swapping) stations were installed in 31 provinces (autonomous regions and municipalities) throughout the country



CASE STUDY

Launching of the Daqing Oil Field Xinghuo Floating Photovoltaic Demonstration Project

In July 2022, PetroChina's first floating photovoltaic project, the Daqing Oil Field Xinghuo Floating Photovoltaic Demonstration Project, was connected to the grid and put into operation. Covering a site of 400,000 square meters and having an installed capacity of 18.7 MW, the power plant can generate 27.5 million kWh of electricity per year. When compared to coal-fired power stations, this new energy project, which was designed and developed by PetroChina itself, can reduce carbon emissions by 22,000 tons.



As of the end of 2022, a total of 13.01 million kWh of electricity has been generated from this project.

Yumen Oil Field Embarked on the Path of Transition to a Green and Low-Carbon Future

As the oldest oil field discovered and put into large-scale development in China, Yumen Oil Field witnessed the history of China's oil industry. At present, this ancient oil field is back in operation. Thanks to the development of renewable energy, Yumen Oil Field is now embarking on the exploration of development of clean energy solutions and transition into a green future.

In 2022, the development of Yumen Oil Field's new energy business achieved a series of impressive results:

- On June 28, the first medium and long-distance hydrogen transmission pipeline in Gansu Province was completed and fully connected to the grid. The hydrogen transmission pipeline was linked to the hydrogen refueling station at Yumen Refinery, which was equipped with a hydrogen compression system, loading system, and hydrogen storage facilities, and together formed a preliminary hydrogen supply chain in Gansu-Ningxia-Xinjiang.
- On September 8, the Yumen Oil Field 300 MW Photovoltaic Power Generation Project, the largest photovoltaic project constructed by PetroChina so far, was officially launched. As at the end of 2022, all ground works have been completed and the project has entered the final debugging stage.
- On December 9, a 40 MW/80MWh electrochemical energy storage system was installed at the Yumen Oil Field 200 MW Photovoltaic Power Plant and put into operation, which is the first of its kind in the construction of new energy storage projects at Yumen Oil Field.
- On December 13, the Yumen Oil Field Jiudong 5MW Distributed Photovoltaic Power Generation Project officially commenced construction.

Working with Partners to Lay Out our Battery Charging (Swapping) Business Plan

With the global upgrade and transition to clean energy sources, new energy vehicles have become one of the most remarkable growth engine in the automotive market. To meet consumer demands, our Company has collaborated extensively with other industries to lay out strategies to develop battery charging (swapping) business.

In September 2022, Shanghai Jieneng Zhidian New Energy Technology Co., Ltd. (hereafter referred to as “Jieneng Zhidian”) was officially established. Jieneng Zhidian is co-invested by PetroChina, Sinopec, SAIC Motor, Contemporary Amperex, and Shanghai International Automobile City Group. By fully leveraging their respective strengths in respect of clean energy supply, new energy vehicles and battery R&D, smart network connection, and smart transportation etc., Jieneng Zhidian has built a new platform for leasing power batteries, and facilitated research and development on, among others, battery swapping technologies, battery operation and management, and big data services. It aims to create a model where the battery is completely separated from the car and build a standardized platform to bring a safer, more reliable, more convenient, and faster travel experience for owners of new energy vehicles.

At present, 416 battery charging (swapping) stations were built and put into operation by PetroChina across 31 provinces (autonomous regions and municipalities) in China. In the future, our Company will further increase its investment in the battery charging (swapping) business. Our Company plans to build more than 1,000 charging (swapping) stations by 2025 and establish an upgraded comprehensive energy services network that provides chargeable and swappable batteries.

Green Products

We optimize the energy consumption structure by upgrading energy products. Our Company's refineries fully supply China VI standard gasoline and diesel to meet the market demand for high-quality oil products. We have increased the production and use of clean energy and upgraded oil products in Beijing following the Beijing VIB standard, which adheres to higher environmental requirements. The manufacturing level of downstream green chemical products and the level of whole life-cycle green management have continued to improve, effectively supporting the country in achieving its air pollutant emission reduction targets. In response to the International Maritime Organization's (IMO) sulphur limitation regulations, we have developed and produced low-sulphur bunker fuel oil with sulphur content less than 0.5% to protect the ocean-atmosphere system. We have carried out the LNG filing operation on international shipping for the first time, providing a new choice for ocean-going ships to apply green energy.

Clean Energy Substitution in the Oil and Gas Production Process

565,800 kW

Newly added capacity of wind and photovoltaic generators

1,154.7%

Year-on-year increase of installed capacity of wind and photovoltaic generators

113,700 kW

Newly added capacity of waste heat generators

38.5%

Year-on-year increase of installed capacity of waste heat generators

Clean Energy Substitution

Our Company has vigorously introduced measures to save energy and reduce carbon emissions, substituting clean energy for non-renewable energy sources in our production process. This allowed us to minimize fossil fuel consumption and carbon emissions at the source and achieve our carbon reduction goals. In 2022, an action plan was implemented to adopt clean and low-carbon practices at all upstream stages of our oil and gas production process. As a result, our new oil and gas projects saw an increase in clean energy consumption, while existing oil and gas projects are on the path to a fully low-carbon future through a three-step approach, namely, “energy saving and reduction, clean energy substitution, and the adoption of negative carbon measures”.

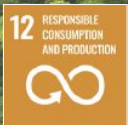
Establishment of Green Enterprises

To encourage enterprises to adopt green and low-carbon energy sources, our Company established a system for creating, evaluating, and recognizing enterprises that have gone green. In 2022, our Company continued to improve and standardize this system, and fully extended its implementation to our principal activities of oil and gas production, oil refining, petrochemical operation, and sales of oil products. 17 enterprises were newly recognized as green enterprises and we currently have 23 green enterprises in total.

ENVIRONMENTAL PROTECTION

The natural environment is fundamental to human survival and development. Only through respecting, accommodating, protecting, and co-existing harmoniously with nature, can we achieve sustainable development. We optimize our ecological and environmental protection management mechanism. We remain committed to the sustainable use of natural resources, conduct extensive pollution treatment and prevention, protect biological diversity and natural habitats, and actively build a green enterprise as we strive to achieve harmonious co-existence between energy and the environment.

The UN Sustainable Development Goals





ENVIRONMENTAL RISK MANAGEMENT

Our Company actively responds to the United Nations' 2030 Agenda for Sustainable Development, and widely recognized international environmental protection conventions. We strictly comply with relevant laws and regulations such as the Environmental Protection Law of the People's Republic of China ("Environmental Protection Law") and comply with national and industrial environmental protection standards. Learning from industry-leading environmental practices and experiences, we have formulated and implemented our company's Environmental Protection Management Regulations and optimized our environmental risk management mechanism.

We incorporate environmental protection into the performance assessment of our Company's management and the senior management of our branches (subsidiaries). We have established a system of accountability for environmental protection and lifetime accountability for ecological protection. We also have established an environmental protection incentive mechanism to recognize units and individuals who achieve outstanding results in environmental protection.

HSE Management System Accreditation

116

Number of subsidiaries certified by HSE Management System (Q/SY08002.1)

105

Number of subsidiaries certified by Environmental Management System (ISO14001)

107

Number of subsidiaries certified by Occupational Health and Safety Management System (ISO45001)

In 2022, neither the Company nor any of our branches (subsidiaries) were on the list of heavily polluting enterprises released by the Ministry of Ecology and Environment.

Improvement of HSE Management

Our Company pursues the goal of "zero accident, zero pollution, zero harm" and always regards HSE as prerequisites for business development. We implement a uniform HSE management system across our global operations and have established a globally integrated HSE working platform and risk control platform. We adhere to our green development concept of "integration and coordination between development activities and environmental protection, giving priority to environmental protection", and continuously strengthen supervision and safety training in order to enhance our HSE management performance.

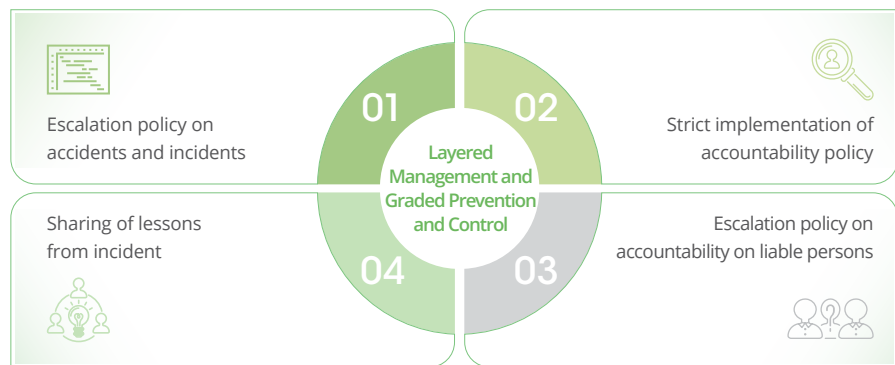
Our Company attaches great importance to the establishment of a HSE management system. We lead China's petroleum industry in publishing and implementing an HSE management system standard specific to China's petroleum industry (Q/SY08002.1), which fully covers all the requirements of the Environmental Management System (ISO14001) and Occupational Health and Safety Management System (ISO45001) in all technical aspects. All subsidiaries of our company have implemented the HSE management system based on Q/SY08002.1.

Based on the principle of "integration, specialization, differentiation", our Company conducts annual audits under the QHSE management system on subsidiaries. In 2022, our Company fully completed comprehensive audits through methods such as "online supervision plus offline verification", "enterprise cross-audit" and "internal audit and guidance plus special audit". We made effective use of the audit results to strengthen closed-loop rectification of issues and promote continuous, steady improvement of our Company's safety and environmental protection performance.

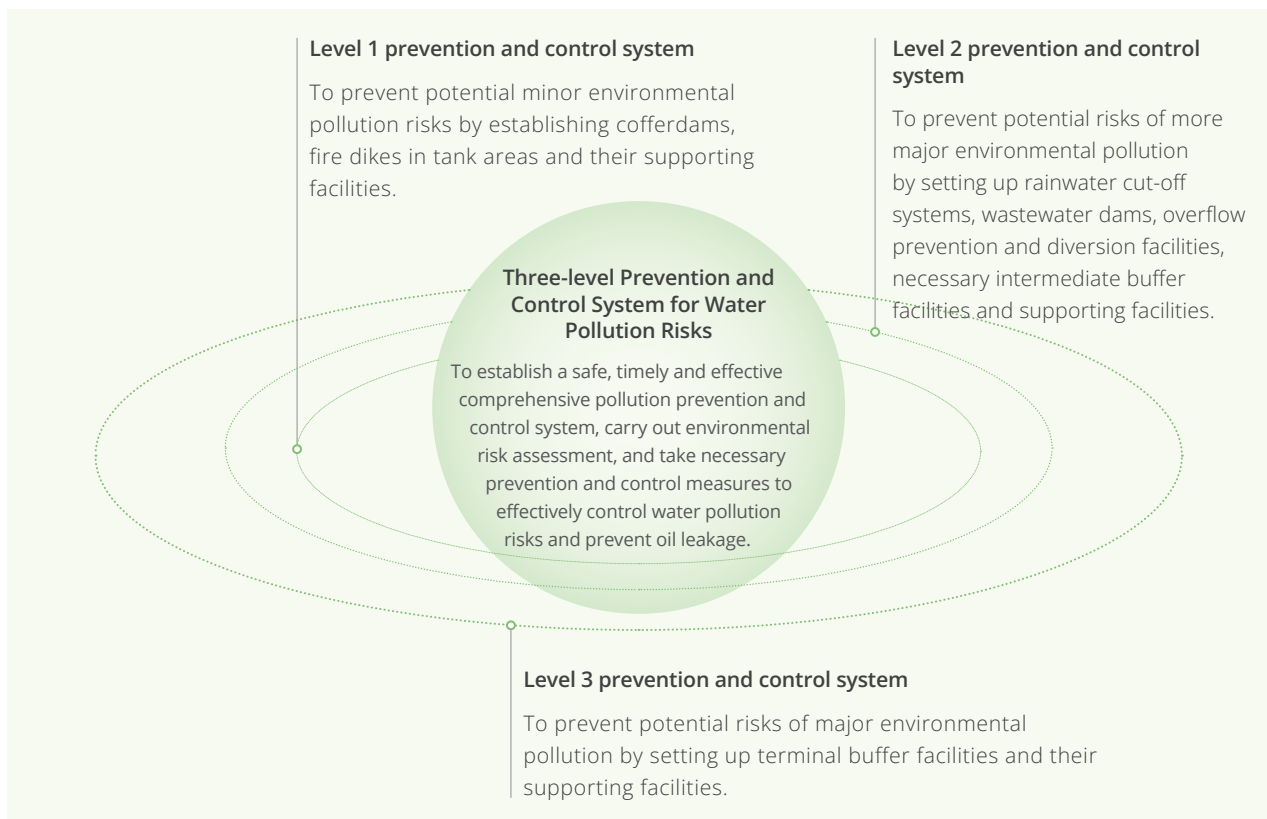
Environmental Risk Prevention

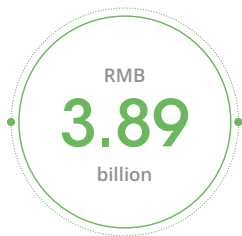
Our Company incorporates environmental risks into our internal control and risk management system. We conduct in-depth ecological and environmental risk identification, review and assessment and continue to improve our "three-grade

prevention and control” system while strengthening ecological and environment risk control measures. We have formulated and revised the Special Emergency Response Plan for Environmental Emergencies, specifying respective responsibilities across all departments and levels of headquarters, and improved the operability of the plan. All our enterprises regularly carry out emergency response drills for handling environmental emergencies. We classify and manage potential hazards and formulate respective rectification measures in accordance with our Standards for Reviewing and Addressing Potential Ecological and Environmental Hazards, thereby continuously optimizing our system for reviewing and addressing potential ecological and environmental hazards.



Three-level Prevention and Control System for Water Pollution Risks





Environmental protection expenditure



Environmental Risk Management of Focus Areas in 2022

| | |
|---|--|
| <p>Monitoring of discharge at major pollution sources</p> <ul style="list-style-type: none"> Publication and implementation of the 2022 Online Monitoring Equipment Installation and IoT Plan for Discharge at Major Pollution Sources, full implementation of IoT monitoring of national major pollution sources, strict monitoring of up-to-standard discharge of enterprise pollutants, implementation of dynamic analysis and early warning of over-limit and abnormal discharge Commencement of on-site inspection of automatic enterprise pollution source-monitoring facilities | <p>Protection of the ecological environments in key watersheds</p> <ul style="list-style-type: none"> Protection of the ecological environment of key watersheds of the Yangtze River and the Yellow River, commencement of a three-year action plan in connection with the Work Plan for Strengthening the Protection of the Ecological Environment in the Yellow River Basin, publication of the Notice on Further Implementing the Plan for Protection of the Ecological Environment in the Yellow River Basin and the Yangtze River Economic Belt, enhanced implementation of major projects, strict prevention of environmental risks at key watersheds |
|---|--|

SUSTAINABLE UTILIZATION OF NATURAL RESOURCES

We greatly value the protection and rational use of resources. By formulating and implementing the Measures of PetroChina Company Limited for Energy and Water Conservation ("Company's Measures for Energy and Water Conservation"), the Measures of PetroChina Company Limited for Land Management ("Company's Measures for Land Management") and other management systems, we have strengthened our protection of water resources, conserved fresh water resources, and rationally utilized land resources. We have improved the utilization efficiency of energies to minimize resource consumption and utilize our resources in a sustainable manner.

Water Management

Our Company strictly complies with applicable laws and regulations related to water resources protection and water pollution prevention and control, such as the Environmental Protection Law, the Water Law of the People's Republic of China, and the Law of the People's Republic of China on the Prevention and Control of Water Pollution ("Prevention and Control of Water Pollution"), and implements the National Water Conservation Action Plan. We attach equal importance to the prevention and control of water pollution and the recycling and reuse of water resources, and are committed to protecting the ecological environment of water sources. We strive to "increase the water resources utilization efficiency and realize the sustainable use of water resources" in all aspects of our production and business operation.

We have incorporated water-saving indicators into our performance evaluation framework and implemented two systems to enhance our water consumption management - a target responsibility system and an assessment and evaluation system that keep track of our energy and water conservation goals. We have reduced our freshwater consumption by applying advanced water-saving and wastewater-recycling technologies and by actively developing and utilizing unconventional water resources such as seawater, reclaimed water, and rainwater. In 2022, the total annual freshwater consumption of our Company was 746.88 million cubic meters, representing a decrease of 0.42% and 8.71 million cubic meters of water saved.


Water Saving

8.71 million cubic meters
Amount of water saved
Exceeding our objective for 2022 (6.80 million cubic meters)

746.88 million cubic meters
Fresh water consumption

0.42%
Year-on-year decrease in fresh water consumption

0.481 cubic meters
Water withdrawn for processing 1 ton of crude oil
Exceeding our objective for 2022 (0.485 cubic meters)

Our Objective 

In 2023

| | |
|---|--|
| Amount of water saved will be more than | Water withdrawn for processing 1 ton of crude oil will be lower than |
| 6.30 million cubic meters | 0.480 cubic meters |

Whole-Industry-Chain Water Resources Management



Oil, gas and new energy

- Effectively reducing fresh water consumption by increasing wastewater recycling rates and reducing evaporating and other measures
- Pushing for a wider adoption of water-saving technologies and the extensive use of advanced water-saving materials, technologies and equipment, as well as analyzing our rational use of water to improve water utilization efficiency
- Proactively developing and utilizing unconventional water resources such as seawater, reclaimed water and rainwater
- Maintaining and renovating our water systems to improve our water compliance
- Optimizing our operation plans, and upgrading our wastewater discharge and treatment system to reduce the discharge amount of produced water
- Separating oil from water and filtering recycled wastewater for oil recovery and water reinjection, to avoid polluting groundwater and surface water



Refining, chemicals and new materials

- Applying clean production techniques, and optimizing our water consumption system to improve water efficiency
- Testing the leakage rate of our water pipe network, and improving our groundwater pipe network through rigorous leak detection and sophisticated leak-plugging solutions, to reduce groundwater leakage
- Adopting advanced recycled water treatment technologies, and increasing the concentration rate of recycled water, to reduce water replenishment
- Paying full attention to wastewater treatment and reuse, improving wastewater reuse technologies, reducing wastewater discharge, and increasing the reuse rate of industrial water. In 2022, the reuse rate of wastewater at our Company's refining and chemical enterprises increased by 1.4 percentage points year-on-year



Marketing

- Preventing leaks in the underground storage tanks at our service stations by installing a 24/7 leak detection system to ensure soil health and groundwater safety



Natural gas marketing

- Implementing water quota management, and annually issue the urban gas and auxiliary production system with total water consumption index and the LNG factory and LNG receiving terminal production water index to ensure that the total water consumption is controlled
- Implementing transformation of water supply pipeline of LNG plants to reduce leakage losses, and carry out transformation of purification and reuse of production and domestic wastewater to reduce discharge of wastewater
- Optimizing the cooling water flow of seawater pump to achieve annual water saving of 25,000 tons
- Rationally controlling the cooling water temperature of compressor in CNG master station to reduce evaporation of circulating water
- Reasonably arranging the inspection plan and operation procedures for liquefied gas tanks, recycle the replacement water and reducing the water consumption for replacement in tanks

Energy Efficiency Management

Our investment in upgrading energy and water saving technologies throughout the year.

RMB **757** million

We are committed to the principles of “conservation first” and that “energy conservation means an increase in production and saving means an improvement in efficiency”. Our Company has taken major steps forward in conserving energy and reducing consumption to constantly increase our energy efficiency. We actively respond to the national Industrial Energy Efficiency Improvement Action Plan, signing the Letter of Commitment to Energy Saving and Carbon Reduction for Key Industries and Enterprises,

Energy Efficiency Management

0.71 million tons of standard coal

Energy saved

Exceeding our objective for 2022 (0.56 million tons of standard coal)

62.45 million tons of standard coal

Total energy consumption

109 kilograms of standard coal/ton

Comprehensive energy consumption of production per unit of oil and gas equivalent

Exceeding our objective for 2022 (115 kilograms of standard coal/ton)

formulating the Company's Measures for Energy and Water Conservation and other management systems, reviewing energy saving plans of investment projects involving fixed assets, and implementing a dual control system in the assessment framework to evaluate our total energy consumption and intensity in order to constantly improve our energy consumption management. We have also accelerated the restructuring of our energy mix and continued to increase our energy efficiency by implementing measures such as adopting energy management and control practices, reforming energy-saving technologies, optimizing our energy system, and striving to reduce energy consumption. In 2022, the Company formulated an action plan to save energy and reduce carbon emissions, shared our experience in energy-saving technologies with other companies, stepped up our efforts in managing and controlling energy sources, upgrading and reforming refined oil and ethylene products and other key areas, and saved 0.71 million tons of standard coal of energy during the year.

Our Objective

In 2023

Amount of energy saved will be more than

0.56 million tons of standard coal

Comprehensive energy consumption of production per unit of oil and gas equivalent will be under

110 kilograms of standard coal/ton

Progress of Energy Efficiency Management Work in 2022

Action plan

- Researched and prepared a Company action plan to save energy and reduce emissions, which clarifies the development ideas, main objectives, key projects and safety measures for 2025 and 2030

Control of energy sources

- Revised the Management Measures for Energy-saving Reviews of Investment Projects Involving Fixed Assets to ensure that the energy-saving reviews of our projects are compliant with the law, and that the energy efficiency of our projects can outperform most industry peers

Benchmarking energy efficiency

- Benchmarked our energy efficiency performance in key areas against standards prescribed by the NDRC for high energy-consuming industries, and increased the energy efficiency of refined oil and ethylene to meet standards

Inspection and evaluation of energy consuming equipment

- Tested and evaluated the energy performance of more than 17,000 sets of energy-consuming equipment such as oil pumping units, heating furnaces and pump units

Reformation of energy and water-saving technologies

- Invested RMB 757 million into the upgrading of energy and water-saving technologies throughout the year

Exchanges and promotion of energy-saving technologies

- Organized an energy-saving technology exchange meeting for our Company
- Jointly organized the "2022 Exchange Meeting on Energy-saving and Carbon Reduction Technologies for the Petrochemical Industry"



Continuous Participation in the Energy and Water Efficiency Pacesetter Awards

In 2022, our refining companies actively entered into the nationwide Energy and Water Efficiency Pacesetter Awards organized by the China Petroleum and Chemical Industry Federation for the Chinese petroleum and chemical industry. Dushanzi Petrochemical, a subsidiary of the Company, was recognized as a Pacesetter in energy and water efficiency in the ethylene industry, while Urumqi Petrochemical was recognized as a Pacesetter in energy efficiency in the synthetic ammonia industry.

Our Company has fully implemented non-polluting and clean drilling technology in 100% of our oil and gas exploration and production procedures, allowing us to effectively protect land resources.

Land Resource Management

The Company attaches great importance to land resource protection, and endeavors to foster harmony and unity among the use of oil and gas resources, land resources, and environmental resources. Strictly abiding by the Law of the People’s Republic of China on the Prevention and Control of Soil Pollution, Soil Environment Quality Risk Control Standard for Soil Contamination of Development Land, and other national laws and regulations, as well as industry-specific pollutant discharge standards, we have formulated the Company’s Measures for Land Management for the purpose of implementing the most stringent arable land protection system and land conservation system in China. Such measures have been put into effect at all stages of production and operation to ensure the sustainable use of land resources.

We have strengthened our land management system, clarified the requirements for the sustainable use of land resources in terms of planning, development control, revitalization of existing land resources, structure optimization, land restoration, and land withdrawal. We strive to guarantee the healthy and sustainable development of land used in our operations from the prospective of policy and implementation, with an aim to consume less land and to optimize our land structure.

Progress of Sustainable Use of Land Resources in 2022



Using land in an economical and intensive manner

- Applied technologies to construct cluster wells, horizontal wells, integrated stations, and multi-layer oil fields, optimized our engineering designs, and used our newly-acquired land in an economical manner
- Made good use of land with low land use efficiency to build new energy projects, drilled new wells in abandoned well sites to revitalize existing land

Returning unused or inefficient construction land

- Returned unused or scarcely-used land to the local government



Restoring land

- Carried out land restoration ourselves and commissioned third parties to restore land to strictly fulfill our obligation of restoring temporary land

POLLUTANT DISCHARGE MANAGEMENT



Online Monitoring of Key Sources of Pollutants

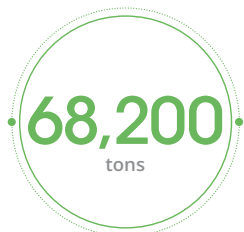
The Company issued the "2022 Online Monitoring Equipment Installation and Networking Plan at Key Sources of Pollutants" to strictly monitor the pollutant discharge compliance of enterprises, and analyze and issue warnings for those with excessive and abnormal emissions. An onsite inspection of the automatic monitoring equipment of the enterprises' pollutant sources was also carried out. As of the end of 2022, 717 pollutant sources were monitored by PetroChina's network, and key sources of pollutants were monitored through comprehensive monitoring network. The scope of the automatic monitoring of pollutant sources covered major production equipment and pollutant sources of PetroChina.



Nitrogen oxides (NO_x) emissions



Sulfur dioxide (SO₂) emissions



Volatile organic compounds (VOCs) emissions (from refining operations)

Note: Flaring emissions is included in the flue gas emission data

Our Company strictly abides by the Environmental Protection Law, the Law on the Prevention and Control of Water Pollution, the Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution, the Law of the People's Republic of China on Prevention and Control of Environmental Pollution by Solid Waste ("Prevention and Control of Environmental Pollution by Solid Waste"), the Law of the People's Republic of China on Prevention and Control of Environmental Noise Pollution, the Regulation on the Administration of Permitting of Pollutant Discharges and other relevant laws and regulations. We have also implemented pollutant discharge standards such as the Integrated Wastewater Discharge Standard, the Air Pollutants Discharge Standard, the Pollutant Discharge Standards for Petroleum Refining Industry, the Pollutant Discharge Standards for Petrochemical Industry, the Air Pollutants Discharge Standard for Onshore Oil and Natural Gas Exploitation Industry, the Soil Environment Quality-Risk Control Standard for Soil Contamination of Development Land, etc., implemented in-depth measures to win the strategic fight of pollution prevention and control, issued PetroChina's Measures for Pollutant Discharge Permitting Administration and other institutional documents, systematically carried out key tasks on pollution prevention and control, standardized the implementation of pollutant discharge management procedures for enterprises, improved the quality and performance of pollutant prevention and control and treatment, and continued its combat against pollution to keep our skies blue, waters clear, and lands clean.



Key Measures Adopted to Manage Pollutant Discharge

- Through strict management and control, we have ensured that our pollutant discharge meets relevant standards, implemented relevant measures to prevent pollution at the production source and strengthened the management for the operation of existing pollution treatment devices
- Upgraded and renovated our pollution treatment facilities and ensured that wastewater, waste gas and other pollutants are discharged steadily and compliant with relevant standards
- Put in place stronger pollution warnings, and achieved real-time monitoring of wastewater and waste gas emissions through the online pollution monitoring system
- Incorporated our major pollutant discharge targets into the annual performance agreements of key management staff, and strictly assessed their performance

Air Pollutant Control

Our Company constantly strengthens the control of conventional air pollutants and characteristic air pollutants. We formulated the Ozone Pollution Prevention and Control Action Plan (2022-2025), deployed, and implemented key missions to prevent and control the emissions of volatile organic compounds (VOCs), nitrogen oxides (NO_x) and other ozone precursors to further improve the air pollution control performance of the Company. We have also comprehensively conducted upgrading and remedial work on oil and gas fields, refining operations, sales of oil storage tanks and other key areas of air pollution such that new standards can be met. Moreover, we have continuously stepped up our efforts in the online monitoring of air pollution sources and standard compliance management and adopted emergency response measures for heavily polluted days in key locations and time periods to strictly control emissions and comply with standards.

Solid Waste Disposal

2.485 million tons
General solid waste

100 %
Compliance rate of general solid waste disposal

0.943 million tons
Hazardous waste

100 %
Compliance rate of hazardous waste disposal

Note: The above data reflects the amount of solid waste disposed by third-party institutions with relevant qualifications commissioned by the Company

Solid Waste Disposal

Our Company attaches great importance to the pollution control of solid waste, especially hazardous waste. We strictly comply with the Law on the Prevention and Control of Environmental Pollution by Solid Waste, and have adopted a computerized dynamic management and control system on the entire solid waste management process from waste generation, collection, storage, transportation, transmission, utilization to its disposal. In 2022, we carried out hazardous waste inspection as well as operation and maintenance management of disposal equipment to further strengthen our control over hazardous waste.

• Our Objective •

Solid waste disposal compliance rate **100 %**



Disposal of Solid Waste in Compliance with Laws and Regulations

Key measures:

- Our Company uses clean production technology and has greatly reduced the generation of solid waste, especially hazardous waste, by reducing the use of oil-based mud through layered drilling, applying technologies to dispose of drilling mud while drilling and degreasing down-holes, and carrying out above-ground “box-like” well repair operations and other clean production measures
- Our Company has built more facilities to comprehensively utilize and dispose of oil-bearing waste and other solid waste, and engaged third-party institutions to dispose of and utilize solid waste in accordance with relevant standards, to ensure the compliance of the whole process of solid waste disposal and utilization with laws and regulations
- Our Company has established a unified whole-process management and control platform for solid waste, thereby enabling the precise whole-process management and monitoring of general industrial solid waste and hazardous waste

Wastewater Discharge Management and Recycling Utilization

We strengthened the standardized construction and management of wastewater outlets, adopted a graded approach for the management and control of wastewater discharge, implemented wastewater pretreatment and in-depth treatment measures, enhanced our wastewater disposal techniques, maintained stable and efficient operation of our wastewater treatment facilities, and ensured that our pollutant emission was stable and compliant with requirements in general. We also carried out a comprehensive inspection of wastewater outlets, analyzed the emission reduction potential of enterprises that were the relevant larger wastewater polluters, increased wastewater recycling rates, optimized the operation and daily management of wastewater treatment facilities, and ensured the attainment of wastewater prevention and control objectives.



Amount of chemical oxygen demand (COD) emission

CONSERVATION OF BIODIVERSITY

We have actively fulfilled our obligation of restoring land by restoring the ecological system of temporary land used in our production and operation. In 2022, the Company restored

9,213

hectares of temporary land

We actively respond to global initiatives and international conventions such as the 2030 Agenda for Sustainable Development and the Convention on Biological Diversity issued by the United Nations, and the Opinions on Further Strengthening Biodiversity Protection issued by the Chinese government, and have firmly established a concept of ecological civilization that respects nature, conforms to nature, and protects nature. We have integrated the concept of biodiversity conservation into the entire process of our business operations and actively participated in global biodiversity conservation. The Company protects wetlands, rainforests, oceans and other natural ecological environments and endangered wild animals and plants, with an aim to increase the diversity, stability, and sustainability of ecosystems, and help achieve the goal of “protecting, restoring and sustainably utilizing ecosystems and curbing biodiversity loss”.

Our Commitments

We shall strictly abide by the relevant laws and regulations of China and other countries where our operations are located, and not conduct business in environmentally sensitive areas and natural ecological protection zones prohibited by law

Whole-industry-chain Ecological Environment Management

Our Company is committed to reducing and eliminating the potential impacts caused by our production and operation to the ecological environment and biodiversity, insists on managing and controlling pollution at the source, and implements a whole-industry-chain and whole-life-cycle ecological environment management system.

During the project design and planning stages

We create a strict access list for projects in accordance with the laws and regulations, conduct environmental impact assessments, and propose targeted measures related to ecological environment protection to require facilities and access routes to bypass natural, vulnerable, and important wildlife habitats.

During the project construction stage

We carry out ecological restoration in areas where ground vegetation has been destroyed. During the restoration process, we prioritize the use of topsoil and species native to the area over invasive species to prevent ecological harm and to create plant communities that are compatible with its surrounding ecological environment, ultimately forming self-sustainable ecosystems.

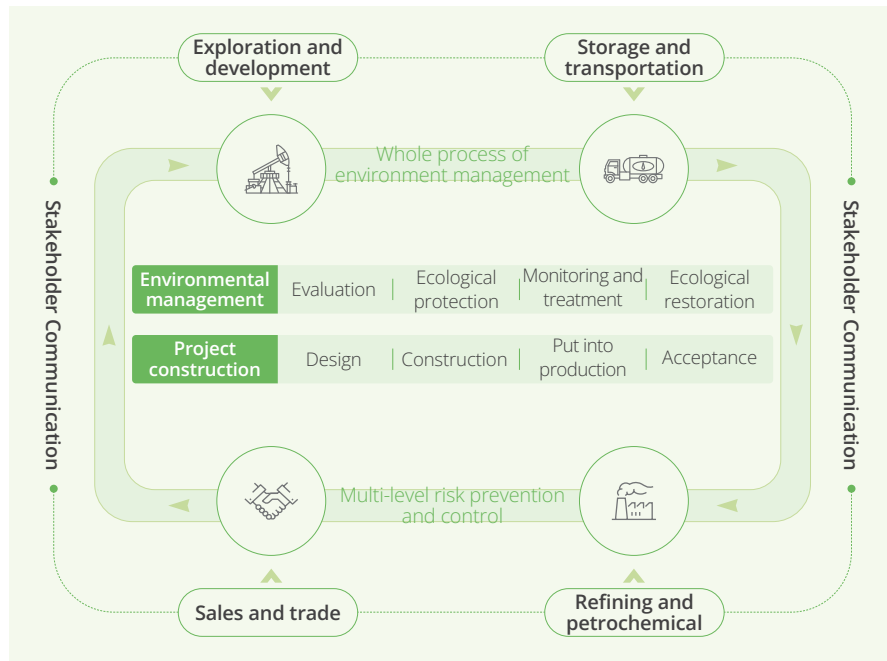
During the project operation stage

We adopt a wide range of environmental technologies, implement a multi-level risk prevention and control system, and take various measures to limit our disturbance to natural ecology in order to minimize our impact on biodiversity.

When a project is completed

We carry out greening, ecological restoration and improvement work based on local ecological characteristics to gradually restore impacted areas; we also carry out biodiversity offsetting activities in receptor sites.

Whole-process Eco-environmental Management of Whole Industry Chain



Biodiversity Protection

We have incorporated biodiversity protection into our Company's management system. Adhering to our principle of promoting the integrated protection and systematic management of mountains, rivers, forests, farmlands, lakes, grasslands, and deserts, we have adopted natural restoration measures or environmental-friendly restoration processes, carried out environmental protection activities in key watersheds such as the Yangtze River and Yellow River areas, created biosphere reserves and environmentally-friendly mines, and implemented a variety of biodiversity protection measures. Relying on nature-based solutions (NbS(s)), we have explored the development potential and direction of charitable tree planting, carbon sequestration forest building, ecosystem restoration and biodiversity conservation, as well as the establishment of biomass energy operations and ecological corridors. Aside from encouraging employees to actively participate in biodiversity conservation activities, we have also actively mobilized communities, the public, business partners and other stakeholders in our operation locations to collaborate with each other in contributing to biodiversity protection.



Key Measures and Actions Adopted to Protect Biodiversity

| Measures | Major actions |
|---|---|
| <p>Incorporating biodiversity into our Company's management system</p> | <ul style="list-style-type: none"> ➤ Formulated and issued the Ecological Protection Action Plan, the 14th Five-Year Plan for Green Development, the Ecological Ban and other regulations and management systems ➤ Continuously improved our biodiversity protection system and incorporated biodiversity risk assessments into the whole-life-cycle management of our projects |
| <p>Carrying out a variety of biodiversity protection practices</p> | <ul style="list-style-type: none"> ➤ Implemented enhanced environmental protection measures for key watersheds such as the Yangtze River and Yellow River areas, carried out the three-year Action Plan for Enhancing Ecological Environment Protection in the Yellow River Watershed, and issued the Notice on the Requirements for the Further Implementation of the Action Plan for Ecological Environment Protection in the Yellow River Watershed and the Yangtze River Economic Belt ➤ Exploring nature-based solutions (NbS(s)), we strived to create 10 voluntarily- contributing biosphere reserves (represented mainly by the Guowu Lake at Daqing Oil Field) based on the same standards as the Other Effective Area-based Conservation Measures (OECMs). Pilot projects were carried out at five oil field companies in Daqing, Changqing, Huabei, Tarim, and Xinjiang. (For more information, please refer to the Case Study titled "A Nature-based Solution (NbS): The Active Creation of a Voluntarily-contributing Biosphere Reserve at Daqing Oil Field in the Guowu Lake Area") ➤ Carried out environmentally friendly mine construction activities, with a total of 72 oil and gas field enterprises or business units entering the 2022 List of Environmentally Friendly Mines in the past three years ➤ Protected, restored and promoted the sustainable use of land, took our greatest care to reduce arable land occupation, protected water and soil resources, restored vegetation, and strived to restore the ecological environment of areas where our operations are located ➤ Actively conducted environmental impact assessments of our construction projects, conducted research on wild animals and plants species and the ecological environment, prioritized the adoption of avoidance measures to prevent damage on biodiversity at the source, including making adjustments to our site and route selection or optimizing project plans to avoid ecologically sensitive areas, and coordinating construction works to avoid sensitive times, such as breeding, wintering, and migration seasons and to avoid disturbing other critical activities of vulnerable species ➤ Widely organized tree planting activities to create unevenly-aged and multi-layered close-to-nature forests; responding to the "Trillion Tree Campaign", we participated in the "Plant a Million Trees in Ten Thousand Well Sites" activity ➤ Protected valuable and old trees and wildlife habitats |
| <p>Promoting the concept of biodiversity protection</p> | <ul style="list-style-type: none"> ➤ Encouraged staff to participate in educational events such as "World Wildlife Day" and "World Environment Day" to enhance their awareness towards biodiversity conservation ➤ Organized an activity for collecting excellent cases of biodiversity conservation to promote and share knowledge on biodiversity conservation ➤ Attended the side event on "Nature-based Solutions for Synergistic Governance of Climate and Biodiversity" at the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27), where we introduced to the audience PetroChina's innovative practices to promote synergistic governance of climate change response and biodiversity conservation |

A Nature-based Solution (NbS): The Active Creation of a Voluntarily Contributing Biosphere Reserve at Daqing Oil Field in the Guowu Lake Area

Since 2008, we have carried out ecological restoration and biodiversity monitoring and protection work at Daqing oil field in the Guowu Lake area. After 15 years of restoration, its green area has now reached 560,000 square meters and the area of water bodies has reached 1.02 million square meters. The land is now home to 250,000 square meters of grass and flowers, 100,000 square meters of aquatic plants, more than 1 million trees and shrubs, 99 species of wild plants, more than 60 species of wild animals, including National Class II Protected Animals such as *Podiceps cristatus*, *fulica atra*, and *anas platyrhynchos*.

In 2022, our Company included Guowu Lake in the list of self-contributing biodiversity conservation sites, and following our innovative concept of “breeding trees at high levels, storing water at low levels, and allowing self-seeding grass and reeds to grow in transitional areas”, we have monitored the progress of our plant cultivation activities and the resulting plant diversity, and created a biologically-diverse and stable ecological system in the area.



An Oasis for Wild Animals and Plants in the Gobi Desert

The Tarim Oil Field is located in the desert area in Western China. Making a synchronized and coordinated effort towards gas development and environmental protection, our Company has actively improved the ecological environment in the desert hinterlands and turned a part of the Gobi Desert near our operation area into an oasis for wild animals and plants.

In the Tazhong operation area, our Company and the Xinjiang Institute of Ecology and Geography (XIEG) of the Chinese Academy of Sciences have carried out in-depth cooperation to build a stable and diverse ecological chain. By constructing a “trinity” of green landscapes consisting of a botanical garden, a demonstration garden, and green spaces near residential apartments, and selecting desert plants from all over the country for cultivation and planting, our Company has built a botanical garden with more than 260 desert plants. We have constructed a green space spanning 45.38 square kilometers in our operation field and have been acknowledged as one of the “Top 400 Enterprises with Excellent Forestation and Greenery” by the National Greening Commission. The botanical garden in the desert in Tazhong has also become a paradise for wildlife, with over 100 types of birds having migrated to the area. Wild animals such as Bactrian camels, hares, and gerbils are also regular visitors to the oasis.

Our Company has tirelessly carried out tree planting activities in the operation area of the Kela-2 gas field, and has now built a 156-mu green belt. With an improved ecological network, the area is now inhabited by Mongolian gazelles, hares, foxes, and other wild birds. Our staff have become increasingly aware of the need for biodiversity conservation and have taken the initiative to rescue wildlife. In April 2021, a common kestrel (a Class II Protected Species in China) with a broken wing was rescued by our Company's employees. At the same time, our Company also set up signs around the habitat of Mongolian gazelles and near water sources to promote wildlife conservation to nearby nomadic groups. Security guards were also assigned to patrol the area.



EMPLOYEE RIGHTS AND INTERESTS AND DEVELOPMENT

Employees are our most valuable assets. Promoting the all-round development of employees is one of our primary objectives. We protect employees' human rights, place great emphasis on their physical, mental health and safety, and provide a platform for their career development. We continue to promote localization of employees, endeavor to create an inclusive, equal, mutually trusting, and collaborative working environment, and align employee values with our own.

The UN Sustainable Development Goals





EMPLOYEE HUMAN RIGHTS

In 2022, our Company recorded zero cases of employment violations that had a significant impact on our business.



Percentage of employees who took maternity/paternity leave returned to work and kept their posts

398,400

Total number of staff

7.17%

Percentage of female administrative staff

6.70%

Percentage of employees of ethnic minority

0.14%

Employee turnover rate

Note: Excluding staff employed through labor dispatching, for seasonal employment, temporary work and third-party staff.

We remain committed to a people-first philosophy in treating our employees with respect and equality while protecting their legal rights. We endeavor to resolve the most practical issues that our employees are most concerned about and ensure that all employees share the fruits of our development on an equal basis.

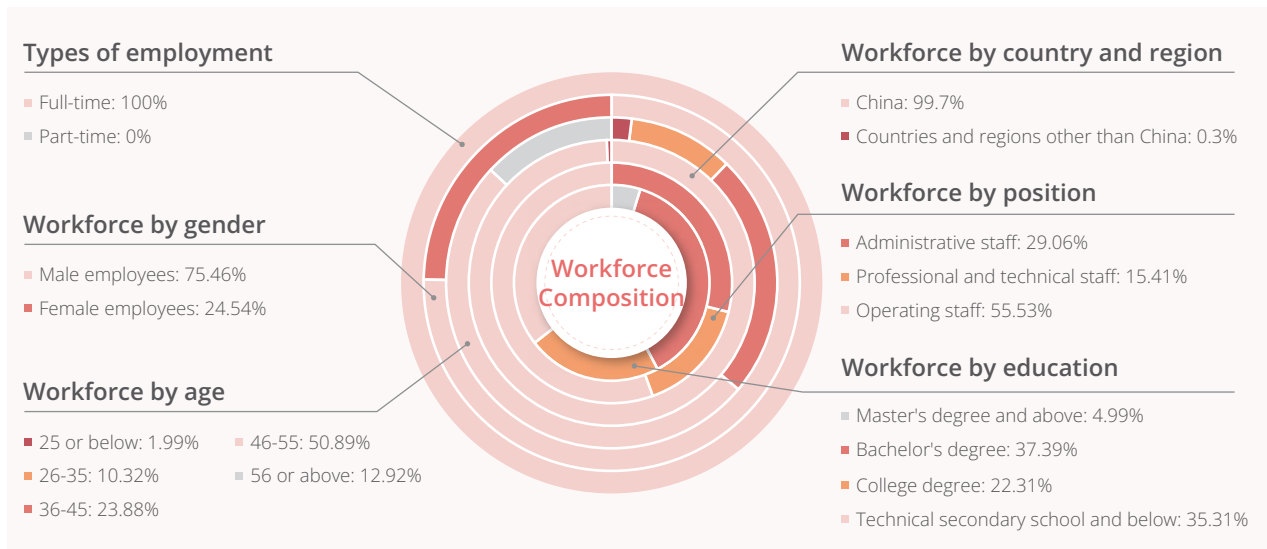
Fair Treatment of Employees by Law

We conscientiously abide by international conventions, including the International Covenant on Economic, Social and Cultural Rights and the Elimination of Discrimination in Respect of Employment and Occupation, along with domestic laws including the Labor Law of the People's Republic of China and the Labor Contract Law of the People's Republic of China, and relevant laws, rules and regulations of the host countries. We have formulated and implemented regulations such as the Measures for the Management of Employment Contracts and the Measures for the Management of Overseas Employment and established a complete employment management system to regulate employment practices according to the law. The system incorporates employment contract management, remuneration insurance and benefits, leave, performance appraisal and vocational training.

We strictly comply with the applicable laws and regulations on the dismissal and working hours of employees. Tailoring to the actual circumstances of each subordinate of our Company, we have formulated management regulations and detailed implementing rules that are applicable to all employees and business courses of our Company. Through self-inspection of our employment practices in compliance with the law, we regulate the process of recruitment, promotion, and the termination of employee contracts, safeguarding the human rights of our employees.

We provide equal opportunities and fair treatment to all employees regardless of their nationality, ethnicity, race, gender, religion, and culture. We attach great importance to the employment of local residents, women, ethnic minorities and college students in order to increase job opportunities for local communities. In graduate recruitment, we seek to favor graduates from poverty-stricken areas in Western China, households newly lifted out of poverty, households on subsistence allowance, zero-employment households, and those with disabilities but nevertheless can meet our job requirements. We strictly implement regulations on maternity leave entitlements and breastfeeding breaks to protect the rights and interests of our female employees.

We strictly abide by the Forced Labor Convention 1930, the Abolition of Forced Labour Convention 1957, the Minimum Age Convention, and the Worst Forms of Child Labor Convention promulgated by the International Labor Organization, and the Law on the Protection of Minors and the Provisions on the Prohibition of Child Labor promulgated by the State and similar legal requirements of countries and regions where we operate our overseas businesses. We prohibit the employment of child labor and reject all forms of forced or compulsory labor. Our Company has established an employment examination and supervision mechanism under which the recruitment of new employees, the daily management of human resources, supplier/contractor access and other processes are verified to prevent and control related risks. Our Company has never used any child labor or forced labor.



Improving Remuneration and Benefits System

The remuneration system of our Company is closely centered on work arrangements for quality improvement, profitability improvement, and strengthening the enterprise through talents. We constantly improve our market-oriented remuneration and distribution mechanism and benefits system. We ensure that our pay raises align with the labor market and are linked to the economic efficiency and labor productivity of our enterprises. We have established a wage determination mechanism that takes into consideration and operates based on wage efficiency, efficiency benchmarking and salary reviews, and perfected our core talent recruitment policy and other supportive policies to enhance innovation and talent protection. We have also optimized our remuneration structure, improved our internal distribution system, and continued to give further priority of distribution to grassroots frontline personnel, key positions of challenges, and professional and technical personnel. We have provided specific incentives to key employee groups, and continuously increased incentives for high-end operation and management personnel, core technology R&D personnel, and high-skilled leaders. We actively fulfill the relevant requirements of the Social Insurance Law of the People's Republic of China, fully pay our employees' various social insurance fees timely, improve enterprise annuities and supplementary medical insurance system, improve the production and life conditions of our frontline staff and protect our employees' interest.



In 2022, we:

- Optimized the market-oriented remuneration and distribution mechanism
- Perfected the differentiated wage determination mechanism that is linked to efficiency
- Increased remuneration incentives for core talents

Employee Communication and Engagement

We fully respect our employee's democratic rights and lawful interests. We attach great importance to employees' role in democratic management, democratic participation, and democratic oversight. Apart from establishing and improving labor unions, we have put in place a democratic style of management and a transparent system to deal with matters at our plants, through the Employees' Congress system, to protect employees' rights to information, participation, expression, and supervision. We have further standardized the content, procedures, and model of our open system for matters at our plants by clarifying the duties and authorities, organizational system, and working processes for the Employees' Congress.

Our Company has established multiple channels to communicate with employees and continued to implement democratic procedures. We communicate across different levels of our Company and conduct multi-level communication through meetings with staff representatives and online discussions, to encourage employees to participate in the management of production and operations.

HEALTH AND SAFETY

Our health and safety management covers all staff, including staff in the entities in our supply chain. We give top priority to employees' health and safety by emphasizing the occupational safety and health management and protection at operational sites, continuously improving working conditions, abiding by the statutory requirements related to working hours and holidays enforced in our business locations and taking care of employees' mental wellbeing.

Occupational Health

Abiding by the Law of the People's Republic of China on Prevention and Control of Occupational Diseases, we have implemented the Outline of the "Healthy China 2030" Initiative in our occupational health management, and formulated the Guidance on Strengthening Employee Health Management, focusing on the prevention and control of occupational hazards as well as the implementation of related measures, such as poison prevention, dust removal and noise reduction, with a view to providing employees with a safe and healthy work environment and guaranteeing employees' physical and mental health.

Occupational Health

107

Number of subsidiaries certified by the Occupational Health and Safety Management System (ISO45001)

100%

Percentage of health records created for employees

100%

Detection rate of occupational health hazards in the workplace

99.15%

Percentage of employees exposed to occupational health hazards receiving health checks

Key Actions Related to Occupational Health in 2022

Response to Healthy China 2030

- Implemented the "Healthy China 2030" Initiative

Occupational health management

- Issued the Guidance on Strengthening Employee Health Management to further refine health management measures such as the setting-up of health equipment and facilities, the creation of a healthy enterprise, physical examinations and health assessments, health interventions and the creation of health records
- Issued a negative list of health issues at special operation positions, which was strictly enforced for 6 types of special operation positions including electrician work, aerial work, the operation of pressure vessels, the driving of vocational automobiles, work at high altitudes, and work involving screens

Occupational health promotion

- Organized the 2022 "Occupational Disease Prevention" publicity campaign
- Hosted a quiz on health to raise employees' awareness on the prevention and control of health risks

Construction of a healthy enterprise

- Prepared implementation rules for the establishment of a healthy enterprise according to different business types and refined the standards for establishing a healthy enterprise
- Organized exchange seminars and work improvement meetings to share practical experiences and typical practices in relation to the establishment of healthy enterprises

Health management of overseas employees

- Revised our Company's Special Emergency Response Plan for Overseas Public Health Emergencies to further optimize the response categories and first aid procedures for overseas public health emergencies
- Standardized the construction of medical offices and first aid stations for overseas projects
- Organized special trainings on the prevention and control of malaria, monkey pox, Ebola, and other infectious diseases, with over 3,500 participants
- Successfully treated 9 overseas employees with serious illnesses by organizing cross-border medical transfers and remote conferences
- Organized a series of 10 online activities titled "Gathering on a Cloud Platform, We Stay Healthy", with over 180,000 attendances



Overseas Mental Health Services

1,624 hours

Service hours of the counselling hotline throughout the year

995

Counselling cases

1,577

Number of assessments and tests on the psychological readiness for overseas employees

Mental Health

We pay close attention to our employees' mental health and have incorporated mental health into the overall planning of our establishment as a healthy enterprise. A hotline and a website have been set up for psychological counseling, and various mental health training programs have been carried out, to help employees develop a positive and healthy state of mind.

Key Actions Related to Mental Health in 2022

Mental health service protection system

- Formulated Ten Measures for Establishing a Healthy Enterprise to incorporate mental health measures into the overall planning of our establishment as a healthy enterprise
- Built a comprehensive service system, and constructed a longstanding mechanism to support the mental health of employees
- Formed mental health service teams to establish a cross-regional and cross-unit counselling service mechanism
- Set up a counselling hotline for our Company's employees and their family members
- Continuously improved the service platform of the Employee Assistance Program (EAP)
- Provided counselling and talk therapy services to employees

Spread of mental health

- Organized lectures and special trainings on mental health knowledge
- Popularized and promoted mental health knowledge through our Company's internal platforms and media

Mental health management of overseas employees

- Hosted a series of lectures on family bonding for overseas employees
- Conducted assessments and tests on the psychological readiness of overseas employees

CASE STUDY

"Gathering on a Cloud Platform, We Stay Healthy"

In 2022, our Company organized a series of online activity titled "Gathering on a Cloud Platform, We Stay Healthy" to improve the physical and mental wellbeing of our employees of overseas projects. The series of activity lasted for a month and were held in the form of online seminars, giveaway contests, online experience sharing and other formats.

Major topics covered

- "Caring family": Aimed to strengthen family bonds between employees of overseas projects and their family members, help overseas employees and their spouses improve parent-child communication skills to build stronger family relationships.
- "Health station": Provided answers to basic questions relating to illness and health issues that employees of overseas projects were concerned with, and at the same time performed mental health assessments to safeguard the physical and psychological wellbeing of overseas employees.
- "Harmonious work": Aimed to promote effective communication between employees of overseas projects and managers by sharing experiences on demonstrations of care for employees.

The "Gathering on a Cloud Platform, We Stay Healthy" activity

was held **10** times online in total

with more than **180,000** attendances

Safety and Security

Striving for “zero accidents and zero injuries”, we comprehensively improve our safety management and safeguard the safety and health of our employees and staff members of our suppliers/contractors.

Our Objective

In 2023, the fatality rate will be kept below

0.35

persons/100 million working hours

Strengthen Safety Management

Our Company embraces production safety as our core value. To this end, we implement safety measures in every segment and procedure in our production and operation processes. We actively promote the building of a longstanding production safety system. In 2022, our Company continued to improve the top-level framework of our safety management system that covers the entire process of our production and operation, tracked the updates to relevant laws and regulations, and revised and issued the Regulations on Management Responsibilities in Safety Production and Environmental Protection at Headquarters, the Management Measures for Safety Production Supervision, and the Management Measures for Safety Supervision of Major Hazardous Sources of Dangerous Chemicals. With respect to key risks, we also formulated regulations such as the Safety Management Rules for the Overhaul of Internal Floating Roof Storage Tanks and the Management Measures for Safety Supervision of Laboratories, and coordinated the remedial work for mitigate safety risks, including those related to hazardous chemicals, oil and gas pipelines, town gas, and building safety. The safety production remedial work was completed in three years, with major risks under effective control.

Continued Strengthening of the Safety Management of our Production Process

In 2022, our safety production remedial work has been completed after three years (2020-2022) of implementation.

Centralized rectification of safety risks in key areas

- We identified key risk areas such as the storage locations of oil and natural gas tanks, gas tanks, town gas, oil and gas well control, and stepped up our efforts to rectify such hazards

Establishment of longstanding mechanisms for production safety

- We established and improved several longstanding mechanisms for production safety, such as contracting points for safe production, an “area manager system” for aerial work, and a rating system for evaluating the safety production performance of all employees

Implementation of differentiated safety risk management and control

- Comprehensive assessment of safety risks at enterprises engaging in production and operation work were carried out. For enterprises under different risk categories, we implemented differentiated safety risk control measures such as all-factor quantitative audits at headquarters, audit guidance, project inspections and sample checking

Mitigation of safety risks related to hazardous chemicals

- 77 facilities, including those used for the inspection of large oil and gas storage tanks at our bases, the video surveillance system, the emergency cut-off system, and the lightning warning system, were all well-equipped and put into operation, and existing hazards were mitigated

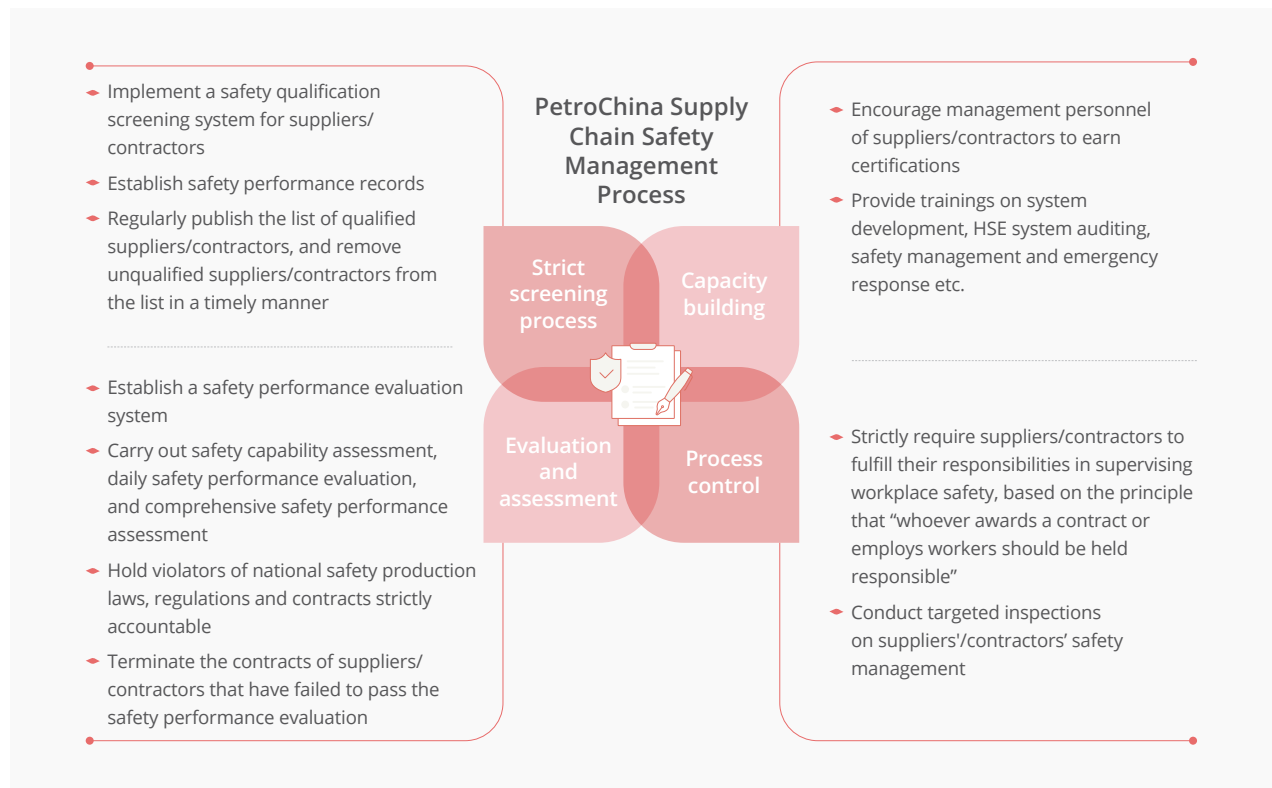
Full-scale production safety inspection

- A total of 131,000 production safety inspections were conducted at all operation levels throughout the year

The Launch of “Safety Eye Platform”

In 2022, our Company made several breakthroughs in the digitalization of safety and environmental protection systems, monitoring automation, smart warning, and other areas. The test run of our self-developed “Safety Eye Platform” has been launched officially to digitalize the product management and safety supervision processes for our oil, gas and new energy businesses through smart technology and solutions.

The platform focuses on the smart identification and active warning of employee misconduct, and aims to strengthen supervision, control risks, reduce costs, and increase quality and efficiency. At present, we have carried out the construction of demonstration projects at the Oil, Gas & New Energies Branch, Changqing Oil Field, Southwest Oil and Gas Field, and Dagang Oil Field. We have completed the onsite deployment and application of smart video analysis of 36 types of scenarios.



Enhancing Security Capability

The safety of our employees has always been the top priority in our operations. We remain committed to a people-first, prevention-oriented, symptoms-and-root-causes-tackling, and safety-safeguarding philosophy to comprehensively enhance our operation safety level, ensure the safety of our employees, and the stable operation of our oil and gas production businesses.

Our Company strictly abides by the relevant laws and regulations and safety standards of China and other countries where our overseas projects are located. We have formulated special emergency plans to address security issues, regularly conduct emergency drills, enhanced employees' security awareness through education and trainings, and established and promoted the regular operation of a joint meeting mechanism for performing security work. In addition, we have actively established a security management system for our domestic businesses, formulated and issued the Design Guidelines for the Security Management System Framework (Domestic Businesses), which sets out our strategic goals, clarifies the main points, workflow and basic requirements for the preparation of system documents, incorporated security risk management and control measures into the production and operation business management and control process and relevant system regulations organically, to constantly enhance our risk prevention, control and management capability. We have also established an overseas security prevention and management system, and constantly enhanced the system by revising the Regulations on the Social Safety Management of International Businesses, and further developed our social security management system to ensure the safety of employees in overseas projects.

Key Actions Related to Social Safety Management of Overseas Projects in 2022

Optimization of the safety management system of overseas communities

- Revised the Regulations on Social Safety Management for International Operations and the Emergency Response Plan for Overseas Social Safety Emergencies, and completed the amendment of the Social Safety Management System Documents (Version 2.0)

Enhancement of the safety risk management system of overseas communities

- Improved the information collection, analysis and warning system for social safety risks
- Promoted the vulnerability assessment of social safety management for key locations and key projects, rectified loopholes and problems, and upgraded security measures
- Established a unified and coordinated mechanism for risk warning and addressing emergencies

Conduction of safety education trainings for overseas employees

- Organized training sessions on social safety management for international operations
- Organized online training sessions on safety risk prevention for employees
- Organized 156 anti-terrorist safety training sessions for expatriate staff throughout the year

Organization of social safety management evaluations for international operations

- Conducted annual performance evaluations on social safety for international operations of overseas project companies



Safety Training Put into Practice in Emergency Scenario

During the Spring Festival, Esker, a PetroChina staff member, came across a drowning child when he was on vacation in Sanya, Hainan. With the assistance of the local security guards, he performed CPR on the drowning child non-stop for 17 minutes and saved the child from the verge of death.

In addition to his own courage and ability to stay calm, Esker's proficiency in first aid knowledge and skills also played an important role in his timely and effective rescue of the drowning child in the moment of crisis. PetroChina has always placed great importance to employees' safety trainings, where we equip employees with first aid knowledge such as CPR, and skills for rescuing others and themselves. Onsite and practical scenarios are an important part of the trainings, for they allow us to carefully examine an employee's training results and practical knowledge. Through the trainings, our employees' emergency response skills have been effectively enhanced. As a PetroChina employee, Esker has transformed his first aid knowledge into a vivid example of altruism and contribution to society.

For more details, please refer to our WeChat Official Account: <https://mp.weixin.qq.com/s/UQM7rvDOfiD7d-OM8jucQ>

EMPLOYEE DEVELOPMENT

We address our employees' need for career development at different stages, paying close attention to their career planning. We continuously improve the system and mechanism for talent cultivation, and optimize the environment for talent cultivation, attach great importance to the construction of a resource system for talent cultivation and provide a big platform for employees to develop their personal potential.



In 2022, we:

- ◆ Formulated the Opinions on the Implementation of the Talent Development Plan During the 14th Five-Year Plan of China
- ◆ Thoroughly carried out the Implementation Plan for Vigorously Discovering, Nurturing and Selecting Outstanding and Young Cadres
- ◆ Improved the Management Rules on the Introduction of Overseas High-level Talents
- ◆ Researched on and formulated the Action Plan for Building a Team of Leading Talents in Science and Technology, and issued the Opinions on the Full-scale Implementation of "Opinions on Strengthening the Building of a Team of Highly-skilled Talents in the New Era"

Strengthening the Enterprise Through Talents

We regard talents as the most important resource for our Company's development. We vigorously implement strategic measures to strengthen the enterprise through talents, and focus on the nurturing, introduction, and utilization of talents, optimize our management team, stimulate our Company's creativity, and enhance the overall value of talents.

Our Company has strengthened its top-level design and continued to improve its overall plan to strengthen the enterprise through talents. We have formulated system documents such as the Action Plan for Strengthening the Enterprise Through Talents, the 2021-2025 Implementation Plan for the Strengthening the Enterprise Through Talents Project, the 2022 Operation Schedule, and promulgated ancillary documents such as the Measures for Evaluating Human Resources Value (Interim), and the Promotion Plan of the Special Project to Develop Talents for New Energies, New Materials, and New Businesses. In 2022, our Company comprehensively carried out more than 20 key initiatives, such as launching the "Year of Strengthening the Enterprise Through Talents" activity, formulating and issuing the Q&As for Strengthening PetroChina Through Talents, organizing lectures and business seminars on special topics, training sales and marketing talents, and organizing a training program for young talents in science and technology. We have built a strong and large team of talents for our key business areas, thus proving the effectiveness of our project of strengthening the enterprise through talents.



Employee Training

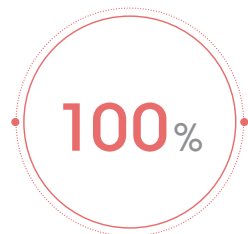
Adhering to modern enterprise training concepts, our Company has sought to tap the potential of our human resources through the combination of “Internet + Training” approaches. We have analyzed our talent demand and continued to develop training methods to carry out diversified and differentiated vocational trainings for employees in order to drive both employee and business growth through positive correlations. In 2022, our Company issued the 14th Five-Year Plan for Staff Education and Training and conducted more than 25,000 training programs consisting of more than 33,000 sessions of different categories and levels, covering 100% of our employees.



Total training time



Average training time per person



Employees trained coverage



Training projects implemented throughout the year



In 2022, we:

Conducted basic education and training management

- Formulated and amended system documents such as the Management Measures for Online Training, the Management Measures for Trainers, the Management Measures for the Standardized Evaluation and Certification of Managerial Positions, to improve our Company's education and training system such that it becomes a fully-fledged system and meets scientific standards

- Strengthened research and exploration of topics and theories such as the Construction of a Standardized Training System for Managerial Positions and the Evaluation of the Effects of Training Internationalized Talents on the Internationalization of PetroChina and Relevant Suggestions

- Formulated the Evaluation Criteria for Education and Training Work and the Evaluation Criteria for Training Institutions, to conduct full-coverage evaluation and assessment on training institutions

Established a standardized manager training system

- Established a standardized training system for managerial positions that meets the jobs requirements and career development needs of employees

- Established a learning and development mechanism based on the philosophy of “job seekers need certifications, the employed need skills, and promotions need qualification”

- Enriched and improved our training system and database, and established a professional team of operators consisting of 500 experts with different expertise and levels

Jointly organized training events

- Strengthened efforts to nurture talents jointly with top universities in China



Staff Training Highlights in 2022

- Established the National Academy for Outstanding Engineers and conducted the joint nurturing of engineering masters and PhD graduates
- Conducted training sessions including legal compliance, marketing skills enhancement, and businesses related to financial derivatives, with over 18,000 attendances
- Hosted a series of 10 professional and technical lectures related to new energies and new materials, carbon emission peak and carbon neutrality and other topics
- Implemented a three-year basic training programme and an intensive training programme for new employees

We improve employees' vocational skills and professional abilities through the combination of trainings and contests including the pre-employment training camp, technical skills competitions, and vocational skills competitions. Through these activities, we promoted the development of frontline employees and tested the results of our basic training programme. In 2022, our Company organized and participated in 9 vocational skills competitions at all levels. In competitions at the company level and above, our employees won 41 gold medals, 71 silver medals and 111 bronze medals.

In 2022, we hosted/organized/participated in:

- PetroChina's First Pre-Employment Training Camp
- PetroChina's first Technical Skills Competition
- PetroChina's first Technical Skills Competition for Firefighters
- The Professional Technical Competition on the Dynamic Analysis of Oil Reserves
- The 2022 Online Skills Training Event for the Oil and Petrochemical Industry



CASE STUDY

Pre-Employment Training Camp

On May 9, 2022, our Company launched the 6-week Pre-Employment Training Camp. The activity was a pre-employment training course mainly targeted to the 210 students who had entered into employment contracts with 18 oil refining companies under PetroChina. Forging collaboration among the industry, enterprises, and schools, the camp focused on nurturing skilled talents through succession-oriented trainings to fill in vacancies in short-staffed oil refining companies to precisely replenish their talent reserves. After the training, the students' knowledge was tested in the second PetroChina Cup, a competition for chemical technicians from vocational schools that was jointly organized by PetroChina and the China Petroleum and Chemical Industry Association. In the competition, the participants' problem-solving skills, teamwork skills, and overall qualities were put to test, so as to motivate outstanding students and improve their skills through contests.

Skills Training Event for the Oil and Petrochemical Industry

In June 2022, our employees actively participated in the 2022 Online Skills Training Event for the Oil and Petrochemical Industry hosted by CNPC. 61,000 skilled operators from the domestic oil and petrochemical industry participated throughout the event. The scale, scope and number of participants were the largest ever among our job training activities held in the past.

For the first time in history, this event was jointly organized by multiple enterprises within the industry and realized a cross-enterprise exchange of talents and sharing of resources such as question banks. Through the Skills Training Event, frontline staff members further consolidated their basic knowledge and business skills, overcame shortcomings, and enhanced their understanding and mastery of new technical standards and requirements in the industry. This allowed us to determine the direction and basis for future skills training programs, provided a solid foundation for in-depth exchange and collaboration among enterprises and created a new way for enterprises to enhance their skills.

Unimpeded Career Development Paths

We attach great importance to the career planning of employees and endeavor to expand their career paths to help them realize their self-worth. With a corporate culture that values moral integrity as well as professional competence, we have developed a selection process that is democratic, open, competitive, and merit-based and also established and improved the talent development mechanism in order to create a positive atmosphere that enables the recognition and best use of talent.

In 2022, our Company focused on building strategic scientific and technological strengths, implemented key Special Projects, and continuously cultivated key talent teams such as leaders in science and technology, a scientific and technological innovation team, young talents in science and technology, and a team of outstanding engineers. We formulated and issued the Implementation Opinions on the Further Improvement of the Seniority System for Professional and Technical Positions and systematic regulations on the management, selection, and recruitment of senior experts, to create a reformed “2+3” seniority system for scientific researchers in professional and technical positions. In addition, we implemented target measures under the Implementation Plan for Vigorously Discovering, Nurturing and Selecting Outstanding and Young Cadres, enriched and made timely updates to our talent pool of young managers, to increase the number of young managers in our workforce. Moreover, we also made improvements to the dynamic adjustment mechanism of job positions, the evaluation and selection mechanism, the remuneration and incentives mechanism, to provide an unimpeded and stable career path for employees.

- 3 were elected members of the Chemical Industry and Engineering Society of China
- 2 won the China Skill Award
- 1 was recognized as an individual with outstanding contributions to China's Cultivation of Skilled Talents
- 7 won the National Technical Experts Award

By the end of 2022, we had

23 Academicians of the Chinese Academy of Sciences and the Chinese Academy of Engineering

360 Experts entitled to the Special Government Allowance

297 Senior Experts

92 Skilled Expert Studios, including **28** National Skilled Expert Studios

CASE STUDY

Training Programme for Young Talents in Science and Technology

In May 2022, the Company promulgated an implementation plan to fully execute its Training Programme for Young Talents in Science and Technology.

Under the Programme, we highlighted the importance of innovative approaches, strengthened our recruitment management, and distributed talents reasonably across professional fields, mainly with a focus on geological exploration, oil and gas field development, oil and gas well engineering, petroleum refining, petrochemical operation, physical prospecting, well logging and other key professional fields, as well as other emerging strategic fields such as new energies, new materials, and the latest information technology trends. We also put more effort on the dynamic adjustment of talents. We built a pool of talent reserves to constantly keep track of our talent pipelining activity. Focusing on sourcing talents, we encourage our business departments to actively consider worthy college candidates from the Outstanding Engineering Education and Training Programme and conduct advanced “tailor-made talent trainings” in core technological fields and production technology needs.

LOCALISATION AND DIVERSITY

We embrace a respectful, open and inclusive culture and we are committed to “selecting more local talents who live close to our overseas operations, upgrading their professionalism and making them more responsive to market forces”. We abide by all laws and regulations of countries where our operations are located. We have formulated the Measures for Administration of Local Employees in Overseas Operations, promoted the innovation and practice of overseas labor management, and established an optimal system for recruitment, deployment, performance appraisal, incentives and penalties. We work hard to attract and train top local talents and to provide them with a working environment conducive to their career development.



Percentage of foreign employees in overseas projects

Local Hiring in Overseas Operation

We actively recruit and train local employees and do not discriminate against outstanding local candidates, providing local people with job opportunities. Professionals employed in our overseas projects involve multiple disciplines, such as exploration and development, refining and chemicals, pipeline operation, international trade, finance, accounting, and human resources management. With continuous efforts, our Company has gradually established localized, regionalized and internationalized career development channels, and many local employees have entered management positions. In 2022, foreign nationality employees accounted for 96.69% of our overseas workforce.

Cultural Integration

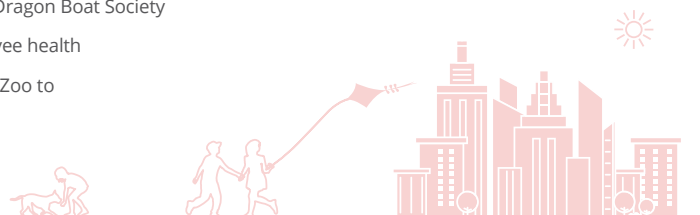
We fully respect cultural diversity and local customs. We create an environment of multicultural integration, promote communication and exchanges between employees with different cultural backgrounds and respect for different values and traditions, in order to foster cross-cultural collaboration in a culturally diverse workplace.

CASE STUDY

Creating A Diverse, Equitable and Inclusive Corporate Culture

In 2022, a series of activities were organized by our project company in Canada to respect local cultures and promote cultural integration, with an effort to create a diverse, equitable and inclusive corporate culture.

- We established the Diversity, Equity and Inclusion (DEI) Committee, which organized DEI trainings for all employees
- On Canadian and traditional Chinese holidays, we strived to promote festival culture, organized traditional cultural events and encouraged employees to actively participate in the events
- We celebrated the National Indigenous Peoples Day and showcased our Company's efforts in building harmonious relationships with indigenous peoples and promote community development
- We participated in the dragon boat race hosted by the Calgary Dragon Boat Society
- We organized a virtual Great Wall Marathon to promote employee health
- We invited employees and their family members to the Calgary Zoo to celebrate traditional Canadian festivals
- We organized an activity titled “Live Well”



SOCIAL CONTRIBUTION

Rooted within society, PetroChina has a duty to return. Our vital goal is to promote socioeconomic development, so we attach great importance to the well-being of people and social advancement. We enhance local development capabilities and fulfil product social responsibility. We actively participate in activities such as rural revitalization, poverty alleviation, community building, environmental protection and social welfare. Through our efforts, we strive to build a harmonious society.

The UN Sustainable Development Goals



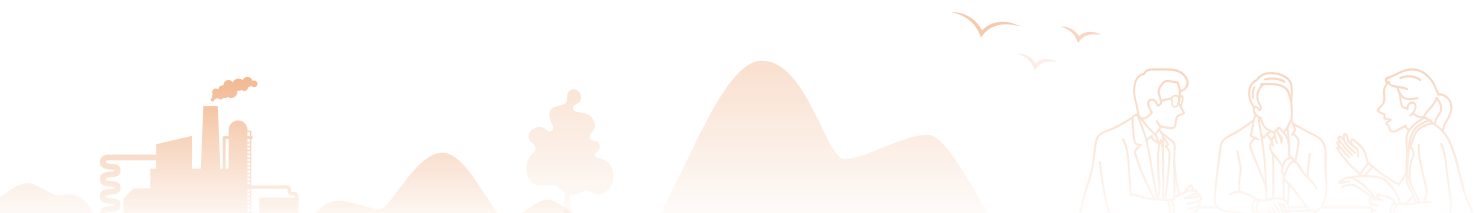


COMMUNITY IMPACT MANAGEMENT

We strive to have a positive impact on community development through responsible operations. This impact can be reflected not only in the creation of jobs, tax contributions and business opportunities for local suppliers/contractors, but also in reducing the environmental and social impact of production and operation activities on communities, safeguarding the human rights of community residents and facilitating local self-development capabilities.

Management of Our Community Impact

| Key Measures | Specific actions |
|---|--|
| <p>Enhancing community engagement</p> | <ul style="list-style-type: none"> • We set up environmental protection and community relations coordination agencies in many countries and regions and established a variety of forms of communication with local governments, non-governmental organizations and community representatives. • We published corporate information through various channels, continuously enhanced engagement with communities and handled community complaints properly. |
| <p>Project full cycle management</p> | <ul style="list-style-type: none"> • Prior to project commencement: we specified a reasonable scope of our production and operation activities to avoid causing any adverse impact on the community and other stakeholders, assessed local community needs, human rights protection, natural environment, cultural heritage and other social, environmental and economic impacts to protect the legitimate rights and interests of community residents. • During project implementation: we strictly implemented safety and environmental protection procedures; formulated environmental protection management system participated by stakeholders; implemented environmental impact monitoring throughout the project; and maintained good interaction with the community and other stakeholders. • After project completion: we restored land surface as soon as possible as we strive to protect the local ecological environment. |
| <p>Community human rights protection</p> | <ul style="list-style-type: none"> • We formulated a framework for developing and maintaining a harmonious relationship with aboriginal communities located in our asset project and site areas, understanding the grievances of local community residents and protecting their rights. • We invited surrounding residents and social environmental protection volunteers and professionals to visit our sites, learning about and supervising our environmental protection efforts. • We gave priority to hiring local talents, provided skills training and involved local talents in project construction to increase community income. • Relying on local social resources, we made efforts to support local enterprises, attached great importance on purchasing local products and services, strengthened cooperation with local enterprises in technical services and promoted the development of relevant small and medium-sized enterprises. • We strictly controlled human rights risks posed by overseas security contractors. |
| <p>Participating in community investment</p> | <ul style="list-style-type: none"> • We rationally planned community investment projects in light of local social and economic development planning and the needs of community residents. • We engaged in good neighbor initiatives, supporting community capability building projects, investing in environmental, healthcare, education and public facilities projects for community welfare and monitored the progress and implementation of public welfare projects. • We regularly evaluated the performance of social welfare projects and made necessary improvements. |



Actual cases

- In Iraq, our West Qurna subsidiary established a Public Relation & Socioeconomic Section. Based on its general business and operation features, we identified and understood various interests, grievances and expectation of major stakeholders, including shareholders, partners, government organizations, the local community, NGOs, media, employees, suppliers/contractors and the general public, established effective engagement and communication systems and dispute resolution mechanisms, responded to their expectations and grievances in a timely manner, ensuring that we can achieve win-win development together based on shared goals and expectations.
- For details, please refer to the section titled "Overseas community construction".

- In Iraq, our Rumaila subsidiary formulated compensation and project management policies in relation to community impact. Our goal is to achieve harmony between the development of oil field production and operation activities with the local community. Relevant activities were reorganized and integrated into the production plans of relevant departments.
- In Australia, our subsidiary Arrow Energy Ltd. engaged with stakeholders from predevelopment stage of gas fields, fully considering the interests of stakeholders such as farm owners. We conduct one-on-one communication with land owners during planning to come to an agreement on the locations for infrastructure such as wells, pipelines and roads, in order to minimize the impact on the relevant land. For projects in operation, we listened to grievances and concerns of farm owners on a continuous basis, provided fair compensation and actively communicated with the community as we maintained openness and transparency.
- For details, please refer to the section titled "Overseas community construction".

- In Kazakhstan, we hold public consultations for our oil and gas partnership projects to obtain feedback from stakeholders. In 2022, the PK Company held two rounds of consultations regarding the licenses for environmental protection and waste treatment of our gas fields, inviting government regulatory bodies, NGOs, media, community residents, independent media and bloggers to participate. Together, an understanding was reached and the relevant government environmental protection emissions license was obtained. Our Shymkent refinery subsidiary held an environmental protection public consultation, inviting surrounding residents and social environmental protection volunteers, and professionals to visit our plants and site areas, in order to understand our progress made in environmental protection measures.
- In Kazakhstan, the PK company has formulated a Complaint Hotline Policy and Procedures to establish channels and handling mechanism for employees and third parties to file anonymous complaints. We implemented a system to protect whistleblowers and established effective channels for the community to file complaints directly to management.
- In Iraq, our Rumaila subsidiary places great emphasis on professional ethical training for our security contractors. Ethical standards, expected conduct, international standards of conduct and standards for use of force are integrated into the core training program for security personnel.
- For details, please refer to the section titled "Overseas community construction".

- We actively responded to China's rural revitalization strategy. Together with our parent company, CNPC, we contribute our efforts in rural revitalization based on five focus areas of industry, talent, culture, ecology and consumption.
- In Iraq, our Rumaila subsidiary cooperated with the AMAR International Charitable Foundation in Basra to provide comprehensive social responsibility support to the local community. We completed and launched various community building projects such as the QA water treatment plant medical clinic and Al Khora community woman's professional skills training program.
- For details, please refer to the sections titled "Social and community welfare investment" and "Overseas community construction".



Major Mechanisms and Measures for Enhancing Community Engagement

The Company complies with Free, Prior and Informed Consent (FPIC) principles, establishing various engagement mechanisms with local governments, NGOs and community representatives to conduct active communication and to ensure that the rights of locals are respected.

- Formulate, comply with and implement customized standards and management regulations on maintaining relationships with local communities based on the conditions of the place of our operations
- Establish environmental protection and community relationship coordination agencies to ensure normalized smooth communication channels
- Convene regular meetings with government officials, local companies and community representatives, communicate and manage relationships with stakeholders and address pressing concerns of local communities
- Hold topical conferences or consultations with local communities in the event of major incidents affecting the community, in order to identify together relevant risks and opportunities to the community and discuss resolutions
- Actively fulfil disclosure obligations, formulate notification procedures for major events and emergencies for timely publication of relevant information to local communities
- Formulate community relations complaint handling mechanism, properly handle complaints from the community, provide timely feedback and protect identity and safety of complainants
- Organize company open day and actively participate in local social cultural events to build positive and friendly relationships with local communities



Major Measures to Ensure Contractors' Protection of Human Rights

- Observe relevant standards and laws of the places of our operations on human rights and controlling violent confrontations, formulate company human rights protection policies and management and implementation methods and require compliance and implementation by security contractors
- Conduct due diligence to assess human rights protection competence of security contractors
- Regularly engage with security companies or personnel to understand and address issues encountered in security work as well as their grievances and resolve such issues and grievances through timely negotiations
- Strengthen professional ethics education, indoctrinate professional ethics throughout the entire training program for security personnel and established professional ethics as priority criteria in evaluating personnel calibre
- Conduct human rights protection training for security contractors as well as education on legal issues and warning measures
- Improve management of standards of security contractors through conducting audits and evaluations of security contractors and monitor the implementation of human rights protection policies
- Maintain a strong stance against violence, prohibit violent and inhumane treatment of local employees and residents

SOCIAL AND COMMUNITY WELFARE INVESTMENT

PetroChina has actively responded to the initiatives of the UN 2030 Agenda for Sustainable Development. In an era dominated by the issue of shared wealth, our goal is to help local communities develop sustainable growth capabilities through our community welfare endeavours, in order to build a bright new future and accomplish shared of social values.



The company focuses on areas such as industry, talent, culture, ecology and consumption. We carried out poverty alleviation based on local conditions and followed up with rural revitalization, thus allowing designated poverty alleviation regions to improve self-sustaining development capabilities and promote local economic sustainable development. In 2022, we joined efforts with our parent company, CNPC, to launch several initiatives with the goal of stimulating development in poverty alleviation regions and motivating poverty alleviation groups. Such initiatives include building “Happy Villages”, launching the featured local industry promotion initiative, establishing “Rural Revitalization Workshop”, empowering through consumption and caring for elderly and children. During 2022, we undertook 1,080 rural revitalization projects, benefitting over 5 million people.

The Company partners with various sectors of society in active participation of charitable work by making use of its brand influence, creating charity models, utilizing its platform and bringing together different advantages and resources. We have launched over 360 charitable programs both on our own and with our partners.



Number of charity projects of our own initiative or in partnership



Building Sustainable Development Capabilities

Promoting industrial growth is fundamental to addressing the problem of economic backwardness in underdeveloped regions. PetroChina actively undertakes community projects in agricultural products processing, unique rural industries, rural recreation and tourism industries and rural new service industries. We implement localized policies, heavily invest funding, manpower, materials and technology to facilitate agricultural industrialization and integrated development of agricultural industries, promote rural innovation and development. By combining our own general advantages and local resources and advantages, we helped rural communities improve their capabilities in industrial and business operation, allowing them to increase their income.

In 2022, the Company launched the featured local industry promotion initiative. We leveraged local resources and natural advantages, strengthened standardization, industrialization and brand development, helping to build unique industry chains such as rural tourism, agricultural and pastoral production and processing.

For more details, please refer to the feature on "Five major initiatives to promote rural revitalization".

Skills Training

Raising the skill levels of the local population is essential to achieving sustainable development in underdeveloped regions. PetroChina makes use of our advantages in resources to provide and create employment opportunities, build employment platforms and launch various skills training programs, in our efforts to provide specialized training to address the requirements of different regions and talents. By raising the population skill level, we motivate and help the local population to find employment and start businesses.

The Company has established a "Rural Revitalization Workshop", an online platform to help promote intellectual development. We launched various targeted training programs to motivate all talents to prove themselves in the great vastness of the rural areas. We expanded cooperation channels, formulated over 300 sessions on rural revitalization and specialist skills, established online and offline integration mechanism and accomplished digitalization empowerment training. Our platform trained 197,000 people during the year.

Education

Promoting education is key to ensuring that basic development opportunities are available to people in underdeveloped regions. From improving education environment and quality and teacher training to fostering good family environment, PetroChina makes use of our own social influence and network to establish specialist schools, innovate student support models and connect various forms of education resources, to help youths in underdeveloped areas access equal education opportunities and to promote social concern as well as joint efforts in addressing the issue of fair education.

As part of our efforts to address issues such as education imbalance in "poverty alleviation" regions, PetroChina continued its "Teacher Training Program" for the 8th consecutive year, which focuses on improving the capabilities of teachers in these regions. In 2022, we helped to train over 20,000 education workers in 10 of these regions. We provided student grants and scholarships to high school students with family economic difficulties, helping them to complete their studies and achieve their dreams of further education. In 2022, our "Xuhang Program" donated RMB11 million and opened 19 "Xuhang" classes in 19 schools across 8 provinces as well as provided grants to support 950 academically excellent students with economic difficulties.



Scholarship program



Amount of scholarship provided for 685 excellent university students in 17 higher education schools including the China University of Petroleum in 2022

Healthcare

Improving healthcare standards is essential to eliminating potential public health risks in underdeveloped regions. Our Company takes an active role in improving clinic infrastructure and healthcare employment conditions in rural townships in remote regions, strengthening the abilities of healthcare professionals, conducting mobile clinical visits, raising general awareness of health and sanitation knowledge, promoting higher standards of local healthcare services and healthy lifestyles, striving to explore innovative ways of healthcare assistance and actively encouraging participation of other social forces to provide healthcare insurance and subsidies for treatment and rehabilitation of serious cases to families in difficult economic conditions in order to alleviate their burden.

In 2022, our Company participated "Kids Care" program initiated by CNPC, the China Foundation for Rural Development and the Ant Foundation, integrating healthcare management, rural revitalization and internet charity. Supporting the project with RMB15 million of our funds, we attracted another RMB15 million donations from the general public, which went towards helping 130,000 children in poverty alleviation regions access insurance for critical illnesses, so that they would not return to poverty in case of illnesses. We partnered with professional organizations to launch an "Internet + healthcare" project to provide remote consultation for over 3,600 patients across six counties in Xinjiang, so that they would not have to travel long distances for treatment, and at the same time provided targeted training for over 5,200 healthcare professionals in provincial hospitals and village clinics to raise healthcare standards.

Staff Volunteer Projects

The Company encourages our employees to demonstrate the volunteer spirit of contributing, caring, helping and progress. We established a youth volunteer service team for our employees, which has participated extensively in poverty alleviation, community building, environmental protection, emergency response, disaster relief and community welfare activities.

As of the end of 2022, the Company has a total of 8,613 youth volunteer service teams consisting of 105,400 youth volunteers who participated in 22,801 volunteer service activities. In the sixth national youth volunteer service project competition, the Changqing Oilfield's "Buckwheat flower" youth volunteers caring for stay-home children, poverty alleviation and education support program, as well as Lanzhou Petrochemical's voluntary community home appliance repair service received silver awards, while Huabei Oilfield's milk and beverage paper-based carton recycling environmental protection welfare program and Lanzhou Petrochemical's "Green bank" voluntary community program received bronze awards.

8,613

Youth volunteer service teams

105,400

Number of youth volunteers

22,801

Number of volunteer service activities in 2022



CASE STUDY

Changqing Oilfield "Buckwheat flower" Youth Volunteer Program

Since 2012, the Changqing Oilfield "Buckwheat flower" volunteer service team has participated in care and material support programs for Dingbian county Zhangyaoxian schools for 11 consecutive years. From simple donation of materials in the beginning, the team slowly bonded with the rural children to provide companionship, education and guidance over the past 11 years. The volunteers helped to plan "Life Lessons", established the "Buckwheat flower" scholarship fund, organized campus arts and culture festivals, celebrated birthdays and childrens' day, and visited the elderly residing with stay-home children, in order to bring warmth and joy into the lives of children. Meanwhile, Changqing Oilfield makes use of its own advantages, using materials left over from production and daily usage to help schools improve education environment, changing heating systems to ensure that there is winter heating. The Changqing Oilfield "Buckwheat flower" Youth Volunteer Program has supported a total of 1,243 impoverished students, gifting over 1,100 sets of stationery, over 2,400 books, as well as tables and chairs, mattresses and materials of over RMB600,000 in value.

Feature

Five Major Initiatives to Promote Rural Revitalization

We actively respond to China's rural revitalization strategy. Together with our parent Company, CNPC, we make full use of our Company's business advantages, incorporate resource characteristics of regions receiving aid and contribute our efforts in rural revitalization based on five focus areas of industry, talent, culture, ecology and consumption.



Promoting Industry Revitalization

We launched the featured local industry promotion initiative in 10 designated assistance counties in combination with natural resources of the assistance areas. **To address food security**, we supported the building of corn drying plants and smart granaries in Nilka county and Jemina county in Xinjiang in order to build strong food security. **We expanded industry chains to help enrich local populations.** We supported the building of feedstock factories in Qinggil county, Xinjiang and continued to establish an integrated industry chain consisting of forage planting, feedstock production, livestock farming, slaughtering and processing and product sales. In Fan county, Henan, we supported the building of a forestry and flower farm project, promoting standardization and marketization of flower farming. **We supported the development of rural tourism**, assisting the development of rural terrace field homestays in Hengfeng county, Jiangxi. We helped to develop rural tourism and recreational agriculture models based on local conditions, building an ecological model of development integrating primary, secondary and tertiary industries. **We facilitated employment in poverty alleviation regions.** We supported preferential employment from designated assistance counties for building and operating of our projects and local enterprises. In 2022, we helped 4,326 people from 10 counties to obtain migratory employment with our Company recruiting 529 impoverished people.



Promoting Talent Revitalization

In 2022, our Company supported over 200,000 people in the training of cadres, rural revitalization leaders and professional technicians, contributing to a strong talent base for the rural revitalization movement. **PetroChina built a "Rural Revitalization Workshop" Platform.** We invested dedicated funds to establish our own training platform "Rural Revitalization Workshop", engaging professional organizations to formulate training programs based on a scientific and target-based approach. **We launched various training models.** We adopted centralized teaching, mobile rural schooling and live streaming to expand coverage of our training programs, stimulating interest in both online and offline training programs through targeted adjustments and establishing specialized courses. **We also sought to promote interest in the oil and gas profession.** We established specialized programs for nurturing future oil and gas industry workers, recruited 100 high school graduates across six designated assistance regions in Xinjiang, integrating general and specialized education and providing priority employment opportunities in the petroleum industry.



Promoting Culture Revitalization

We leveraged local cultural advantages and well-preserved traditions to promote civilized, positive and simple rural lifestyles. **In-depth exploration of traditional culture.** We supported two rural tourism assistance demonstration programs in Fan county and Taiqian county, Henan. With in-depth exploration of Central Plains and Yellow River culture and values, we promoted lifestyle and customs changes and facilitated the development of the homestay economy and unique culture industry. **Fostering rural spirit and civility.** We established "heritage learning points" in Xishui county, Guizhou and Hengfeng county, Jiangxi. We organized over 600 thematic cultural events in Xinjiang to help enrich the lives and experiences of the general public.

1,080

Rural revitalization projects undertaken

RMB
400⁺
million

Investment in rural revitalization in 2022

5⁺

million
People benefited





Promoting Ecology Revitalization

In response to China's five-year plan on improving living conditions in rural areas, we contributed our efforts towards organic integration of infrastructural assistance, improving living conditions in rural areas and environmental protection. **We continuously improved living conditions.** We implemented the "Model village for improvement of living conditions" project. In 2022, we launched our own initiative to build "Happy villages" in 10 counties, conducted domestic refuse and sewage treatment in 76 villages, remodeled toilets for over 2,000 homes and devoted efforts to greenify and beautify villages. **We contributed efforts towards emissions reduction, carbon sequestration and green infrastructure.** We supported "carbon emission peak and carbon neutrality" projects such as the establishment of forest reserves and carbon sequestration research in Qapqal Xibe, Xinjiang, with the purchase, planting and maintenance of 10,000 mu saplings, creating employment opportunities in ecological and forestry maintenance and facilitating rural green development. **We helped rural areas develop ecological function potential.** We supported water saving irrigation projects in dry, unproductive and wasteland areas. We helped to transform 20,000 mu of Gobi desert into arable farmland through an integrated fertilization and high efficiency water saving irrigation project in Qinggil county, Xinjiang. We helped to build a rare plant conservation area and a crop rotation demonstration project in Xishui county, Guizhou, in order to create local ecological value. **We also worked to protect biodiversity.** We launched a beaver offspring conservation program in Qinggil county, Xinjiang, as part of our efforts to achieve organic integration of scientific education, protection of endangered animals and increasing rural income and build a demonstration of peaceful coexistence between man and nature.



Increasing Consumption Assistance

PetroChina fully supports the "consumption assistance empowerment initiative". Throughout 2022, we conducted purchases of RMB444 million worth of products and facilitated sales of RMB756 million worth of products under the assistance initiative. **We made use of our internal market to expand our efforts in bridging production and sales of assistance products.** We published a catalogue on consumption assistance products which contains a selection of over 3,000 products from close to 300 poverty alleviation counties, encouraging our employees and subsidiaries to increase efforts in purchasing consumption assistance products from designated assistance counties. **We implemented a series of measures to expand sales channels of products from assistance counties.** We set up dedicated "sections for consumption assistance products" in our gas station convenience stores and non-oil products online sales platform, organized live stream marketing competitions which focused on recommending unique assistance agricultural products and distribution across China through our network of over 20,000 service station convenience stores. **We leveraged our access to quality resources to build unique brands.** Making full use of our access to non-oil products, we promoted regionally unique quality products such as Barkol melons, Nilka honey and Jeminay flour by helping assistance regions build regional brands, facilitating industry upgrading and enhancing recognition and impact of assistance products.

CASE STUDY

Rural Welfare Service Stations

As a major agricultural country, spring planting and fall harvesting are peak seasons for agricultural machinery fuel consumption in China. For years, our Company has considered securing agricultural machinery fuel as an area of focus. We implement service measures such as priority, concessionary and quality supply of oil to ensure that agricultural production can be conducted smoothly during significant farming periods.

In 2022, PetroChina established a total of **5,529** rural welfare service stations with **6,978** priority pumping lines for agricultural machinery and **6,370** dedicated pumps for rural welfare, supplying a total of **1.323** million tons of agricultural machinery fuel. We also set up resting areas for agricultural machinery operators, provided fuel delivery services to farmlands and organized **60,800** fuel delivery trips.



OVERSEAS COMMUNITY CONSTRUCTION

We maintain our vision of “cooperating in development to achieve win-win for all” in conducting international cooperation. We respect the cultures and conventions of the countries in which we operate, and we are committed to establishing long-term and stable cooperative relations with the host countries. We take an initiative to incorporate our development into local socioeconomic growth and create economic and social value to jointly promote the development and prosperity of local communities together with host governments and business partners.



We actively participate in overseas community construction

- Comply with all applicable international and local laws that related to community affairs and social responsibility and dynamically adjust our Company's policies and procedures to comply with the relevant laws and regulations
- Respect, defend and protect human rights and respect local customs and cultural traditions
- Conduct all activities in an ethical, fair, transparent and responsible manner, and commit to the protection of local ecological environment to promote social development
- Formulate community development plans and carry out relevant activities to continuously improve the well-being of local people and promote harmonious development of the community
- Notify the community prior to the implementation of the community development projects, regularly assess the results and make necessary improvements
- Provide the stakeholders with timely information about the projects and activities relating to community construction and call on all employees to participate in such activities
- Promulgate our Company's ESG philosophy and policy to our suppliers/contractors and encourage them to actively participate in the implementation of projects and activities relating to community development

Protecting the Local Environment

We strongly believe in the importance of striking a balance between business development and environmental protection. Therefore, we strictly comply with the environmental protection laws and regulations of countries where we operate and international standards on environmental protection and carefully protect the local ecological environment and historical and cultural heritage during operations.

CASE STUDY

Protecting Local Water Resources in Australia

In Australia, Arrow Energy Ltd. complies with the local Petroleum and Gas (Production and Safety) Act and the Water Act, strictly monitoring and controlling discharge, wastewater treatment and recycling. Arrow Energy Ltd. has established a groundwater monitoring network to survey and assess groundwater levels and monitor changes in water quality on a regular basis. It prepares underground water impact reports to actively disclose the conditions of groundwater to land owners, government, environmental organizations and other stakeholders. Arrow Energy Ltd. has also established a community committee and provides purified extracted water to local farmers for free, thus maximizing the use of groundwater in coal seams and avoiding or minimizing impact to the local environment, society and economy.

Actively Responding to Chad's Tree Planting Program

Our Company actively responded to the tree planting program promoted by the government of Chad. We signed a cooperation framework agreement on the tree planting project with the Chad Ministry of Environment to participate in tree planting projects in three provinces and cities including N'Djamena.

In the first stage of the tree planting program, 300,000 trees will be planted in a 300-hectare green belt zone surrounding N'Djamena. Currently, 200,000 saplings including neem and African mahogany have been planted.

Community Investment

We take an active role to help improve the production and living conditions of local residents. Every year, we provide support to our surrounding communities in aspects such as environment, healthcare, education, public facilities and community activities based on their actual needs, as part of our active efforts to fulfil social responsibility. We actively participate in community welfare programs of our surrounding communities, allowing them to share the fruits of our development, so as to maintain a long-term harmonious relationship with the local community and facilitate the sustainable development of the community.





Partnership with the University of Queensland

In Australia, Arrow Energy Ltd. participated in the investment and establishment of the University of Queensland Centre for Natural Gas, which offers subjects related to coalbed gas including economics, business, petroleum engineering, earth science, ecology and social science, in term providing continuous technological support for project development. Since 2014, Arrow Energy Ltd. has sponsored the university's Wonder of Science program, providing learning guidance on science, technology, engineering and mathematics (STEM) subjects to students from the Bowen and Surat basins. Currently, the project has organized 13 academic conferences with participation of over 1,300 teachers and students.

13

Number of academic conferences organized



1,300+

Number of teachers and students participated



Promote Localization

We proactively promote localization, strictly comply with local laws and regulations in the places of our operations, observe tax transparency, encourage local hiring, prioritize procurement and usage of local products and services, in order to provide opportunities for local suppliers, contractors and service providers to participate in our projects and to support the development of local small and medium-sized enterprises as well as community entrepreneurs.

Tax Payments According to Law

Our Company strictly complies with the laws and regulations in the countries where it operates, pays taxes to local governments according to law, and duly contributes to the development of local economies. In countries where the Extractive Industries Transparency Initiative (EITI) standard is implemented, our local companies actively participate in the multi-stakeholder groups and timely publish information on our tax payments with more details than the minimum disclosure requirements prescribed by the EITI. We support the anti-Base Erosion Profit Shifting (BEPS) initiative and the PetroChina 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 duly contribute to socioeconomic development.

For details on the PetroChina Tax Policy, please visit our Company website.

Promoting Local Employment

PetroChina makes continuous improvements to our international business management standards. We promote local employment, respect local working culture and facilitate cultural integration. We provide training programs for local employees to enhance their growth, so that local society and economy can grow and develop with us. Our joint operating company in Oman Block 5 has increased localized employment and on-site training, thus providing more local employment opportunities. The percentage of local employees has risen from 29% in 2002 to 97% in 2022. Our international subsidiary in Kazakhstan employs over 2,500 locals with the percentage of local employees at 99%.

Local Procurement

Our Company gives priority to local products and services in our procurement process. We consider localization of procurement as a contractual obligation. Provided that there is fair competition, we give priority to using local materials, equipment and consumables, providing an opportunity for local suppliers, contractors and service providers to participate in our projects and supporting the development of local small and medium-sized enterprises and community entrepreneurs. In 2022, our Kazakhstan PK Company signed 23 supply contracts with 13 local contractors holding "Local Content" certificates, covering areas such as oil, chemicals, labor protection appliance and safety equipment.



Developing Local Suppliers/Contractors in Iraq

In Iraq, we actively implement our localized procurement policy to promote the development of local small and medium-sized enterprises as well as local employment and economic growth.

West Qurna project

Our West Qurna project prioritizes and implements local procurement as part of its project management and monitors its implementation. An electronic tender platform has been established, and supplier/contractors manuals are made available in English and Arabic and issued with tender documents without costs to encourage local suppliers/contractors to register and use for free. As of the end of 2022, over 1,000 companies have completed registration with over 30% being local companies. We give priority consideration to local suppliers/contractors for raw materials, oil products, consumables, stationery, support services and local security, with particular procurement projects requiring at least 50% local bidders. Over the past few years, local suppliers/contractors have gradually expanded from providing minor services such as support services, stationery supply and material supply to participation in minor construction works and are actively participating in subcontractor work with large contractors.

Rumaila project

In Rumaila, our localized procurement policy has extensively helped the development of local small and medium-sized enterprises, including Etihad Al Basra for Contracting Trading and Custom (EBCC). Our project has provided EBCC with specialized training including key site position training, regular system training, ISO management system and inspection system establishment, helping EBCC achieve international standards from business, management to compliance. After over a decade, EBCC has grown from an ordinary local company into one of Iraq's leading integrated site service companies.

Human Rights Protection

Protecting Indigenous Rights

Before the commencement of a project, we conduct assessments of the social, environmental and economic impact in relation to the needs of communities, human rights protection, natural environment and cultural heritage. We protect all legal rights and interests of the indigenous people. We uphold standard operation and formulate compensation plans by taking into account the opinions of the local governments, our partners and the local residents in order to protect the interests of the indigenous people. Specifically, compensation is paid before land use, and the compensation information is released in a timely manner to ensure operational transparency.



Protecting Local Heritage in Rumaila, Iraq

In the northeast sector of Rumaila, Iraq, there are approximately 20 historical monuments of various sizes, with the total protection area spanning 67 square kilometers. We used the Geographic Information System (GIS) to analyze, evaluate and process all spatial data of the Rumaila oil field and created a dedicated map of cultural artifacts in the Rumaila oil field, which alerts authorized users of the map to major cultural monument borders and locations in the Rumaila oil field. We conduct environmental studies on all oil production plans and activities in this area to ensure the safety and protection of Iraqi cultural monuments within our oil field production system. Our use of the GIS system to protect cultural monuments has received recognition and praise from Qahtan Al Abeed, Director of Basrah Antiquities & Heritage and Director of Basrah Museum.

Protecting Aboriginal Rights in Canada and Building Mutual Win-Win Relationships with Local Communities

In Canada, our subsidiary respect and protect aboriginal rights as we strive to build mutual win-win relationships with aboriginal communities. We have formulated our Aboriginal Relations Policy which provides a framework for the development and maintenance of peaceful relations with aboriginal communities living in the area of our assets, projects and operations. We have established an aboriginal relationship committee (ARC) to identify risks and opportunities in relation to aboriginal stakeholders. In 2022, we formulated an Aboriginal Incident Notification Procedures to specify the procedures for notifying aboriginal communities and hunters in the event of emergencies in our MacKay River oil sands and Duvernay shale projects.

We have established partnerships and signed agreements with four first nation communities and three Métis communities surrounding our MacKay River oil sands project, specifying our engagement and negotiation with the communities on production, operations and development plans, reporting to the local government, sharing information on potential business partnership opportunities, addressing community concerns and establishing channels and methods for building work and leadership relationships.

We have established strategic partnerships with three aboriginal communities surrounding the Duvernay shale project and have established a stakeholder affairs team to build and maintain various forms of official and unofficial relationships, including: external engagement, communication and management of stakeholder relationship, addressing pressing concerns, exploring development opportunities; convene meetings with government officials, local companies and community representatives to discuss key issues affecting the communities and explore solutions; hold regular meetings with aboriginal leaders and contact persons to share production and operations information of the Company, exploring mutually beneficial opportunities; providing essential funding, training, employment and business opportunities for key aboriginal community development; participating in aboriginal community cultural activities to understand their history, culture and development vision.

We also incorporate aboriginal companies into our supply chain so that the aboriginal community can share in the fruits of our development through our sustained, long-term partnership. In 2022, our Canada subsidiary spent over CAD8 million on procurement of services and material from aboriginal companies.

Overseas Security and Human Rights Protection

We strictly comply with the laws, regulations and human rights protection requirements of the countries where our operations are located. All contracts on operation and management of contractors are strictly performed in accordance with the relevant local requirements and regulations set forth by the relevant authorities. We endeavor to ensure that the rights and interests of both our Company and our employees are maximized and maintained in a fair and equitable manner. We also require security contractors to conduct their work in a responsible and ethical manner and prohibit them from excessive use of force or engaging in human rights abuse.

In Central Asia

The Kazakhstan PK company evaluates the qualifications of security contractors in accordance with our tender and bidding regulations and selects qualified, competent and experienced security contractors, who are required to comply with the relevant laws and regulations of the local government in relation to wages, paid leave, welfare, pension fund contributions, working conditions and labor protection appliance. Our contractors are contractually responsible for ensuring and implementing employee safety. Meanwhile, to eliminate potential discrimination and unfair treatment, the PK Company may exercise veto over reassignments of security personnel. We conduct satisfaction survey on security services annually to identify and resolve issues in a timely manner.

In Middle East

Our West Qurna project in Iraq has formulated security policies and is committed to observing Iraqi Law and the internationally recognized Voluntary Principles on Security and Human Rights (VPSHR) where oil field armed security and private security operates, so as to ensure that the production, lifestyle and dignity of our stakeholders are unharmed under the framework of respecting human rights and basic freedom while offering secure protection for our operations. To date, we have not received any complaints against excessive use of force or infringement of human rights. In Rumaila, our subsidiary has formulated a security contractor management standard which incorporates social impact as part of our evaluation criteria for security contractors. We conduct background checks and criminal record verification on all security personnel, and those who fail to meet our criteria are not employed. We incorporate Code of Ethics, Expectations of Behavior, International Code of Conduct, Rules for the Use of Force into our core training program for security personnel and conduct regular inspections on the performance of security contractors to evaluate the effectiveness of such training as well as our impact on society.

CUSTOMER SERVICE

The Company practices a “quality-first” principle, an “honest, trustworthy, and excellent” approach to quality, and pursues “zero accidents and zero defects” and “domestic and international market leader” objectives. We continue to improve our quality management system, carry out extensive quality upgrades, organize and establish quality management infrastructure such as measurements, standards, certifications and accreditations, and inspections and testing, to create outstanding products and iconic brands, enhance our brand influence and reputation, and strive to provide clean, high-quality, and diversified products and services for consumers.

Product Quality and Safety

We provide consumers with products that meet legal requirements and standards in a responsible manner. Our Company strictly complies with the Law of the People's Republic of China on Product Quality, the Regulations of the People's Republic of China on Certification and Accreditation, the Regulations of the People's Republic of China on Administration of Production License of Industrial Products and other applicable laws and regulations concerning quality management and formulated the Measures for Quality Management, the Administrative Rules on Supervision and Random Inspection of Product Quality, and the Rules on Quality Supervision of Purchased Materials, and other specific management regulations and implementation rules covering all enterprises, all employees and the entire process. Through the establishment and accreditation of the quality management system, we can gradually delegate the responsibility of quality control to employees at every level, enhance control over process quality, monitor end-product quality and adopt a quality management approach where we take "all employees, all factors, all processes, and all data" into consideration.

When providing products to consumers, we consider our Company's overall impact on consumers and ensure that our products are safe and up-to-standards. We perform thorough product quality inspections that cover raw materials, intermediate products and end products. We place high emphasis on the importance of customer communication, thus provide detailed information about the performance and physical and chemical indicators of products to customers. We also established a strict set of procedures for disposing recyclable products, to prevent adverse effects on the environment.



The passing rates of our pre-shipment inspection and end-product inspection in 2022

Product Quality Testing

- 1 >> Establishing a laboratory management system in line with the quality management in accordance with the requirements of the China Laboratory Accreditation Certificate, and conducting verification in strict accordance with the standard test methods used for testing
- 2 >> Verifying and Calibrating all measuring instruments and devices, meters, etc. in strict accordance with the periodic calibration plan and calibration protocols (norms)
- 3 >> Implementing process quality control, and controlling quality fluctuations in the production process through the establishment of key quality control points, the application of process capability index (Cpk) and other management tools
- 4 >> Collecting and accumulating data and information that reflect quality statuses, conducting quality analyses, and improving and strengthening our quality management system
- 5 >> Strictly implementing the "Five Prohibitions" rule during pre-shipment inspections, which prohibits products with the following issues from leaving the factory: failure to meet requirements related to quality, category and specifications/grades; failure to pass all analyses and all items on the inspection checklist; failure to obtain a product quality inspection certificate; having packaging or containers that fail to meet the standards; failure to submit samples as required

CASE STUDY

Enhancing Product Quality to Satisfy Market Demand

1-butanol is an important organic raw material used in the petrochemical industry for producing butyl acetate and butyl acrylate. As a major 1-butanol supplier, PetroChina's 1-butanol output accounts for approximately 16% of the total 1-butanol output in China. To satisfy the demands for high-end pressure-sensitive adhesives, water-based coatings and other uses, our Company organized our 1-butanol manufacturers to conduct a full-scale market research where they conducted on-site interviews with users, determined quality improvement objectives and developed plans to achieve quality breakthroughs. Through technical transformation and upgrading, we sought to eliminate quality bottlenecks in our product refining process in a targeted manner. The quality of our 1-butanol has since improved significantly, which satisfied customers' demand for higher quality products.

Recycling Process of Lubricant Products



In 2022, our Company raised our standards in product quality and service quality and endeavoured to provide diversified and high-quality products to consumers. We implement internal quality control standards that are higher than national standards, fully completed the upgrade of oil products to meet the China VIB standard, and developed and produced upgraded chemical products and new chemical materials.

In China

| | |
|--|--|
| Refined products sales 105.164 million tons | Natural gas sales 207.096 billion cubic meters |
| Output of new chemical materials 855,000 tons | Year-on-year increase 56 % |
| Output of new chemical products 840,000 tons in 119 grades | Year-on-year increase 126 % |

All subsidiaries under our Company have established and implemented a quality management system in accordance with the ISO9001 standard. The number of subsidiaries certified by the Quality Management System (ISO9001) reached

296

Product Quality and Safety

100%

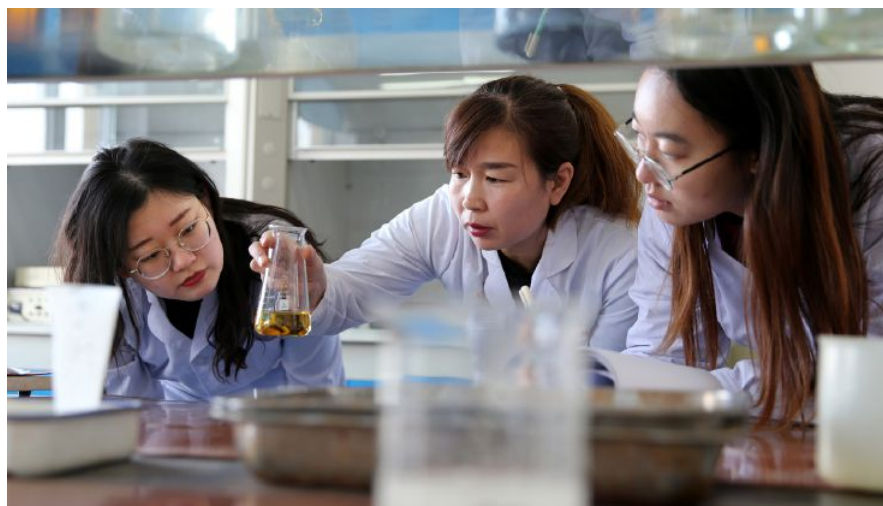
Passing rate of third-party accreditation performed under the quality management system

0%

Products recalled for safety and health reasons

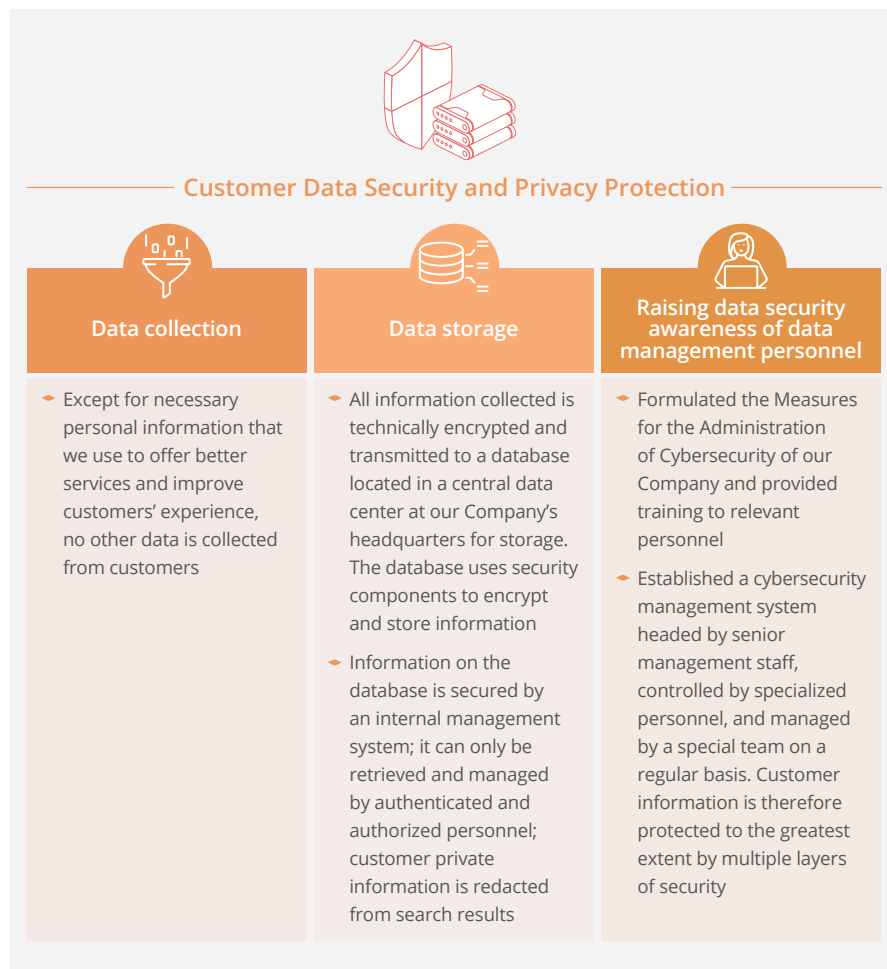
Major Developments Regarding Quality Management in 2022

| Key focus | Details |
|---|--|
| Establishing a longstanding mechanism for quality improvement | <ul style="list-style-type: none"> Formulated a plan for becoming a quality enterprise |
| Performing quality audits | <ul style="list-style-type: none"> By performing QHSE system check, special check and the "Quality Month" activities, we organized "Quality Check" activity regarding the quality of procured items, wellbores, oil products and transport links Checked and endorsed our Kunlun brand, 782 petrochemical products passed our check, the reputation of brands with a focus on quality growing steadily |
| Creating a culture of quality | <ul style="list-style-type: none"> Carried out the "Quality Month" activity, under which, we organized 2,688 publicity events over the internet and new media technology, 270 "Quality Open Days" and 324 "Customer Experience Days" Held a Quality Control (QC) Conference to present our QC results Encouraged our employees to participate in a quiz on comprehensive quality management |
| Improving product quality | <ul style="list-style-type: none"> Upgraded chemical products to further improve the quality of 19 key products To ensure that our refined oil products have been comprehensively upgraded, we conducted random inspections on 3,167 batches of petrol, ensuring that products entering the end market met the China VIB standard |



Consumers' Rights and Interests

We strictly abide by applicable laws, regulations and international standards relating to advertisements, labelling and privacy of products and services such as the Law of the People's Republic of China on Protection of Consumers' Rights and Interests and the United Nations Guidelines for Consumer Protection. Our Company established customer data management rules and acted in strict accordance with the rules in the management and use of customer data, so as to safeguard the security and privacy of consumer data.



Our Company is committed to a customer-centric approach and constantly improves our service awareness. As we improve customer service standards and standardize the customer service workflow, customers' complaints are duly addressed, and the legitimate rights and interests of our consumers are protected accordingly. A centralized 956100 customer service center was established for handling customer complaints and giving feedback to customers. Complaints about the sales of refined oil are categorized into different levels and handling procedures, and are expected to be handled within a specific timeframe.



Customer Complaints Resolution and Service Improvement

Handling Customer Complaints

2,075
Number of customer complaints

100%
Customers complaint response rate



Satisfaction rate towards PetroChina's 956100 customer service hotline

97.9%

Our Company highly respects intellectual property rights. Accordingly, we monitor and assess risks associated with core and key trademarks on a monthly basis, and based on the relevant risk assessment results, file applications with the national trademark administration authority to register, invalidate and oppose trademark applications. Corresponding measures will be taken to protect our Company against trademark infringement and unfair competition, to safeguard our exclusive right to use our trademarks.

Value-added Services

Placing customer satisfaction at the heart of our business, we constantly improve the quality of our products and services and work hard to improve our service network and its functions. In 2022, We fully leveraged our networking strengths and took the priority to work on desired projects, constructed demonstrative hydrogen refueling stations and charging (swapping) stations, and established a new battery leasing platform, with the aim of driving the transition and upgrading of our sales business towards an integrated service covering oil, gas, hydrogen, electricity and non-oil products.

According to the 2022 China Brand Power IndexSM (C-BPI) brand ranking and analysis report released by Chnbrand, a renowned brand rating institute, PetroChina came

2nd
in the overall brand rating

PERFORMANCE DATA

| Category | Indicator | 2020 | 2021 | 2022 |
|---|--|--------|--------|--------|
| Governance | Board Diversity | | | |
| | Independent directors ¹ (%) | 45.5 | 41.7 | 36.4 |
| | By gender | | | |
| | -Male (%) | 90.9 | 91.7 | 90.9 |
| | -Female (%) | 9.1 | 8.3 | 9.1 |
| | By professional background | | | |
| | -Legal (%) | 9.1 | 8.3 | 9.1 |
| | -Finance/accounting (%) | 18.2 | 16.7 | 9.1 |
| | -Economics (%) | 18.2 | 16.7 | 18.2 |
| | -Petrochemical (%) | 54.5 | 58.3 | 63.6 |
| | Compliance Management and Integrity Risk Control Management | | | |
| | Coverage rate of compliance training (%) | 100 | 100 | 100 |
| Coverage of integrity risk prevention training for staff (including members of the Board and all employees) (%) | - | 100 | 100 | |
| Safety | Fatality rate (persons/100 million working hours) | 0.08 | 0.09 | 0.09 |
| | - Company staff (persons/100 million working hours) | 0.12 | 0.12 | 0.06 |
| | - Contractor/service provider (persons/100 million working hours) | 0.00 | 0.00 | 0.16 |
| | Total accident rate (incidents/million working hours) | 0.0495 | 0.0541 | 0.0191 |
| | - Company staff (incidents/million working hours) | 0.0660 | 0.0707 | 0.0237 |
| | - Contractor/service provider (incidents/million working hours) | 0.0087 | 0.0108 | 0.0079 |
| | Work-related fatalities (persons) | 2 | 2 | 2 |
| | - Company staff (persons) | 2 | 2 | 1 |
| | - Contractor/service provider (persons) | 0 | 0 | 1 |
| | Loss of working days due to work-related injury (days) | 6,806 | 8,651 | 5,146 |
| | - Company staff (days) | 3,716 | 8,417 | 2,574 |
| | - Contractor/service provider (days) | 3,090 | 234 | 2,572 |
| Number of subsidiaries certified by the HSE Management System (Q/SY08002.1) | - | - | 116 | |

[1] In 2022, one independent non-executive director of the Board resigned, and the proportion of the independent non-executive directors was lower than that for last year. Our Company is actively looking for the candidate. The proportion of the independent non-executive directors of the Board complies with the relevant rule requirements.

| Category | Indicator | 2020 | 2021 | 2022 | |
|---|---|--|--------|--------|--|
| Climate Change | GHG | | | | |
| | Total GHG emissions ² (million tCO ₂ e) | 167.44 | 159.54 | 160.56 | |
| | -Direct GHG emissions ³ (Scope 1) (million tCO ₂ e) | 127.57 | 121.39 | 119.68 | |
| | -Indirect GHG emissions ⁴ (Scope 2) (million tCO ₂ e) | 39.87 | 38.15 | 40.88 | |
| | -Oil and gas and new energy business (million tCO ₂ e) | 55.69 | 54.00 | 53.39 | |
| | -Refining, chemicals and new materials business (million tCO ₂ e) | 93.93 | 97.16 | 98.81 | |
| | -Other businesses (million tCO ₂ e) | 17.82 | 8.38 | 8.36 | |
| | Domestic GHG emissions per unit of oil and gas production ⁵ (tCO ₂ e/toe) | 0.28 | 0.25 | 0.24 | |
| | Methane emissions (10,000 tons) | - | 42.81 | 40.09 | |
| | Methane emission intensity (%) | - | 0.45 | 0.40 | |
| | Recovery from gas venting (100 million m ³) | - | - | 15.5 | |
| | | Transition to Low-Carbon Energy Sources | | | |
| | Investment in new energies and new businesses (RMB 100 million) | - | 21.8 | 76.7 | |
| Environment | Water Resources | | | | |
| | Fresh water consumption (10,000 m ³) | 76,995 | 75,004 | 74,688 | |
| | Year-on-year change in fresh water consumption (%) | -3.01 | -2.59 | -0.42 | |
| | Fresh water consumption for processing 1 ton of crude oil (m ³) | 0.515 | 0.488 | 0.481 | |
| | Water saved (10,000 m ³) | 944 | 969 | 871 | |
| | | Land Resources | | | |
| | Newly-acquired construction land used in an economical manner (hectares) | 1,190 | 1,120 | 1,280 | |
| | | Energy Consumption | | | |
| | Total energy consumption ⁶ (10,000 tons of standard coal) | 6,406 | 6,273 | 6,245 | |
| | Total raw coal consumption ⁷ (10,000 tons) | 1,289 | 1,327 | 1,232 | |
| | Total crude oil consumption ⁸ (10,000 tons) | 172 | 168 | 159 | |
| | Total natural gas consumption ⁹ (100 million m ³) | 187 | 175 | 177 | |
| Total electricity consumption ¹⁰ (100 million kWh) | 553 | 525 | 564 | | |

[2-5] GHG emissions are direct emissions (Scope 1) and indirect emissions (Scope 2) arising within our Company's operational boundary. Our domestic projects mainly comply with the Guide to Accounting Methods and Reporting of Greenhouse Gas Emissions by China's Oil and Gas Producers (Trial Implementation) (No. 2920 [2014] on Climate, National Development and Reform Commission ("NDRC")), the Guide to Accounting Methods and Reporting of Greenhouse Gas Emissions by China's Petrochemical Companies (Trial Implementation) (No. 2920 [2014] on Climate, NDRC), the Guide to Accounting Methods and Reporting of Greenhouse Gas Emissions by China's Chemical Production Enterprises (Trial Implementation) (No. 2526 [2016] on Climate, NDRC) and other relevant industry guidelines and standards issued by the State for accounting purposes; while for overseas projects, local accounting standards and requirements of the countries where the operations are located take precedence over PRC laws. Where there are no specific requirements from an overseas country, overseas projects are accounted for using a combination of PRC standards and the relevant parameters of such country.

[6-10] Total energy consumption is calculated by converting the actual amount of physical energy consumed in the production and daily operation of the enterprise according to the calculation methods and conversion factors as stipulated in the PetroChina's Corporate Standards (Q/SY09061-2020), using the following formula: total energy consumption (tons of standard coal) = Σ the actual amount of physical energy consumed in the production process of the enterprise \times the conversion factor. For example, the conversion factor is 0.7143 tons of standard coal/ton for raw coal, 1.4286 tons of standard coal/ton for crude oil, 13.3 tons of standard coal/10,000 cubic meters for natural gas, and 1.229 tons of standard coal/10,000 kWh for electricity. The total amount of energy consumption is calculated through multiplying the actual physical energy consumption of the enterprise by the conversion factor.

| Category | Indicator | 2020 | 2021 | 2022 | |
|--|---|-------|-------|-------|--|
| Environment | Energy saved (10,000 tons of standard coal) | 76 | 70 | 71 | |
| | Comprehensive energy consumption per unit of oil and gas equivalent production (kg standard coal/ton) | 118 | 116 | 109 | |
| | Unit energy factor consumption for refining ¹¹ (kg of standard oil/ ton of factor) | 8.13 | 7.89 | 7.89 | |
| | Consumption for producing ethylene products per unit ¹² (kg standard oil/ton) | 658 | 651 | 604 | |
| | Pollutant Emissions | | | | |
| | Amount of general solid waste ¹³ (10,000 tons) | - | 260.3 | 248.5 | |
| | Amount of hazardous waste ¹⁴ (10,000 tons) | - | 139.6 | 94.3 | |
| | Compliant disposal rate of general solid waste (%) | - | 100 | 100 | |
| | Compliant disposal rate of hazardous waste (%) | - | 100 | 100 | |
| | Chemical oxygen demand (COD) emissions ¹⁵ (10,000 tons) | 2.35 | 0.53 | 0.50 | |
| | Sulfur dioxide (SO ₂) emissions ¹⁶ (10,000 tons) | 8.84 | 1.11 | 0.92 | |
| | Nitrogen oxides (NO _x) emissions ¹⁷ (10,000 tons) | 7.76 | 5.64 | 5.01 | |
| | Volatile organic compounds (VOCs) emissions (from refining operations) (10,000 tons) | - | 7.06 | 6.82 | |
| | Environmental Protection | | | | |
| | Environmental protection expenditures (RMB 100 million) | - | 39.2 | 38.9 | |
| Number of subsidiaries certified by the Environmental Management System (ISO14001) | - | - | 105 | | |
| Employee | Number of employees ¹⁸ (10,000) | 43.20 | 41.72 | 39.84 | |
| | Employee Diversity | | | | |
| | Percentage of female administrative staff (%) | 7.28 | 7.21 | 7.17 | |
| | Percentage of ethnic minority employees (%) | 6.61 | 6.63 | 6.70 | |
| | Percentage of foreign employees in overseas projects (%) | 95.15 | 95.21 | 96.69 | |
| | By Employment Type | | | | |
| | -Full-time employees (%) | 100 | 100 | 100 | |
| | -Part-time employees (%) | 0 | 0 | 0 | |
| | By Gender | | | | |
| | -Male employees (%) | 72.48 | 73.95 | 75.46 | |
| -Female employees (%) | 27.52 | 26.05 | 24.54 | | |

[11-12] In 2021, our Company adjusted the statistical methods for two indicators, the "unit energy factor consumption for refining" and "consumption for producing ethylene products per unit", in accordance with the national standards, the Norm of Energy Consumption Per Unit Product for Petroleum Refining (GB30251) and the Norm of Energy Consumption Per Unit Product of Ethylene Plant (GB30250). Our Company also restored the 2020 data according to the same standards. In 2022, according to the definition of national standard, we renamed "fuel and power consumption for producing ethylene products" to "consumption for producing ethylene products per unit", the analysis and calculation of them are the same.

[13-14] The amount of solid waste disposed of by third-party institutions with relevant qualifications commissioned by our Company.

[15-17] Since 2018, our Company has been implementing the state requirements to win the strategic fight against pollution. Since then, we have been vigorously upgrading our wastewater treatment standards, improving our exhaust gas emissions to meet ultra low emissions standards, applying clean production methods, substituting fossil fuels with cleaner fuels, and implementing other engineering and structural projects to reduce carbon, and significantly reduced our pollutant emissions. At the same time, in accordance with the results of the Second National Census on Pollution Sources and the specific standards for pollutant emissions accounting stipulated in the Technical Specifications for Application and Issuance of Pollutant Permits for industries relating to our Company's business, starting from 2021, our Company's pollutant emission statistics has been calculated using the preferred accounting method of using online monitoring data of pollution sources. The exhaust emission data includes flaring emissions.

[18] Excluding staff employed through labor dispatching, for seasonal employment, temporary work and third-party staff.

| Category | Indicator | 2020 | 2021 | 2022 |
|--|---|-------|--------|--------|
| Employee | By Age | | | |
| | -25 years old or below (%) | 1.29 | 1.60 | 1.99 |
| | -26-35 years old (%) | 12.56 | 11.39 | 10.32 |
| | -36-45 years old (%) | 27.35 | 25.11 | 23.88 |
| | -46-55 years old (%) | 49.08 | 50.10 | 50.89 |
| | -56 years old or above (%) | 9.72 | 11.80 | 12.92 |
| | By Position | | | |
| | -Administrative staff (%) | 28.57 | 28.88 | 29.06 |
| | -Professional and technical staff (%) | 14.08 | 14.63 | 15.41 |
| | -Operating staff (%) | 57.35 | 56.49 | 55.53 |
| | By Education | | | |
| | -Master's degree and above (%) | 4.23 | 4.55 | 4.99 |
| | -Bachelor's degree (%) | 34.82 | 36.00 | 37.39 |
| | -College degree (%) | 22.80 | 22.57 | 22.31 |
| | -Technical secondary school and below (%) | 38.15 | 36.88 | 35.31 |
| | By Country and Region | | | |
| | -China (%) | 99.7 | 99.7 | 99.7 |
| | -Countries and regions other than China (%) | 0.3 | 0.3 | 0.3 |
| | Employee Health | | | |
| | Number of subsidiaries certified by the Occupational Health and Safety Management System (ISO45001) | - | - | 107 |
| | Creation of occupational health records for employees (%) | 100 | 100 | 100 |
| | Detection rate of occupational health hazards in the workplace (%) | 99.33 | 99.22 | 100.00 |
| | Employees exposed to occupational health hazards receiving health checks (%) | 99.25 | 100.00 | 99.15 |
| | Employee Training | | | |
| | Average training time per person ¹⁹ (hour) | 32.4 | 30.5 | 37.9 |
| | -Average training time per administrative staff (hour) | - | 20.7 | 37.5 |
| -Average training time per professional and technical staff (hour) | - | 10.5 | 11.2 | |
| -Average training time per operating staff (hour) | - | 40.7 | 45.5 | |
| -Average training time per male employee (hour) | - | 36.7 | 38.9 | |
| -Average training time per female employee (hour) | - | 12.9 | 34.8 | |

【19】 In 2021, our Company changed the formula of the indicator "Average training time per person" from "Average training time per person = Total training time/Number of trainees" to "Average training time per person = Total training time/Number of employees", in keep line with HKEX's ESG Reporting Guide. Our Company also adjusted the 2020 data in accordance with the same standards.

| Category | Indicator | 2020 | 2021 | 2022 | |
|--|---|--------|--------|--------|--|
| Employee | Training rate of employees (%) | - | 100 | 100 | |
| | -Training rate of administrative staff (%) | - | 100 | 100 | |
| | -Training rate of professional and technical staff (%) | - | 100 | 100 | |
| | -Training rate of operating staff (%) | - | 100 | 100 | |
| | -Training rate of male employees (%) | - | 100 | 100 | |
| | -Training rate of female employees (%) | - | 100 | 100 | |
| | Staff Turnover Rate | | | | |
| | Staff turnover rate (%) | 0.27 | 0.22 | 0.14 | |
| | -Turnover rate of male employees (%) | - | 0.21 | 0.14 | |
| | -Turnover rate of female employees (%) | - | 0.23 | 0.16 | |
| | -Turnover rate of employees aged 25 or below (%) | - | 2.38 | 1.34 | |
| | -Turnover rate of employees aged 26-35 (%) | - | 0.81 | 0.49 | |
| | -Turnover rate of employees aged 36-45 (%) | - | 0.22 | 0.15 | |
| | -Turnover rate of employees aged 46-55 (%) | - | 0.06 | 0.05 | |
| -Turnover rate of employees aged 56 or above (%) | - | 0.05 | 0.06 | | |
| Employees who returned to work and kept their posts after taking maternity/paternity leave (%) | 100 | 100 | 100 | | |
| Society | Tax Payment According to Law | | | | |
| | Taxes and fees (RMB 100 million) | 2,812 | 3,536 | 4,618 | |
| | -Overseas taxes (RMB 100 million) | 238 | 375 | 574 | |
| | Supply Chain | | | | |
| | Number of material suppliers ²⁰ | 23,699 | 20,527 | 21,890 | |
| | -Suppliers registered in China ²¹ | - | 19,885 | 21,331 | |
| | -Suppliers registered in countries/regions other than China ²² | - | 642 | 559 | |
| | Percentage of tier 1 manufacturers certified by the Quality Management System (ISO9001) ²³ (%) | 98.14 | 98.01 | 98.03 | |
| | Percentage of tier 1 manufacturers certified by the Environmental Management System (ISO14001) ²⁴ (%) | 92.73 | 93.16 | 94.14 | |
| | Percentage of tier 1 manufacturers certified by the Occupational Health and Safety Management System (ISO45001) ²⁵ (%) | 91.20 | 91.49 | 93.14 | |
| Procurement expenditures (RMB 100 million) | 1,683 | 1,806 | 2,015 | | |

【 20-25 】 Data of suppliers involved in our Company's domestic business and international business is excluded.

| Category | Indicator | 2020 | 2021 | 2022 |
|---|---|--------|--------|--------|
| Society | Products and Services | | | |
| | Passing rate of third-party accreditation performed under the quality management system (%) | 100 | 100 | 100 |
| | Number of subsidiaries certified by the Quality Management System (ISO9001) | - | - | 296 |
| | Number of customer complaints | - | 4,111 | 2,075 |
| | Customers complaint response rate (%) | - | 100 | 100 |
| | Products recalled for safety and health reasons (%) | - | 0 | 0 |
| | Public Welfare | | | |
| | Total contributions to public welfare (RMB 10,000) | 39,623 | 62,580 | 58,272 |
| | -Contribution to poverty alleviation (RMB 10,000) | 11,954 | 38,984 | 30,274 |
| | -Educational donations (RMB 10,000) | 2,656 | 4,851 | 4,530 |
| | -Donations to disaster relief (RMB 10,000) | 1,172 | 3,992 | 5,133 |
| | -Environmental protection (RMB 10,000) | 375 | 216 | 781 |
| -Other contributions to public welfare ²⁶ (RMB 10,000) | 23,466 | 14,537 | 17,554 | |

[26] Including social public welfare investment such as medical and health care, culture and sports, construction of social public welfare facilities, donations for disabled people's undertakings, other public welfare relief, and donations for public welfare undertakings.

Note: Conversion standards. 1 barrel of oil equivalent = 1 barrel of crude oil = 6,000 cubic feet of natural gas = 169.9 m³ of natural gas; 1 m³ of natural gas = 35.315 cubic feet of natural gas; 1 ton of crude oil = 7.389 barrels of crude oil (assuming an API gravity of 34 degrees)

INDEPENDENT PRACTITIONER'S ASSURANCE REPORT

2023/SH-0174

(Page1/3)

English Translation for Reference Only

Independent practitioner's assurance report

To the Board of Directors of PetroChina Company Limited

We have been engaged to perform a limited assurance engagement on the selected 2022 key data as defined below in the 2022 Environmental, Social and Governance Report ("ESG report") of PetroChina Company Limited (the "Company").

Selected Key Data

The selected key data in the Company's 2022 ESG Report that is covered by this report is as follows:

- Fatality rate
- Total accident rate
- Work-related fatalities
- Employees exposed to occupational health hazards receiving health checks
- Total GHG emissions
- Direct GHG emissions (Scope 1)
- Indirect GHG emissions (Scope 2)
- Chemical oxygen demand (COD) emissions
- Nitrogen oxides (NO_x) emissions
- Total energy consumption
- Energy saved
- Fresh water consumption
- Water saved
- Number of employees
- Percentage of female administrative staff
- Staff turnover rate

Our assurance was with respect to the year ended 31 December 2022 information only and we have not performed any procedures with respect to earlier periods or any other elements included in the 2022 ESG report.

Criteria

The criteria used by the Company to prepare the selected key data in the 2022 ESG report is set out in the basis of reporting of the key data (the "basis of reporting") after this assurance report.

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Management's Responsibilities

The Management of the Company is responsible for the preparation of the selected key data in the 2022 ESG report in accordance with the basis of reporting. This responsibility includes designing, implementing and maintaining internal control relevant to the preparation of the selected key data in the 2022 ESG report that is free from material misstatement, whether due to fraud or error.

Our Independence and Quality Management

We have complied with the independence and other ethical requirement of the International Code of Ethics for Professional Accountants (including International Independence Standards) issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Our firm applies International Standard on Quality Management 1, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Practitioner's Responsibilities

It is our responsibility to express a conclusion on the selected key data in the 2022 ESG report based on our work.

We conducted our work in accordance with the International Standard on Assurance Engagements 3000 (Revised) "Assurance Engagements Other Than Audits or Reviews of Historical Financial Information". This standard requires that we plan and perform our work to form the conclusion.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Accordingly, we do not express a reasonable assurance opinion about whether the Company's 2022 selected key data in the 2022 ESG report has been prepared, in all material respects, in accordance with the basis of reporting. Our work involves assessing the risks of material misstatement of the selected key data in the 2022 ESG report, whether due to fraud or error, and responding to the assessed risks. The extent of procedures selected depends on our judgment and assessment of the engagement risk. Within the scope

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of our work, we have performed the following procedures in the Head Office of the Company, Dagang Oil field Branch and Yunnan Petrochemical Branch. We have not conducted work in other branches.

- 1) Interviews with relevant departments of the Company involved in providing information for the selected key data within the ESG report; and
- 2) Analytical procedures;
- 3) Examination, on a test basis, of documentary evidence relating to the selected key data on which we report;
- 4) Recalculation; and
- 5) Other procedures deemed necessary.

Inherent Limitation

The absence of a significant body of established practice on which to draw to evaluate and measure non-financial information allows for different, but acceptable, measures and measurement techniques and can affect comparability between entities.

Conclusion

Based on the procedures performed and evidence obtained, nothing has come to our attention that causes us to believe that the 2022 selected key data in the 2022 ESG report is not prepared, in all material respects, in accordance with the basis of reporting.

Restriction on Use

Our report has been prepared for and only for the board of directors of the Company and for no other purpose. We do not assume responsibility towards or accept liability to any other person for the content of this report.

PricewaterhouseCoopers Zhong Tian LLP

Shanghai, China

March 29, 2023

Basis of Reporting

Fatality rate (persons/100 million working hours):

Fatality rate disclosed herein refers to the ratio of fatalities in industrial production safety accidents to total working hours of PetroChina Company Limited in 2022.

Total accident rate (incidents/million working hours):

Total accident rate disclosed herein refers to the ratio of the number of industrial production safety accidents to total working hours of PetroChina Company Limited in 2022.

Work-related fatalities (persons):

Work-related fatalities herein refer to the number of people who died in industrial production safety accidents of PetroChina Company Limited in 2022.

Employees exposed to occupational health hazards receiving health checks (%):

Employees exposed to occupational health hazards receiving health checks herein refers to the ratio of the number of completed occupational health examinations for employees exposed to occupational disease hazards to the planned number of occupational health examinations for employees exposed to occupational disease hazards of PetroChina Company Limited in 2022.

Total GHG emissions (million tCO₂e):

Total GHG emissions disclosed herein refers to the sum of direct GHGs emissions and indirect GHGs emissions produced by subsidiaries of PetroChina Company Limited in 2022.

Direct GHG emissions (Scope 1) (million tCO₂e):

Direct GHG emissions disclosed herein refers to the total direct GHGs emissions from fuel combustion emissions, process emissions, fugitive emissions, etc. produced by subsidiaries of PetroChina Company Limited in 2022.

Indirect GHG emissions (Scope 2) (million tCO₂e):

Indirect GHG emissions disclosed herein refers to indirect GHGs emissions from consumption of purchased electricity, purchased steam, etc. produced by subsidiaries of PetroChina Company Limited in 2022.

Chemical oxygen demand (COD) emissions (10,000 tons):

Chemical oxygen demand (COD) emissions disclosed herein refers to the total amount of COD in the wastewater discharged during the production process by subsidiaries of PetroChina Company Limited in 2022.

Nitrogen oxides (NO_x) emissions (10,000 tons):

Nitrogen oxides (NO_x) emissions disclosed herein refers to the total amount of NO_x emissions discharged during the production process by subsidiaries of PetroChina Company Limited in 2022.

Total energy consumption (10,000 tons of standard coal):

Total energy consumption disclosed herein refers to the total amount of energy converted into standard coal and consumed by subsidiaries of PetroChina Company Limited in 2022, excluding energy consumed as raw materials for production and energy supplied outside the company.

Energy saved (10,000 tons of standard coal):

Energy saved disclosed herein refers to the sum of the year-on-year savings on energy consumption saved by subsidiaries of PetroChina Company Limited in 2022, under the premise of producing the same products and completing the same processing or workload, and the amount of energy consumption saved various energy-saving projects.

Fresh water consumption (10,000 m³):

Fresh water consumption disclosed herein refers to the amount of water used for the first time by subsidiaries of PetroChina Company Limited in 2022, from tap water, surface water, groundwater sources, excluding seawater, bittern brackish water, sewage, reclaimed water, and water supplied outside the enterprise.

Water saved (10,000 m³):

Water saved disclosed herein refers to the sum of the amount of fresh water saved by subsidiaries of PetroChina Company Limited in 2022, under the premise of producing the same products and completing the same amount of treatment or workload, and the amount of fresh water saved by various water-saving projects.

Number of employees (10,000):

The number of employees disclosed herein refers to the registered personnel employed by PetroChina Company Limited in 2022 who have signed labor contracts with the company, excluding labor dispatch, seasonal employment, temporary employment, and third-party personnel.

Percentage of female administrative staff (%):

Percentage of female administrative staff disclosed herein refers to the ratio of female employees working in management positions to the total number of employees employed by PetroChina Company Limited in 2022.

Staff turnover rate (%):

The staff turnover rate disclosed herein refers to the proportion of employees who voluntarily resign from PetroChina Company Limited in 2022 to the total number of employees.



HONG KONG STOCK EXCHANGE ESG REPORTING GUIDE CONTENT INDEX

| Aspect | Mandatory Disclosure Indicator | Page Number |
|----------------------|--|--------------------|
| Governance Structure | A statement from the Board containing the following elements: (i) a disclosure of the Board's oversight of ESG issues; | Inside front cover |
| | (ii) the Board's ESG management approach and strategy, including the process used to evaluate, prioritise and manage material ESG-related issues (including risks to the issuer's businesses); and | |
| | (iii) how the Board reviews progress made against ESG-related goals and targets with an explanation of how they relate to the issuer's businesses. | |
| Reporting Principles | A description of, or an explanation on, the application of the following Reporting Principles in the preparation of the ESG report: Materiality: The ESG report should disclose: (i) the process to identify and the criteria for the selection of material ESG factors; (ii) if a stakeholder engagement is conducted, a description of significant stakeholders identified, and the process and results of the issuer's stakeholder engagement. | 2-5 |
| | Quantitative: Information on the standards, methodologies, assumptions and/or calculation tools used, and source of conversion factors used, for the reporting of emissions/energy consumption (where applicable) should be disclosed. | |
| | Consistency: The issuer should disclose in the ESG report any changes to the methods or KPIs used, or any other relevant factors affecting a meaningful comparison. | |
| Reporting Boundary | A narrative explaining the reporting boundaries of the ESG report and describing the process used to identify which entities or operations are included in the ESG report. If there is a change in the scope, the issuer should explain the difference and reason for the change. | 2 |

| Subject Area | Aspect | Comply or Explain Indicator | Page Number | |
|---------------|----------------------|---|---|--------------|
| Environmental | Aspect A1: Emissions | General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste. | 38, 59-64 | |
| | | KPI A1.1 | The types of emissions and respective emissions data. | 106-107 |
| | | KPI A1.2 | Direct (Scope 1) and energy indirect (Scope 2) greenhouse gas emissions (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility). | 106 |
| | | KPI A1.3 | Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility). | 107 |
| | | KPI A1.4 | Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility). | 107 |
| | | KPI A1.5 | Description of emission target(s) set and steps taken to achieve them. | 38-49, 63-64 |
| | | KPI A1.6 | Description of how hazardous and non-hazardous wastes are handled, and a description of reduction target(s) set and steps taken to achieve them. | 64 |

| Subject Area | Aspect | Comply or Explain Indicator | Page Number | |
|---------------|--|---|--|---------|
| Environmental | Aspect A2: Use of Resources | General Disclosure Policies on the efficient use of resources, including energy, water and other raw materials. | 59-62 | |
| | | KPI A2.1 | Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility). | 106-107 |
| | | KPI A2.2 | Water consumption in total and intensity (e.g. per unit of production volume, per facility). | 106 |
| | | KPI A2.3 | Description of energy use efficiency target(s) set and steps taken to achieve them. | 59-62 |
| | | KPI A2.4 | Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency target(s) set and steps taken to achieve them. | 59-60 |
| | | KPI A2.5 | Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced. | - |
| | Aspect A3: The Environment and Natural Resources | General Disclosure Policies on minimising the issuer's significant impacts on the environment and natural resources. | 56-58 | |
| | | KPI A3.1 | Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them. | 56-58 |
| | Aspect A4: Climate Change | General Disclosure Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer. | 40 | |
| | | KPI A4.1 | Description of the significant climate-related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them. | 38-53 |
| Social | Aspect B1: Employment | General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare. | 72 | |
| | | KPI B1.1 | Total workforce by gender, employment type (for example, full- or part-time), age group and geographical region. | 107-108 |
| | | KPI B1.2 | Employee turnover rate by gender, age group and geographical region. | 109 |
| | Aspect B2: Health and Safety | General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards. | 74-78 | |
| | | KPI B2.1 | Number and rate of work-related fatalities occurred in each of the past three years including the reporting year. | 105 |
| | | KPI B2.2 | Lost days due to work injury. | 105 |
| | | KPI B2.3 | Description of occupational health and safety measures adopted, and how they are implemented and monitored. | 74-78 |
| | Aspect B3: Development and Training | General Disclosure Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities. | 79-82 | |
| | | KPI B3.1 | The percentage of employees trained by gender and employee category (e.g. senior management, middle management). | 109 |
| | | KPI B3.2 | The average training hours completed per employee by gender and employee category. | 108 |



| Subject Area | Aspect | Comply or Explain Indicator | Page Number |
|---|------------------------------------|---|-------------|
| Social | Aspect B4: Labour Standards | General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour. | 72 |
| | | KPI B4.1 Description of measures to review employment practices to avoid child and forced labour. | 72 |
| | | KPI B4.2 Description of steps taken to eliminate such practices when discovered. | 72 |
| | Aspect B5: Supply Chain Management | Generally Disclose Policies on managing environmental and social risks of the supply chain. | 26-27 |
| | | KPI B5.1 Number of suppliers by geographical region. | 109 |
| | | KPI B5.2 Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, and how they are implemented and monitored. | 26-27 |
| | | KPI B5.3 Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored. | 26-27, 77 |
| | | KPI B5.4 Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored. | 26-27 |
| | Aspect B6: Product Responsibility | General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress. | 103-104 |
| | | KPI B6.1 Percentage of total products sold or shipped subject to recalls for safety and health reasons. | 110 |
| | | KPI B6.2 Number of products and service related complaints received and how they are dealt with. | 103-104 |
| | | KPI B6.3 Description of practices relating to observing and protecting intellectual property rights. | 33, 104 |
| | | KPI B6.4 Description of quality assurance process and recall procedures. | 100-101 |
| | | KPI B6.5 Description of consumer data protection and privacy policies, and how they are implemented and monitored. | 103 |
| | Aspect B7: Anti-corruption | General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering. | 24, 26 |
| | | KPI B7.1 Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases. | 24-25 |
| | | KPI B7.2 Description of preventive measures and whistle-blowing procedures, and how they are implemented and monitored. | 24-25 |
| | | KPI B7.3 Description of anti-corruption training provided to directors and staff. | 24-25 |
| | Aspect B8: Community Investment | General Disclosure Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests. | 86-99 |
| | | KPI B8.1 Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport). | 86-99 |
| KPI B8.2 Resources contributed (e.g. money or time) to the focus area. | | 110 | |

This report is in compliance with the "comply or explain" provisions under the HKEX's ESG Reporting Guide. The undisclosed indicators in KPI A2.5 and some of the disclosed indicators in KPI B1.2 are interpreted as follows:

1. Clause A2.5 does not apply to our Company due to its product nature.
2. The Company employs a small percentage of its employees outside of China. In consideration of materiality, employee turnover data in terms of geographical region is not disclosed in this Report.

TCFD RECOMMENDATIONS INDEX

| TCFD Framework | Page Number |
|---|-------------|
| Governance | |
| a) Describe the Board's oversight of climate-related risks and opportunities. | 38-39 |
| b) Describe management's role in assessing and managing climate-related risks and opportunities. | 39 |
| Strategy | |
| a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term. | 40 |
| b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning. | 40 |
| c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios. | 41-42 |
| Risk Management | |
| a) Describe the organization's processes for identifying and assessing climate-related risks. | 39-40 |
| b) Describe the organization's processes for managing climate-related risks. | 39-40 |
| c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management. | 43 |
| Metrics and Targets | |
| a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process. | 43, 45, 106 |
| b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. | 45, 106 |
| c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets. | 43, 45, 106 |

GLOBAL COMPACT AND US

The Global Compact is a global framework initiated and advocated by the United Nations aimed at the promotion of sustainable development and the collective improvement of social well-being through responsible and innovative business practices. As a member of the UN Global Compact, we are committed to observing and supporting the Ten Principles of the UN Global Compact in the areas of human rights, labour rights, environmental protection and anti-corruption. We will always follow the Ten Principles in our practices for fulfilling social responsibilities, and consistently disclose the compliance thereof in our annual report.

| | Ten Principles in the Global Compact | Corresponding Sections Herein |
|---------------------|--|--|
| Human Rights | 1. Businesses should support and respect the protection of internationally proclaimed human rights | 1.1 Sustainability Management 4.1 Employee Human Rights 5.1 Community Impact Management 5.3 Overseas Community Construction |
| | 2. Businesses should make sure that they are not complicit in human rights abuses | 4.1 Employee Human Rights 5.1 Community Impact Management |

| | Ten Principles in the Global Compact | Corresponding Sections Herein |
|-----------------|--|--|
| Labour | 3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining | 4.1 Employee Human Rights |
| | 4. Businesses should uphold the elimination of all forms of forced and compulsory labour | 4.1 Employee Human Rights |
| | 5. Businesses should uphold the effective abolition of child labour | 4.1 Employee Human Rights |
| | 6. Businesses should uphold the elimination of discrimination in respect of employment and occupation | 4.1 Employee Human Rights |
| Environment | 7. Businesses should support a precautionary approach to environmental challenges | 2 Climate Change and Energy Transition 3 Environmental Protection |
| | 8. Businesses should undertake initiatives to promote greater environmental responsibility | 2 Climate Change and Energy Transition 3 Environmental Protection |
| | 9. Businesses should encourage the development and diffusion of environmentally friendly technologies | 6.1 Technological Innovation and Digital Empowerment 2 Climate Change and Energy Transition 3 Environmental Protection |
| Anti-Corruption | 10. Businesses should work against corruption in all its forms, including extortion and bribery | 1.2 Governance Framework 1.3 Governance 1.4 Supply Chain Management |

GRI AND IPIECA/API INDEX

For the purpose of disclosing ESG information, we make references to the Oil and Gas Industry Guidance on Voluntary Sustainability (2020) co-published by the International Petroleum Industry Environment Conservation Association (IPIECA) and the GRI Sustainability Reporting Standards (2021) published by the Global Sustainability Standards Board.

| Contents | | IPIECA/API (2020) | GRI (2021) |
|-------------------------------------|--|--|--|
| Statement of the Board of Directors | | GOV-1 | 2-11, 2-12, 2-13, 2-14, 2-22, 2-23, 2-24 |
| About the Report | | | 2-2, 2-3, 2-4, 3-1, 3-2, 3-3 |
| About Us | | | 2-1, 2-6 |
| Message from the Chairman | | GOV-1, GOV-4, CCE-1, CCE-6, ENV-3, SOC-7, SOC-13 | 2-11, 201-2, 203-1, 203-2, 302-1, 303-1 |
| Corporate Governance | Sustainability Management | GOV-1 | 2-12, 2-13, 2-14, 2-18, 2-19, 2-22, 2-23, 2-24 |
| | Governance Framework | GOV-1 | 2-9, 2-10, 2-11, 2-13, 2-15, 2-16, 2-17, 2-26, 2-27, 405-1 |
| | Governance | GOV-1, GOV-3, SOC-8 | 2-26, 205-2, 205-3 |
| | Supply Chain Management | GOV-3, SHS-1, SOC-1, SOC-2 | 308-1, 308-2, 414-1 |
| | Communicating and Interacting with Stakeholders | SOC-10, SOC-12 | 2-29 |
| | Technological Innovation and Digital Empowerment | CCE-3 | |

| Contents | | IPECA/API (2020) | GRI (2021) |
|---|--|---|---|
| Climate Change and Energy Transition | Response to Climate Change | GOV-4, CCE-1, CCE-2, CCE-4, CCE-5 | 201-2, 203-1, 305-4, 305-5 |
| | Curbing Carbon Emissions | GOV-4, CCE-3, CCE-4, CCE-5, CCE-7 | 2-28, 305-1, 305-2, 305-4, 305-5 |
| | Low-carbon Transition | CCE-1, CCE-3 | |
| Environmental Protection | Environmental Risk Management | SHS-1, SHS-6, SHS-7 | 403-1, 403-2 |
| | Sustainable Utilisation of Natural Resources | CCE-6, ENV-1, ENV-2, ENV-8 | 302-1, 302-3, 302-4, 303-1, 303-3, 303-5 |
| | Pollutant Discharge Management | ENV-2, ENV-5, ENV-7 | 303-2, 305-7, 306-2, 306-5 |
| | Conservation of Biodiversity | ENV-3, ENV-4, ENV-8, SHS-6, SHS-7, SOC-3 | 304-2 |
| Employee Rights and Interests and Development | Employee Human Rights | SOC-5, SOC-6 | 2-7, 2-8, 401-1, 401-2, 401-3, 405-1, 408-1, 409-1 |
| | Health and Safety | SHS-1, SHS-2, SHS-3, SHS-6, SHS-7, SOC-2, SOC-3, SOC-4 | 403-1, 403-3, 403-5, 403-6, 403-7, 403-8, 403-9, 410-1 |
| | Employee Development | SOC-4, SOC-7 | 404-1, 404-2 |
| | Localisation and Diversity | SOC-4, SOC-5, SOC-15 | 405-1 |
| Social Contribution | Community Impact Management | SOC-1, SOC-3, SOC-9, SOC-10, SOC-11, SOC-12, SOC-13 | 410-1, 413-1 |
| | Social and Community Welfare Investment | SHS-2, SOC-13 | 201-1, 203-1, 203-2, 413-1 |
| | Overseas Community Construction | GOV-3, GOV-4, SHS-1, SHS-2, SOC-1, SOC-3, SOC-4, SOC-5, SOC-9, SOC-10, SOC-11, SOC-12, SOC-13, SOC-14, SOC-15 | 203-1, 203-2, 204-1, 207-1, 410-1, 413-1 |
| | Customer Service | SHS-5, SHS-6 | 416-1, 416-2, 418-1 |
| Performance Data | | GOV-1, GOV-3, GOV-4, CCE-4, CCE-5, CCE-6, ENV-1, ENV-2, ENV-5, ENV-7, SHS-1, SHS-2, SHS-3, SHS-5, SOC-4, SOC-5, SOC-7, SOC-13, SOC-14, SOC-15 | 2-7, 2-8, 201-1, 203-1, 205-2, 205-3, 302-1, 302-3, 302-4, 303-2, 303-3, 303-5, 305-1, 305-2, 305-4, 305-7, 306-5, 401-1, 401-3, 403-1, 403-2, 403-3, 403-8, 403-9, 404-1, 405-1, 416-2 |
| Independent Practitioner's Assurance Report | | | 2-5 |

APPENDIX

We strictly complied with applicable laws and regulations. Taking into account our Company's situation, we established rules and regulations related to employment, branding, material procurement, quality, safety, environmental protection, health, and other aspects that cover all production units, staff and processes relevant to our Company, including but not limited to:

| | |
|----|---|
| 1 | Measures of PetroChina Company Limited for Management of Labour Contract |
| 2 | Measures of PetroChina Company Limited for Performance Evaluation of Company Leaders |
| 3 | Administration Measures of PetroChina Company Limited on Production Safety and Environmental Protection Accountability System |
| 4 | Administrative Measures of PetroChina Company Limited for Supervision and Inspection of Product Quality |
| 5 | Administrative Measures of PetroChina Company Limited for Appraisal of Staff Safety and Environmental Performance |
| 6 | Regulations on Environmental Protection Management of PetroChina Company Limited |
| 7 | Measures for Environmental Monitoring and Environmental Information Management of PetroChina Company Limited |
| 8 | Regulations of PetroChina Company Limited on Environmental Protection Concerning Project Acquisition |
| 9 | Management Measures of PetroChina Company Limited for Implementation of Wastewater Discharge Permits |
| 10 | Management Measures of PetroChina Company Limited for Ecological Environment Protection of Construction Projects |
| 11 | Administrative Measures of PetroChina Company Limited for Energy and Water Conservation |
| 12 | Regulations of PetroChina Company Limited on Quality Supervision of Procured Materials |
| 13 | Regulations of PetroChina Company Limited on Detection of Occupational Hazards at Workplace |
| 14 | Regulations of PetroChina Company Limited on Occupational Health Surveillance |
| 15 | Regulations of PetroChina Company Limited for the Administration of Engineering Construction Projects |
| 16 | Regulations of PetroChina Company Limited for the Administration of Materials Supply |
| 17 | Regulations of PetroChina Company Limited for the Administration of Bid Invitation |
| 18 | Administration Measures of PetroChina Company Limited for the Suppliers |
| 19 | Measures of PetroChina Company Limited for Service Trademark Management |
| 20 | Measures of PetroChina Company Limited for Land Management |
| 21 | Regulations of PetroChina Company Limited on the Management of Industrial Water of Refining Enterprises |

All data disclosed in this Report regarding quantitative indicators of emissions, energy consumption, and other aspects are calculated in accordance with the relevant standards issued by the Chinese government, including but not limited to:

| | |
|----|---|
| 1 | Statistical Report on Energy Saving and Eco-environmental Protection in Central Enterprises |
| 2 | Communique on the Second National Pollution Census |
| 3 | Guide to Accounting Methods and Reporting of Greenhouse Gas Emissions by China's Oil and Gas Producers (Trial Implementation) |
| 4 | Guide to Accounting Methods and Reporting of Greenhouse Gas Emissions by China's Petrochemical Companies (Trial Implementation) |
| 5 | Guide to Accounting Methods and Reporting of Greenhouse Gas Emissions by China's Chemical Production Enterprises (Trial Implementation) |
| 6 | General Rule for the Calculation of Comprehensive Energy Consumption |
| 7 | Statistical Index and Calculation Method of Energy and Water Conservation |
| 8 | Unit Product Energy Consumption Quota for Petroleum Refining |
| 9 | Unit Product Energy Consumption Quota for Ethylene Plants |
| 10 | Technical Specification for Application and Issuance of Pollutant Discharge Permit |
| 11 | Inspection Guide for Identifying VOCs Pollution Sources of the Petrochemical Industry |

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