

# 2024

ENVIRONMENTAL, SOCIAL AND  
GOVERNANCE REPORT

## ABOUT THE REPORT

### Reporting Period

This report covers the Company's fulfilment of its environmental, social, and governance ("ESG") responsibilities and progress toward sustainable development in 2024. The reporting period aligns with the Company's annual financial report, spanning from 1 January 2024 to 31 December 2024. For continuity and comparability, this report provides appropriately extended explanations for specific issues.

### Scope of the Report

Unless otherwise specified, the relevant data covered in this report includes the Company and its wholly-owned and holding subsidiaries, consistent with the scope of the Company's consolidated financial report.

### Explanation of Information

The information included in this report comes from the Company's official documents, statistical reports, and performance summaries from its affiliated enterprises. It also takes into account the Company's development priorities and stakeholder concerns. This report has been reviewed and approved by the Board of Directors on 28 March 2025. The Board and all directors of the Company accept legal responsibility for the truthfulness, accuracy, and completeness of this report and confirm that there are no misrepresentations, misleading statements, or material omissions herein.

### Forward-Looking Statements

Except for historical facts, any mention and description of events that may occur in future or are about to occur (including but not limited to assumptions, objectives, estimates, 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. The forward-looking statements in this report are made as at 31 December 2024, and PetroChina is neither obliged to nor responsible for modifying any of the aforesaid forward-looking statements.

### Standards of Reference

This report has been prepared primarily in accordance with the Guideline No. 14 on Self-Regulation for Listed Companies - Sustainability Report (Trial) of and Guideline No. 4 on Self-Regulation for Listed Companies - Sustainability Report Preparation issued by the Shanghai Stock Exchange ("SSE"), and the Environmental, Social and Governance Reporting Code issued by The Stock Exchange of Hong Kong Limited ("HKEX"). Information disclosure is also made with reference to the United Nations 2030 Agenda for Sustainable Development, the IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2 Climate-related Disclosures issued by the International Sustainability Standards Board ("ISSB"), the Sustainability Reporting Guidance for the Oil and Gas Industry jointly issued by the International Petroleum Industry Environmental Conservation Association ("IPIECA"), the American Petroleum Institute ("API") and the International Association of Oil & Gas Producers ("IOGP"), the GRI Sustainability Reporting Standards issued by the Global Sustainability Standards Board ("GRI Standards"), and the Ten Principles of the United Nations Global Compact ("UNGCG") together with other guidelines.

## Reporting Principles

This report observes the principles of materiality, quantitation, consistency, and balance to provide disclosure of the Company's ESG management information in an accurate, objective and comprehensive manner.

### Materiality

The report comprehensively identifies material ESG issues relevant to the Company's sustainable development, based on research and assessment conducted on both aspects of impact and financial significance. For details, please refer to "Identification and Management of Material Issues" on page 17 of this Report.

### Quantitation

The Company applies quantitative management of material ESG issues, covering governance, safety, climate change, the environment, our employees, and society. Please refer to "Key Performance Data" and other relevant chapters of this report for details.

### Consistency

This report observes the principle of consistency to ensure comparability with historical data. In 2024, the Company made the following adjustments: (1) According to the "Requirements of the Carbon Emission Accounting and Reporting - Part 16: Oil and Gas Production Enterprise" (GB/T 32151.16-2023), the Global Warming Potential (GWP) of methane has been adjusted to 28, which impacts the Company's total greenhouse gas emissions by approximately 2 million tonnes; (2) Based on the "Norm of Energy Consumption per Unit Product for Petroleum Refining" (GB 30251-2024), we have renamed the "Unit Ethylene Energy Consumption" indicator to "Comprehensive Energy Consumption per Unit Product of Ethylene," with consistent calculation methods for both. Aside from the aforementioned explanations, the statistical scope and calculation methods for the other ESG performance indicators disclosed in this report remain consistent with the previous year, with no significant adjustments.

### Balance

The report strives to present an objective and comprehensive portrayal of the Company's ESG management strategy and performance, enhancing transparency in ESG information disclosure.

## Enhancements to the Report

To actively respond to regulatory compliance disclosure requirements, address stakeholder concerns, and comprehensively illustrate the Company's ESG governance practices, we continue to improve and enhance our ESG reporting. In 2024, we incorporated financial materiality considerations and followed the "double materiality principle" to identify and assess material issues; adjusted the report's content framework to further clarify key priorities across environmental, social, and governance dimensions and disclose their governance status; enhanced climate-related information disclosure, focusing on climate risks and opportunities, climate scenario analysis, and metrics and targets; added new content regarding supply chain security and equal treatment of small and medium enterprises, while enriching discussions on sustainable development management, circular economy, employee rights protection, and technological innovation.

## 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 the Company's website at [www.petrochina.com.cn](http://www.petrochina.com.cn), where further information is also available.

## Investor FAQs

The "Investor FAQs" has been made available on the Company's website. Please feel free to leave messages and communicate with us.



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## MESSAGE FROM THE CHAIRMAN



Welcome to this report. On behalf of the Company, I would like to express my sincere gratitude for your continued care and support for PetroChina.

2024 is a crucial year for achieving the goals and tasks set in the 14th Five-Year Plan, and a year in which the Company has achieved steady progress, overcome challenges, and achieved success through diligent work. Faced with profound adjustments in the global energy landscape and a complex and changing external environment, PetroChina has actively practiced ESG concepts with firm determination and practical actions, coordinating the synergistic development of environmental protection, corporate governance, and social responsibility. We have continuously advanced the process of sustainable development, including furtherly integrating business operations with ESG, setting new historical records for several production and operation indicators, and reaching new heights in high-quality development, presenting shareholders and stakeholders with an outstanding result.

**Actively addressing climate change, driving green and low-carbon development through energy transition, and building a clean and beautiful homeland.** PetroChina has designated "green and low-carbon" as one of its five major strategies, and devoted in continuously promoting energy structure optimisation and industrial transformation and upgrading, moving towards newness and greenness, expanding the new future of energy enterprises with new momentum of transformational development, and contributing utmost ability for achieving

the "carbon peak and carbon neutrality" goals. We continue to promote the integrated development of oil and gas and new energy businesses, focusing on developing new productive forces, actively pioneering new fields and boldly entering new tracks, accelerating the development of emerging industries and future industries. In 2024, the proportion of the Company's domestic natural gas output in its domestic oil and gas equivalent output rose to 54.4%, which furtherly optimised the oil and gas industry structure. The investment in new energy and new businesses increased by 21.7% year-on-year, in which the sectors of wind and photovoltaic power generation more than doubled comparing to the previous year. Multiple hydrogen refuelling stations and geothermal heating projects were completed. The development of new materials was accelerated and the output maintained a high growth rate of approximately 50% for the third consecutive year. Substantial steps were taken in the layout of future industries for providing diversified options for clean energy supply. We have a deep understanding of the challenges and opportunities brought by climate change, and actively respond to global calls to address climate change, continuously improve the carbon emission management system, formulate methane emission control action enhancement plans, increase investment in low-carbon energy-saving technology research and development, and implement comprehensive and multiple measures to strictly control carbon emissions. In 2024, after officially joining the "Oil and Gas Decarbonization Charter" (OGDC), we worked with domestic and international peers to share experiences, share responsibilities, and move forward resolutely to the path of emission reduction. We strictly adhere to ecological red lines and environmental baselines, strictly control environmental risks, and have achieved an overall positive safety and environmental protection situation. We comprehensively promote carbon reduction, pollution reduction, green expansion, and economic growth by coordination, thus to protect blue skies, clear waters, and clean lands. We innovatively promote biodiversity protection, and have successively established 10 Other Effective Area-based Conservation Measures (OECMs). Alongside with the efforts for building a "Beautiful China", the Company is continuously enhancing business resilience and eco-protection effectiveness towards high-quality development.

**Continuously deepening reform and innovation, enhancing ESG management level, making new progress in the modernisation of corporate governance system and governance capabilities.** We have persevered through challenges while continuously promoting the modernisation of the Company's governance system and governance capabilities by deepening reforms, so as to provide solid guarantees for the sustainable development of the Company. We have actively implemented the overall blueprint for comprehensive deepening of reforms, continuously improving the corporate governance structure, optimising the operating mechanism of the Board of Directors, enhancing the level of corporate governance and decision-making efficiency, and exceeding the phase tasks of the reform deepening and enhancement action. Concentrating on improving the level of the

Company's ESG governance, we have diligently implemented the Company's "Three-Year Action Plan for ESG Work", formulated "ESG Management Measures (Trial)", strengthened risk management and internal control, and strictly managed to prevent and resolve ESG risks, for safeguarding the healthy development of the enterprise. At the same time, we attached great importance to information disclosure, promptly responding to social concerns, continuously enhancing the Company's transparency and credibility, thus constantly strengthening the Company's ESG governance capabilities. We position "innovation" as our primary strategy, placing it at the core of our development blueprint. Driven by technological innovation to continuously deepen the reform of scientific and technological systems and mechanisms and continuously improve the full-chain integrated innovation model from basic research to industrial application, the Company is dedicated to building a more efficient and collaborative innovation ecosystem. In 2024, we accelerated the construction of original technology development centres and participated in the construction of multiple central enterprise innovation consortia; several major scientific and technological projects were launched and implemented, with breakthroughs in key core technologies. The development of a "Digital PetroChina" has yielded numerous highlights, with new achievements in the "three major projects" of information technology reinforcement, digital empowerment, and intelligent development. The "twin engines" of reform and innovation have provided inexhaustible momentum for the Company's high-quality development.

**Comprehensively fulfilling social responsibilities, assisting rural revitalisation, jointly building the "Belt and Road" and sharing high-quality development results with stakeholders.** Adhering to a people-centred development philosophy, we'd like to create value and share results with stakeholders, meanwhile actively fulfilling social responsibilities with an attitude of "generosity and humility, integrity and responsibility, openness and inclusiveness", such as making positive contributions in ensuring energy security, assisting rural revitalisation, and caring for employee development. We have made every effort to ensure a secure and stable supply of energy. In the face of complex and changing international energy situations, we have focused on enhancing capabilities of efficient energy supply and strengthening the resilience of industrial and supply chains, sparing no efforts to ensure the stable domestic oil and gas supply, providing solid energy guarantees for economic and social development. We actively participated in rural revitalization for contributing to achieve common prosperity. 1,000 rural revitalisation projects, covering 28 provinces, autonomous regions, and municipalities across the country, have helped targeted assistance areas develop featured industries, improve infrastructure, and enhance education levels, leaving a "PetroChina imprint" on the road to comprehensive rural revitalization, contributing to the promotion of common prosperity. We cared much about employee development, by means of actively building harmonious labour relations, focusing on career development and rights protection, providing with a good working environment and development

platform, therefore continuously improved employee satisfaction and happiness. We highly value safeguarding the common interests of all parties in international cooperation. Our overseas enterprises always uphold the concept of "mutual benefit, win-win outcome and cooperative development", and prefer to share resource value and development opportunities with local country governments, partners, and community members, in order to benefit local societies more broadly and more equitably, thus promote the prosperity and development of local communities. We shared our goals and vision with global peers during many successful meetings that hosted by us, like the 11th International Energy Executive Forum, the 6th China-Russia Energy Business Forum, and the 7th International Petroleum Cooperation Forum, which furtherly consolidated the consensus on open cooperation, and unfolded a new chapter into a second golden decade of collaboratively developing the "Belt and Road".

2025 is the final year of our 14th Five-Year Plan and a critical juncture for the Company to implement its "three-step" work plan of clean energy substitution, strategic succession and green transition. Currently, a new round of technological revolution and industrial transformation is reshaping the global innovation landscape and global economic structure. New-generation information technologies such as artificial intelligence and quantum computing, are accelerating integration within the energy industry, meanwhile profoundly changing the patterns of either energy production or consumption. We will firmly leverage these new trends and opportunities, actively promote digital and intelligent empowerment for green and low-carbon development, actively fulfil social responsibilities, and continue to uphold our values of "Pursuing green development and supplying reliable energy to fuel the growth of our customers and power people's happy life". We will accelerate the enhancements of effectiveness of the energy technology innovation system and the corporate governance system within our enterprises. We will actively develop new technologies, new industries, and new business formats, so as to accelerate the pace of green and low-carbon transition. We will focus on creating long-term enterprise value, and strive to turn the high-quality development blueprint into reality. We will make greater contributions towards achieving the "carbon peak and carbon neutrality" goals for building a beautiful China and promoting common prosperity. To sum up, we will continue to deliver more outstanding ESG performance to reward shareholders, give back to society, and benefit humanity.



Dai Houliang

PetroChina Company Limited  
Chairman of the Board

## ABOUT US

PetroChina Company Limited ("PetroChina", also the "Company", "we" or "us" in this Report) is a joint stock limited company incorporated on November 5, 1999, upon the restructuring of the former China National Petroleum Corporation (currently known as China National Petroleum Corporation Limited or "CNPC"). The H-shares and A-shares issued by the Company were listed on HKEX (stock code: 857) on April 7, 2000 and SSE (stock code: 601857) on November 5, 2007, respectively. 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, aiming to continuously provide energy and petroleum products for economic and social development. Our commitment is to promote a harmonious relationship between energy, environment, and society.



Our Strategies

**Innovation, Resources, Market,  
Internationalisation, Green and Low-carbon**



Our Values

**Pursuing green development and  
supplying reliable energy to fuel the  
growth of our customers and power  
people's happy life**



## Our Business Chain



### Oil, gas and new energy

The Company is accelerating its pace of green transformation, comprehensively promoting the integrated development of oil, gas and new energy. We are focused on constructing a new pattern of multiple complementary energy sources, transforming into an "oil, gas, geothermal, electricity, hydrogen" integrated energy company to provide society with clean and affordable energy products.

#### 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. Meanwhile, the Company has carried out oil and gas investment business in many countries and regions 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. In 2024, our crude oil output amounted to 941.8 million barrels and marketable natural gas output amounted to 5,133.8 billion cubic feet, with a total oil and gas equivalent output of 1,797.4 million barrels.

#### New energy business

The Company continues to expand its development of new energy business, including geothermal heating, wind and photovoltaic power generation, hydrogen, as well as carbon capture, utilisation, and storage (CCUS), accelerating the integration of oil and gas exploration and development with new energy. In 2024, the Company's investment in new energy businesses reached RMB 24.05 billion, representing an increase of 21.7% compared to the previous year.



### Refining, chemicals and new materials

The Company is fully committed to promoting the synergistic development of refining and chemicals transformation upgrades and new materials, accelerating its move towards the mid-to-high end of the industrial and value chains, in order to provide society with high-quality, green and low-carbon refining, chemicals and new material products.

#### Refining and chemicals business

The Company owns 14 ten-million-tonne-level refining bases in China. In 2024, we processed 1,378.4 million barrels of crude oil and produced 119.867 million tonnes of refined oil products. We produce six major categories with thousands of trademarked chemical products. Among them, our production capacity for products such as ethylene, synthetic resin, and synthetic rubber is ranked among the best in China. In 2024, we produced 38.981 million tonnes of chemical products domestically, representing a year-on-year increase of 13.6%.

#### New materials business

The Company actively develops the new materials business, with accelerated progress in technological breakthroughs and capacity building. In 2024, the Company's production of chemical new materials reached 2.045 million tonnes, with significant growth in the production of functional synthetic resins, high-performance synthetic rubber, specialty fibres, high-end carbon materials and other new materials.



### Marketing

The Company continuously promotes the establishment of the terminal marketing network, actively developing gas stations, comprehensive energy service stations, and new energy stations, providing the market with a diverse range of energy products to secure energy supply.

The Company operates 22,441 gas stations, 19,700 uSmile convenience stores, 26 hydrogen refuelling stations, and 3,803 battery charging (swapping) stations in 31 provinces (autonomous regions and municipalities) throughout the country and the Hong Kong SAR. We actively develop international trading business and have established three major oil and gas operation centres in Asia, Europe and the Americas. In 2024, the Company's total sales volume of refined oil products amounted to 159 million tonnes, of which domestic sales volume amounted to 119.103 million tonnes.



### Natural gas sales

The Company leverages the bridging role of natural gas in energy transition, continuously enhancing its sales and service capabilities in natural gas, contributing to the optimisation of energy consumption structure.

The Company is the most significant natural gas retailer in China and has a natural gas sales network with coverage across the country. In 2024, the Company's natural gas sales amounted to 287.75 billion cubic metres, of which domestic sales accounted for 227.83 billion cubic metres.

## Our Honours



- Ranked 3rd in "Most Valuable Oil & Gas Brands"

Brand Finance

- Best ESG in Asia's Oil and Gas Sector
- Best ESG in China's Oil and Gas Sector

Institutional Investor

- Best ESG Pioneer Award
- Best ESG Practice Award

Hong Kong International Financial Forum &  
Hong Kong International ESG

- Outstanding Enterprise Contribution Award for the 75th Anniversary of the Founding of New China
- Economic Person of the Year
- Excellent Listed Companies CEO
- Excellent Listed Companies CFO

China Securities "Golden Bauhinia" Award

- CSOE Listed Companies ESG Top 100 Pioneers Index

The ESG Blue Book for Central State-owned Listed Enterprises (2024)

- China Listed Companies Investor Relations Management Shareholder Return Pegasus Award
- China Listed Companies Value Selection - Top 100 Main Board Listed Companies by Value

Securities Times

China Association for Public Companies

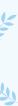
- Best Board Practices for Listed Companies
- Best Sustainable Development Practices for Listed Companies

- Excellent ESG Practice Case

China Enterprise Reform and Development Society, China Comment magazine

- Outstanding ESG Case

China Petroleum and Chemical Industry Federation



- China ESG Listed Companies Top 100 Pioneers

CCTV Business Channel in conjunction with SASAC, All-China Federation of Industry and Commerce, Chinese Academy of Social Sciences State-owned Economy Research Think Tank, China Enterprise Reform and Development Society



- Best ESG Company

Zhitong Caijing



- Best ESG

Roadshow China Excellent IR

# STATEMENT OF THE BOARD OF DIRECTORS

The following is a statement from the Board of Directors of PetroChina Company Limited made in accordance with the requirements of the HKEX Environmental, Social and Governance Reporting Code.

The Company and the Board consider ESG as the foundation for achieving sustainable development. We have integrated ESG into our corporate strategy and operations, enhancing the Board's supervision and management of ESG comprehensively. We continuously improve and refine the ESG management system, effectively control ESG risks, and aim to achieve a positive interaction among economic, social, and environmental benefits.

## ESG Management Responsibilities of the Board

As the highest decision-making body in respect of ESG issues, the Board has ultimate responsibility for the ESG management of the Company. The Board has established the Sustainable Development Committee (the "SDC") consisting of four directors, with Mr. Huang Yongzhang, executive director and president of the Company, serving as the chairman. The SDC is responsible for overseeing the implementation of ESG policies, strategies and targets, and reviewing the Company's ESG Report on a regular basis.

## ESG Management Approach and Strategy

**ESG Management Approach.** The Company fully, accurately and comprehensively embraces and implements the new development concept. We remain committed to our values of "pursuing green development and supplying reliable energy to fuel the growth of our customers and power people's happy life". Guided by the goals of "carbon peak and carbon neutrality", we continuously improve our ESG management system and enhance ESG management standards.

**ESG Management Strategy.** We aim to become a world-class international energy company by focusing on ESG risk management and improving our ESG performance and ratings. To achieve this, we are strengthening ESG management practices and driving innovation, deepening the integration of ESG principles into our corporate strategy and operations, and systematically enhancing our ESG management standards.

The Board regularly reviews significant ESG matters and continuously strengthens ESG management through identification of issues, issue assessment and prioritisation, risk control, inspection and supervision. The Company identifies and analyzes ESG risks based on the macro policy environment, industry development trends and stakeholders' expectations and demands, and communicates with stakeholders in various ways for key areas and measures for ESG risk management and control. ESG considerations are embedded in our daily management systems, with regular inspection and supervision of ESG implementation.

## Targets, Indicators and Progress Review

The Company has established ESG management targets and performance indicators across multiple areas including management systems and capabilities, green and low-carbon transition, greenhouse gas emissions, sustainable resource utilisation, environmental management, health and safety, employee rights, community engagement and supply chain management. We conduct regular progress reviews of these indicators. The annual performance evaluation of the Company's management includes metrics for business performance, operations, energy conservation and emissions reduction, safety and environmental protection and regulatory compliance. We have engaged KPMG Huazhen LLP to provide independent assurance on selected ESG performance indicators, enhancing their independence and objectivity (for details, please refer to page 143 of this Report).

## TARGETS AND PERFORMANCE

### Investment in new energy and new businesses

 Progress made in 2024

RMB **24.05** billion

### Proportion of natural gas in the Company's domestic oil and gas equivalent production

 Progress made in 2024

**54.4%**

 Our targets

- By 2025, the proportion of natural gas in the Company's total domestic oil and gas equivalent production to be increased to approximately

**55%**

### Total GHG emissions (Scope 1, Scope 2)

 Progress made in 2024

**170.46** million tCO<sub>2</sub>e

### Domestic GHG emissions per unit of oil and gas production

 Progress made in 2024

**0.235** tCO<sub>2</sub>e/toe

### Annual CO<sub>2</sub> injection of CCUS projects

 Progress made in 2024

**1.899** million tonnes

 Our targets

- To reach **2.20** million tonnes by 2025

### Methane emissions intensity

 Progress made in 2024

**0.28%**

 Our targets

- Reduce methane emissions intensity to

**0.25%** by 2025

- Reduce methane emissions intensity to

**0.20%** by 2035



**Water saved** Progress made in 2024**7.83** million cubic metres Our targets

- Target for 2024: over **6.00** million cubic metres
- Target for 2025: over **5.60** million cubic metres

**Water withdrawal per tonne of crude oil processed** Progress made in 2024**0.453** cubic metres Our targets

- Target for 2024: under **0.478** cubic metres
- Target for 2025: under **0.468** cubic metres

**Energy saved** Progress made in 2024**740,000** tonnes of standard coal Our targets

- Target for 2024: over **560,000** tonnes of standard coal
- Target for 2025: over **560,000** tonnes of standard coal

**Comprehensive energy consumption per unit of oil and gas equivalent production** Progress made in 2024**101** kg of standard coal/tonne Our targets

- Target for 2024: under **108** kg of standard coal/tonne
- Target for 2025: under **105** kg of standard coal/tonne

**Energy consumption per unit energy factor** Progress made in 2024**7.77** kg of standard oil/(tonne·energy factor) Our targets

- Target for 2024: under **7.85** kg of standard oil/(tonne·energy factor)
- Target for 2025: under **7.78** kg of standard oil/(tonne·energy factor)

**Comprehensive energy consumption per unit product of ethylene** Progress made in 2024**574** kg of standard oil/tonne Our targets

- Target for 2024: under **600** kg of standard oil/tonne
- Target for 2025: under **590** kg of standard oil/tonne

# GOVERNANCE

## SUSTAINABLE DEVELOPMENT 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 delivering clean, reliable and affordable energy to the public in a responsible, sustainable and ethical manner. We abide by laws and regulations, respect human rights, protect the environment and make contributions to the economic and social development of the locations where we operate.



The UN Sustainable Development Goals



# ESG MANAGEMENT SYSTEM AND ANNUAL PROGRESS

The Company places strong emphasis on sustainable development management and strictly complies with laws and regulations and regulatory requirements, both in our listing locations and areas where we operate. We have deeply integrated ESG concepts into our overall development strategy and production and operation management activities. The Company has established and continues to improve its ESG management system, guiding and managing sustainable development practices through the Board and its committees, as well as the management team. We have formulated effective ESG management policies with systematic design, overall planning, clear division of responsibilities, and emphasis on collaboration. This includes gradual refinement of work content and processes and streamlined management mechanisms. We comprehensively identify and control ESG risks, and assess and supervise the Company's ESG management situation, continuously enhancing our ESG management standards.

The Company's ESG management system consists of the Board of Directors, Sustainable Development Committee, ESG Management Working Committee, and various functional departments, specialised companies and affiliated enterprises. As the highest decision-making body for ESG issues, the Board has ultimate responsibility for the Company's ESG management. The Board has established the Sustainable Development Committee, which is responsible for supervising and inspecting all ESG work and making recommendations to the Board. The ESG Management Working Committee implements the Board and Sustainable Development Committee's ESG decisions and deployments, with an ESG Management Working Office and three specialised working groups focusing on green low-carbon initiatives, social responsibility and corporate governance. Mr. Huang Yongzhang, executive director and president of the Company, who has many years of experience in safety and environmental protection management, serves as the chairman of the Sustainable Development Committee while also serving as the chairman of the ESG Management Working Committee. The Company's functional departments, specialised companies and affiliated enterprises have incorporated ESG work into their departmental responsibilities, with designated managers and working personnel involved in collaborative participation in the Company's ESG management.

PetroChina ESG management structure



Responsible Body-Function	Body and Personnel Composition	Key Responsibilities	Key Progress Made in 2024
 <b>Board of Directors-Decision-making</b>	<p>As at 31 December 2024, the Board of Directors has 12 members, including 5 independent non-executive Directors. Mr. Dai Houliang serves as the Chairman.</p> <p>For details, please refer to the Company's website and Annual Report 2024.</p>	<p>The Board of Directors is the highest decision-making body for ESG management work, with main responsibilities:</p> <ul style="list-style-type: none"> <li>Reviewing and approving the Company's ESG management system</li> <li>Reviewing and approving the Company's annual ESG Report</li> <li>Reviewing and approving other important matters</li> </ul>	<ul style="list-style-type: none"> <li>Reviewed and approved the Resolution on the Company's ESG Management Measures</li> <li>Reviewed and approved the Company's annual ESG Report</li> <li>Reviewed and approved the Resolution on the Company's "Quality and Efficiency Enhancement for Better Returns" Action Plan</li> </ul>
 <b>Sustainable Development Committee of the Board-Supervision</b>	<p>The Sustainable Development Committee consists of 4 Directors, with Mr. Huang Yongzhang, executive director and president of the Company, serving as the chairman, and Mr. Ren Lixin and Mr. Zhang Daowei, executive directors and senior vice presidents of the Company and independent non-executive Director Mr. Zhang Laibin, serving as members</p>	<p>The Sustainable Development Committee of the Board is responsible for supervising and inspecting ESG work and making recommendations to the Board and is mainly responsible for:</p> <ul style="list-style-type: none"> <li>Reviewing the Company's sustainable development approach, strategies, relevant key issues, objectives and measures, supervising and inspecting the implementation of sustainable development goals</li> <li>Reviewing the Company's annual ESG Report as well as the HSE Protection Report</li> <li>Reviewing the Company's ESG-related risk and opportunity management reports</li> <li>Other matters as authorised by the Board</li> </ul>	<ul style="list-style-type: none"> <li>Reviewed and approved the Company's annual ESG Report as well as the HSE Protection Report</li> <li>Reviewed and approved the Resolution on the Company's ESG Management Measures</li> </ul>
 <b>ESG Management Working Committee-Implementation</b>	<ul style="list-style-type: none"> <li>The ESG Management Working Committee is headed by Mr. Huang Yongzhang, executive director and president of the Company, as the chairman, with the vice president in charge of development planning, chief financial officer, secretary to the Board, and safety director serving as deputy chairmen, and its members include the personnel in charge of ESG work from departments leading each specialised working group</li> <li>The ESG Management Working Committee has established an ESG Management Working Office and three specialised working groups for green and low-carbon, social responsibility and corporate governance. The ESG Management Working Office is set up in the General Management Department (Board Office), with each specialised working group having one lead unit and one deputy lead unit, with participation from other relevant departments and professional companies</li> </ul>	<ul style="list-style-type: none"> <li><b>ESG Management Working Committee</b> is responsible for implementing ESG decisions and assignments from the Board and Sustainable Development Committee, regularly inspecting and supervising work progress, and coordinating the advancement of important matters.</li> <li><b>ESG Management Working Office</b> is mainly responsible for: reporting ESG management matters to the Company's ESG Management Working Committee and coordinating implementation according to work assignments; leading the development of the ESG management system and institutional framework; leading the preparation of the Company's ESG medium and long-term special planning; leading annual ESG report compilation and publication; leading ESG communication and collaboration with stakeholders.</li> <li><b>Specialised Working Groups</b> are mainly responsible for: identifying relevant issues, establishing and improving issue indicator systems to ensure alignment with the Company's strategic planning, investment plans, financial budgets and production operations, developing specific targets and optimisation measures and promoting related digitalisation development; managing performance of key issues, including collection, statistics, review, and optimisation of indicators; managing risks and opportunities for relevant issues; drafting special reports on key issues and assisting in annual ESG report preparation.</li> </ul>	<ul style="list-style-type: none"> <li>Formulated the "ESG Management Measures (Trial)"</li> <li>Initiated preparation of the ESG focus section of the Company's "15th Five-Year Plan"</li> <li>Held quarterly special meetings on ESG work enhancement to promote the "Three-Year Action Plan for ESG Work"</li> <li>Conducted research on climate-related risks and opportunities</li> <li>Maintained improvements in ESG information disclosure standards</li> </ul>

## Annual Progress of the "Three-Year Action Plan for ESG Work"

The Company is fully promoting the implementation of the "Three-Year Action Plan for ESG Work" to systematically, effectively, and sustainably enhance the Company's ESG management standard.

### Action plan goals



### Progress in 2024

#### Established a special working team

- Under the leadership of the Board and the Sustainable Development Committee, we established a special team for the "Three-Year Action Plan for ESG Work", headed by the president, with the vice president, chief financial officer, and secretary to the Board as deputy heads

#### Optimised ESG management structure and responsibilities

- We developed a robust top-down ESG work organisation system, clarifying ESG work principles, management system, work content, division of responsibilities, management interfaces and working mechanisms
- We established the ESG Management Working Committee and held quarterly meetings to advance the "Three-Year Action Plan for ESG Work"

#### Strengthened the ESG institutional system

- We formulated and implemented the "ESG Management Measures (Trial)"
- We studied and built special work systems focusing on key ESG issues including energy transition and climate change, biodiversity, human rights, employee health and safety, supply chain management, community communication and social contribution

#### Strengthened ESG risk management and control

- We conducted research on climate-related risks and opportunities and incorporated climate risk into the Company's comprehensive risk management and control system

#### Improved capacity development

- We organised special ESG training sessions

CASE STUDY

### Formulating ESG management measures to promote ESG performance enhancement

To standardise the Company's ESG management work, ensure the effective operation of the ESG management system, and promote ESG performance enhancement, the Company formulated the "ESG Management Measures (Trial)", which has been fully implemented since it was reviewed and approved by the Board.

The "ESG Management Measures (Trial)" specify the responsibilities, processes, and implementation methods for the Company's ESG management system, risk and opportunity management, information disclosure, communication and cooperation, providing a solid foundation for the Company's comprehensive and systematic management of ESG affairs and enhancement of ESG performance.

The Company follows the principles of "compliance-driven, unified management, sustainable advancement", strictly complying with laws, regulations and regulatory requirements in our listing locations and areas of operation. We emphasise ESG management and practices with Chinese characteristics, integrating ESG concepts into the Company's overall development strategy and production and operation management activities. This approach clearly defines the division of responsibilities, emphasises collaboration, continuously refines work content and processes, streamlines management mechanisms, and strengthens the management foundation based on the Company's actual situation to gradually improve management standards in phases.

## ESG PERFORMANCE AND MANAGEMENT REMUNERATION

The Company incorporates ESG indicators such as energy conservation, emission reduction, HSE and compliance management into our management performance review. The results of the review are linked to their remuneration to promote the effective implementation of sustainable development strategies. Specifically, energy conservation and emission reduction indicators carry 10% weight 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.

### Management performance review

ESG related category and weighting	Key performance indicator	Weight
Energy conservation and Emission reduction (10%)	Overall energy consumption per RMB 10,000 of output	2%
	Chemical oxygen demand (COD) emissions	2%
	Nitrogen oxides emissions	2%
	Volatile organic compounds VOCs emissions	2%
	CO <sub>2</sub> emissions per RMB 10,000 of industrial output	2%
Safety and Environmental Protection (Mandatory)	Fatality rate per million work hours	
	Major production safety liability incidents	
	Major environmental liability incidents	5 points deducted for each non-performing indicator
Compliance Management Indicators (Mandatory)	Investment planning control	
	Internal control framework operation evaluation	

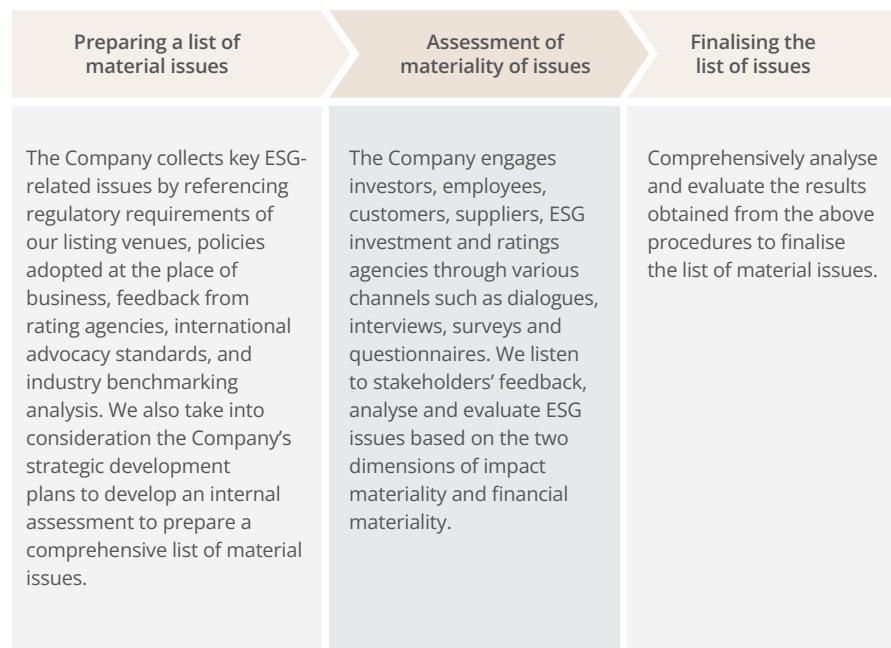
# IDENTIFICATION AND MANAGEMENT OF MATERIAL ISSUES

We combine energy industry development trends and the Company's operational characteristics to comprehensively analyse, identify, and manage important ESG issues relevant to the Company. In 2024, based on the "double materiality" principle, we integrated financial materiality into the material issues identification process, analysing and identifying ESG issues across the two dimensions of impact materiality and financial materiality before conducting our materiality assessment. Ultimately, we identified 23 material issues of significant importance to the Company and stakeholders. (For details, please refer to the materiality matrix on page 18).

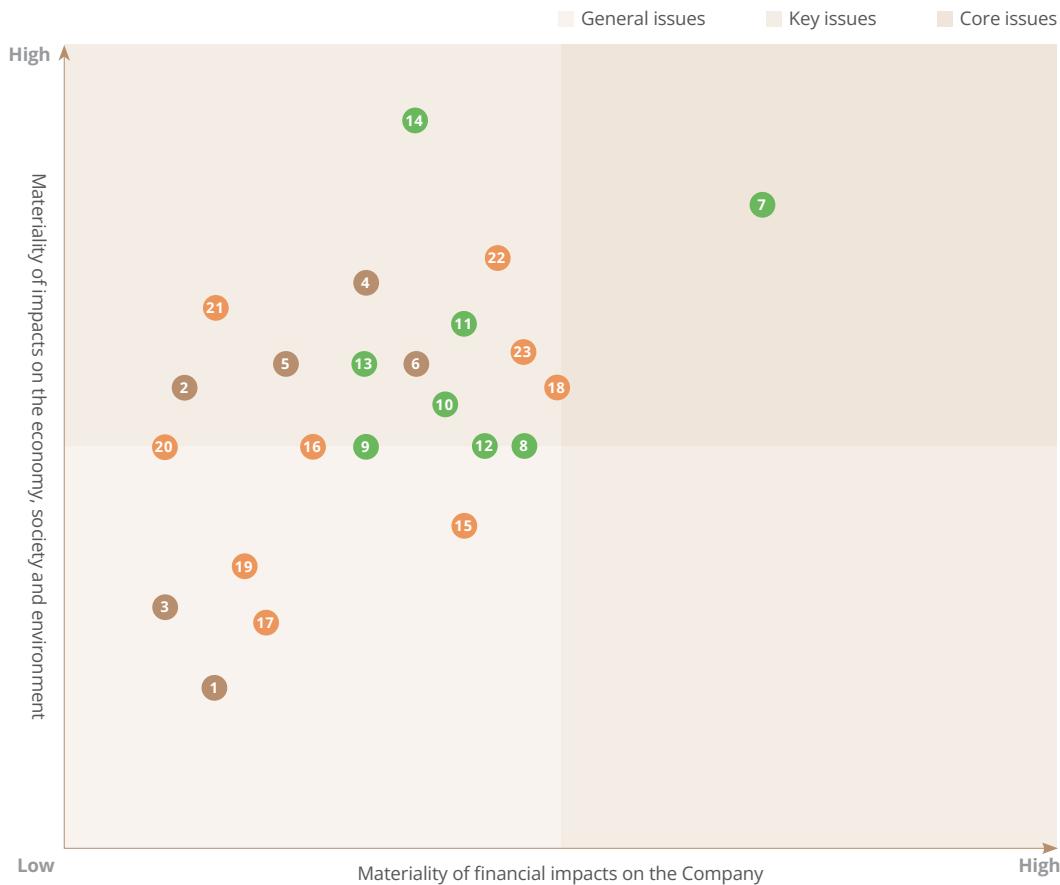
## Basis for assessing material issues



## Process for identifying material issues



## Materiality Matrix



	① Due diligence ② Stakeholder communications	③ Anti-unfair competition ④ Board governance	⑤ Anti-commercial bribery and anti-corruption ⑥ Compliant operations
	⑦ Climate change and green low-carbon transition ⑧ Circular economy ⑨ Waste disposal	⑩ Use of water resources ⑪ Pollutants discharge management ⑫ Environmental compliance management	⑬ Ecosystem and biodiversity protection ⑭ Use of energy
	⑮ Innovation-driven ⑯ Supply chain security ⑰ Data security and customer privacy protection	⑱ Safety and quality of products and services ⑲ Equal treatment of SMEs ⑳ Social contribution	㉑ Rural revitalisation ㉒ Employee rights and development ㉓ Employee health and safety

Note: The Company's business does not involve scientific research, technology development or other activities in ethically sensitive areas such as life sciences or artificial intelligence. The impact materiality and financial materiality of issues relating to "ethics of technology" are relatively low for the Company. Accordingly, they have not been included in the material issues of the Company's ESG management.

## DUE DILIGENCE

The Company is gradually incorporating ESG due diligence into its risk management system. By regularly assessing the performance of the Company itself, its subsidiaries and business partners in areas such as compliance operations, business ethics, climate change, environmental and biodiversity protection, and human rights, we identify and analyse ESG risks and take appropriate measures to prevent or mitigate potential adverse impacts. To ensure the effectiveness of due diligence, the Company regularly evaluates and improves its due diligence policies and measures, while establishing communication mechanisms to maintain full communication with the subjects under investigation.

The Company uses due diligence as an important means to strengthen supply chain risk management. The first-level material supply professional group forms a supplier on-site inspection team to conduct due diligence on suppliers' ESG conditions. The investigation comprehensively covers suppliers' compliance management systems, business ethics standards, health, safety and environmental (HSE) management systems, and social responsibility practices. Through multi-dimensional assessment, we ensure on page 125 of this report.

## STAKEHOLDER ENGAGEMENT

The Company is dedicated to improving the quality and profitability of our development, striving to reward stakeholders with the fruits of our growth and pursuing the maximisation of shared value for the Company and all stakeholders. We place high importance on investor relations management, adhering to relevant laws and regulations and securities regulatory rules of domestic and overseas listing venues. We formulate and continuously improve system documents such as the "Company Information Disclosure Management Measures" and "Investor Relations Management Measures" and ensure their strict implementation. We have established multi-level communication channels with stakeholders to facilitate a comprehensive understanding of stakeholders' demands and expectations, conducting communication and collaboration to achieve mutual benefit and harmonious development.

### High quality information disclosure

In 2024, the Company continued to enhance information transparency, providing timely updates on business operations and governance to stakeholders:

- Enhanced and refined the information disclosure management system, fulfilling information disclosure obligations in accordance with the law
- Published quarterly, semi-annual and annual financial reports, as well as the annual ESG Report on a regular basis in accordance with regulatory requirements and the "Company Information Disclosure Management Measures", providing comprehensive disclosure of the Company's operational, financial and ESG management information
- Published 184 announcements, reporting major matters such as the election and appointment of independent non-executive directors and the release of the "Quality and Efficiency Enhancement for Better Returns" Action Plan to investors on a timely basis (please refer to the Company website)
- Received "A" rating in information disclosure by SSE for 10 consecutive years

### Published announcements

184

Received "A" rating in information disclosure by SSE for 10 consecutive years

A



## Enhancing stakeholder communication through various channels

Stakeholder	Communication Contents	Channels and Mechanisms
 <b>Governments and regulatory authorities</b>	<ul style="list-style-type: none"> <li>• Tax payment and compliant operations</li> <li>• Ensuring energy supply</li> <li>• Climate change and energy transition</li> <li>• Promoting employment</li> <li>• Rural revitalisation and social contribution</li> <li>• Environmental and biodiversity protection</li> <li>• Sustainable development and ESG management</li> </ul>	<ul style="list-style-type: none"> <li>• Government supervision and inspection</li> <li>• Daily communication and reporting</li> <li>• Policy discussions and meeting seminars</li> <li>• Participating in government-related forums and meetings</li> </ul>
 <b>Shareholders and investment institutions</b>	<ul style="list-style-type: none"> <li>• Board governance</li> <li>• Shareholder rights protection</li> <li>• Operating results</li> <li>• Sustainable development and ESG management</li> <li>• Climate change and energy transition</li> </ul>	<ul style="list-style-type: none"> <li>• Fulfilling obligations on statutory information disclosure</li> <li>• Organising results presentations and other communication activities</li> <li>• Issuing regular reports and organising results announcement conferences and investors conferences</li> <li>• Engagements and seminars from time to time</li> </ul>
 <b>Employees</b>	<ul style="list-style-type: none"> <li>• Safeguarding employee rights</li> <li>• Diversity, equality and inclusion</li> <li>• Improving remuneration and welfare</li> <li>• Employee training and development</li> <li>• Employee health and safety</li> </ul>	<ul style="list-style-type: none"> <li>• Electing employee representatives to join the Supervisory Committee</li> <li>• Establishing labour unions at all levels</li> <li>• Convening employee representatives' meetings and preparing reports</li> <li>• Setting up a complaints and feedback system</li> <li>• Conducting education and training</li> </ul>
 <b>Customers</b>	<ul style="list-style-type: none"> <li>• Improving product and service quality</li> <li>• Protecting consumer rights</li> </ul>	<ul style="list-style-type: none"> <li>• Carrying out activities to protect consumer interests</li> <li>• Publicising commitment to quality services</li> <li>• Providing 956100 hotline services</li> <li>• Conducting customer satisfaction surveys</li> </ul>
 <b>Business partners</b>	<ul style="list-style-type: none"> <li>• Fair and transparent procurement</li> <li>• Business ethics and compliant operations</li> <li>• Local procurement</li> </ul>	<ul style="list-style-type: none"> <li>• Conducting tender procedures, regular business communication sessions and various other meetings</li> <li>• Leveraging e-procurement platforms</li> <li>• Engaging in contract negotiations and routine meetings</li> <li>• Organizing partner training sessions to share management experience and technical standards</li> <li>• Hosting large-scale multinational business negotiations, technical exchanges and executive forums</li> </ul>
 <b>Industry associations and NGOs</b>	<ul style="list-style-type: none"> <li>• Climate change and energy transition</li> <li>• Environmental and biodiversity protection</li> <li>• Sustainable development and ESG management</li> <li>• Human rights protection and community development</li> </ul>	<ul style="list-style-type: none"> <li>• Participating in industry association activities, strengthening communication and cooperation</li> <li>• Holding discussions and exchanges on various issues of public concern</li> <li>• Participating extensively in various forums and conferences to promote international communication</li> </ul>
 <b>Communities</b>	<ul style="list-style-type: none"> <li>• Protecting community human rights, respecting community cultural traditions</li> <li>• Protecting the community environment</li> <li>• Promoting community development</li> <li>• Local procurement and local employment</li> </ul>	<ul style="list-style-type: none"> <li>• Establishing a comprehensive community engagement mechanism</li> <li>• Fulfilling notification obligations and increasing information disclosure</li> <li>• Participating in social welfare, paying attention to community feedback and improving social effectiveness</li> </ul>

## Measures and Progress

- Actively cooperated with the CSRC, SSE, HKEX, completing more than 10 surveys and questionnaires, providing feedback and suggestions for ESG information disclosure policy consultations

- Shareholder communication is carried out through various online and offline means such as shareholders' meeting, performance conference, investor reception, shareholder visit, brokerage strategy meeting, investor hotline, SSE E-interactive, road show, reverse road show, etc.
- Ensured equal treatment of shareholders and valued the opinions of minority shareholders, providing feedback to the Company's management in a timely manner

- Convened multi-tier employee representative conferences while maintaining ongoing workforce dialogue through union structures and feedback mailboxes to understand employee sentiment and address concerns

- Optimised call centre operations at our 956100 customer service hub, delivering comprehensive client support including consultations, information requests, transaction processing, grievance resolution and value-added services, while implementing voice-of-customer protocols and effective complaint management systems

- Established an integrated material procurement platform and bidding platform to provide suppliers with equal competition opportunities
- Prioritised communication and coordination with contractors and strengthened the QHSE management of contractors by creating a safe and healthy working environment

- As the unit of the Vice President of China Association for Public Companies (CAPCO) and Deputy Head of the CAPCO ESG committee, actively supported CAPCO, strengthened experience sharing with member units, and was selected for the "2024 Best Board Practice Case" and "2024 Best Sustainable Development Practice Case"
- Joined the "Oil & Gas Decarbonization Charter" (OGDC) as a steering committee member company, working with 54 global oil and gas companies to research and promote the green and low-carbon transition of the global oil and gas industry

- Managed impact on communities, conducted social and environmental impact assessments, and disclosed relevant information to communities in a timely manner
- Actively engaged in dialogue with communities and properly handled community complaints

- Conducted reverse roadshows for investors at Jilin Oilfield, Daqing Oilfield, Changqing Oilfield, Exploration and RIPED and other enterprises
- Communicated with ESG investment and rating institutions such as Harvest Fund, New China Asset Management, CICC Asset Management, CITIC Securities, Everbright Securities to enhance mutual understanding

- Conducted customer satisfaction surveys
- Hosted a customer symposium on the theme of "Partnership Appreciation: Collaborative Future Creation"

- Enhanced strategic sourcing relationships with 18 key domestic and international vendors including China Baowu and Baosteel, deepening multi-dimensional supplier partnerships and fostering knowledge exchange on green low-carbon initiatives and sustainability practices
- Maintained seven consecutive years of participation in the China International Import Expo, strengthening global collaborative partnerships

- Participated in activities of industry organisations such as Oil and Gas Climate Initiative (OGCI), China Oil and Gas Methane Control and Emission Reduction Alliance, China Energy and Chemical Industry Chain Carbon Footprint Alliance, and Central Enterprise CCUS Innovation Consortium to strengthen cooperation and exchanges on Carbon Reduction
- At the 29th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP29), hosted and participated in side events such as "China Methane Control Efforts, Progress, and Opportunities" and "China State-owned Enterprises Going Green", showing the Company's determination and actions to address climate change

- Organised the seventh PetroChina Open Day, inviting government officials, media reporters, company clients, resident representatives, and various groups to visit and learn about PetroChina, showcasing the Company's actions and achievements in technological innovation, green and low-carbon transition, and social contributions
- Conducted biodiversity monitoring in Other Effective Area-based Conservation Measures (OECMs), established volunteer service teams, and created biodiversity conservation science education bases

CASE STUDY

### Strengthening positive interaction with investors

To safeguard investor interests and enhance transparency, PetroChina continuously strengthens communication and positive interaction with investors. In 2024, the Company organised two reverse roadshow events in June and November.

From June 24 to 28, we invited 50 investors and analysts from institutions such as Harvest Fund, Bosera Fund, and J.P. Morgan to visit Jilin Oilfield, Daqing Oilfield, and Kunlun Energy's Harbin City Gas Project. These visits showcased our new low-carbon and high-efficiency operational model for oil fields, achievements in technological innovation, and progress in natural gas business. Three focused communication sessions allowed management to engage directly with investors about production and operational situation.

During November 18-21, we invited 36 investors and analysts from institutions such as Everbright Securities, CICC, and UBS Securities to visit the Exploration and Development Research Institute and Changqing Oilfield related projects. The event helped them learn about cutting-edge technologies and equipment for natural gas development, experience the "pulse" of the efficient and stable operation of China's natural gas industry chain, and gain a deeper understanding of PetroChina's efforts and achievements in scientific and technological self-reliance and the cultivation of new productive forces.



Investor inquiry response rate

In 2024, the Company organised 4 results presentations, attended 53 broker conferences, hosted 32 investor meetings, conducted 49 outreach visits to investors, arranged 12 investor group sessions, met with more than 1,000 buy-side and sell-side analysts, responded to 46 inquiries on the SSE E-interactive, answered over 1,000 investor calls, replied more than 1,000 email inquiries, and maintained a perfect 100% investor query response rate.



CASE STUDY

**"PetroChina Open Day" celebrates a seventh season**

In 2024, PetroChina hosted its seventh annual "PetroChina Open Day" from June through October. During this series of events, our affiliated units welcomed government officials, journalists, customers, community representatives and various stakeholders for a firsthand experience of the complete petroleum industry value chain. Visitors engaged with our operations through multiple interactive formats including facility tours, live demonstrations, product showcases, expert-led educational sessions, recreational activities, special lectures, and media livestreams. These diverse activities successfully built online and offline connections between our Company and both media outlets and the public. From 2018 to 2024, PetroChina has held Open Day events for seven consecutive years.



PetroChina has held  
Open Day events for  
seven consecutive years

# GOVERNANCE

## CORPORATE GOVERNANCE

At PetroChina, we advocate value creation, upholding fundamental principles while breaking new ground, embracing legal and regulatory compliance, collaboration and mutual benefits as our governance doctrine. By continuously improving our modern enterprise system with Chinese characteristics and making strong efforts to advance our governance system and capabilities, we ensure scientific decision-making, effective checks and balances, standardised operations, and powerful supervision. We persistently enhance corporate competitiveness, innovative capabilities, controlling power, influence, and risk resistance capabilities. Sustained improvement in governance effectiveness enables us to promote the Company's high-quality and sustainable development, fulfil our social responsibilities, and safeguard the interests of our stakeholders.

The UN Sustainable Development Goals

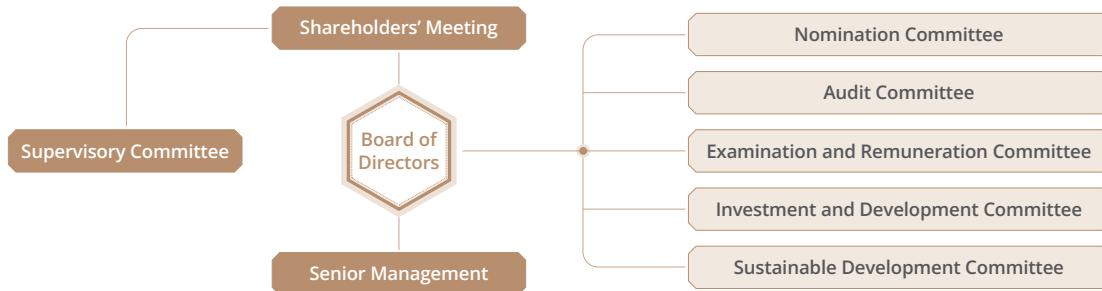


## ENHANCING CORPORATE GOVERNANCE

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, the relevant provisions of the China Securities Regulatory Commission, and the regulatory requirements where shares of the Company are listed.

Since incorporation, PetroChina has established a corporate governance framework aligned with regulatory requirements and international practices. We have formulated and strictly adhered to the Articles of Association of PetroChina Company Limited (the "Articles of Association"), constructed a governance system based on statutory and transparent powers and responsibilities, coordinated operations, and effective checks and balances. This approach ensures the continuous enhancement of our corporate governance system and capabilities. The respective authorities and responsibilities of the Shareholders' meeting, the Board of Directors and its committees, the Supervisory Committee, and senior management headed by the President have been clearly defined. Such a management structure facilitates close coordination and demonstrates high effectiveness.

### Corporate Governance Structure



## Shareholders' Meeting and Protection of Shareholders' Rights and Interests

In 2024, the Company held two shareholders' meetings, where 11 resolutions were considered and approved. The shareholders' meetings complied with regulatory rules and statutory procedures, and the resolutions adopted are legal and valid.

For details on the shareholders' meetings and resolutions, please refer to the Company website and the 2024 annual report of the Company.

The Shareholders' meeting constitutes the paramount governance authority in the Company, exercising strategic functions and powers in strict accordance with applicable legal frameworks. The Company convene shareholders' meeting annually to ensure comprehensive and equitable shareholder status and optimal rights execution.

### Protection of Shareholders' Rights and Interests >

The Company demonstrates a strong commitment to safeguarding shareholders' rights and interests, with particular emphasis on protecting the legitimate entitlements of minority shareholders. This is achieved through continuous enhancement of participation and voting mechanisms, smooth investor communication channels, and a comprehensive approach to ensuring each shareholder feels equally valued by the Company.

The Company actively facilitates shareholders' participation in the shareholders' meetings, taking into account the timing, location, and format of the meetings, in order to ensure that attendance would be convenient for shareholders, especially minority shareholders. We invite individual shareholders to participate and serve as scrutineers at the meetings. The Company respects the right of shareholders to information and sets up an investor communication session during Shareholders' meetings, with the management responding earnestly to questions from shareholders. After the meetings, our investor relations staff conduct separate shareholder engagement activities to ensure full communication with shareholders, including minority investors, ensuring effective communication between minority investors and the Company.

The independent directors rigorously adhere to domestic and international regulatory frameworks and the Company's Articles of Association, diligently executing their fiduciary responsibilities and providing impartial, strategic guidance that substantively contributes to protecting minority shareholders' legitimate rights. Since 2018, the Company has implemented a sophisticated "cumulative voting system" for director and supervisor elections, empowering minority shareholders and substantially enhancing shareholders' active participation in our corporate governance.

Since its initial public listing, the Company has maintained a long-term, stable, and proactive cash dividend policy, consistently delivering a dividend payout ratio exceeding 45% of net profit attributable to the parent entity, thereby providing generous investment returns to our shareholders.

The Company complies with the Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited and the relevant rules of the SSE 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, nor affect the Company's independence.

For more details about the Company's connected transactions in 2024, please refer to our annual report for 2024.



### Ensuring Fair and Reasonable Connected Transactions >>

The Company maintains stringent compliance with listing jurisdiction regulations concerning connected transactions, implementing comprehensive management protocols including the Company's Connected Transaction Management Measures, Internal Control Management Manual, and Internal Control Operation Evaluation Management Measures. The Board's Audit Committee conducts semi-annual reviews of internal control evaluations and continuing connected transaction implementations. Concurrently, the supervisory committee receives detailed reports on these evaluations, with independent auditors conducting comprehensive reviews, issuing an annual assurance report. The Company actively protects the interests of all shareholders, with particular emphasis on safeguarding the rights of minority shareholders.

At the time of the Company's listing, the Company and CNPC entered into a continuing connected transaction agreement. In accordance with regulatory requirements, the Company regularly updates the specific details of continuing connected transactions with CNPC (including scope and amount), submitting these to the Board and shareholders' meeting for approval. The historical transaction amounts of continuing connected transactions have consistently remained within the caps approved by the Company's shareholders' meeting and Board and have been disclosed in annual reports each year. To ensure the fairness and reasonableness of connected transactions, CNPC, as a connected shareholder of the Company, abstains from voting on resolutions concerning connected transactions at shareholders' meetings.

We actively listen to the views of our shareholders, improve shareholder circular disclosures, providing additional content such as CNPC's commitments, risk management of China Petroleum Finance Company Limited, etc. We provide detailed explanations of the Company's connected transactions from various aspects, including safeguarding the Company's production and operations, implementing future development strategies, ensuring sustainable and healthy growth, and protecting the overall interests of all shareholders, thus addressing the concerns and demands of independent shareholders and receiving widespread recognition and support.

### Improving the Structure of the Board of Directors

The Company attaches great importance to the development of our Board of Directors, having formulated the Board of Directors Delegation and Management Measures (Trial), establishing standardised mechanisms for board member elections and appointments, as well as rules for proceedings. We continuously improve the structure of the Board

In 2024, the Company convened 8 Board meetings and 14 committee meetings (5 for Nomination Committee, 5 for Audit Committee, 1 for Examination and Remuneration Committee, 1 for Investment and Development Committee, and 2 for Sustainable Development Committee), deliberated and approved 39 Board resolutions, which covered various topics such as the election and appointment of independent non-executive directors, formulation of the Company's "ESG Management Measures (Trial)", and issuance of annual ESG reports.

For details on the duties performed by the Board of Directors, please refer to the Company website and the 2024 annual report.

of Directors, enhancing its independence and diversity levels, and fully leveraging the professionalism and supervisory capabilities of the Board of Directors to provide strong support for the Company's sustainable development. In 2024, the Company adhered to the principles of legal and regulatory compliance, equivalence of rights and responsibilities, and manageable risks, implementing responsible entities, executing standardised and scientific authorisation, thus improving decision-making quality and efficiency, and promoting high-quality development of the Company.

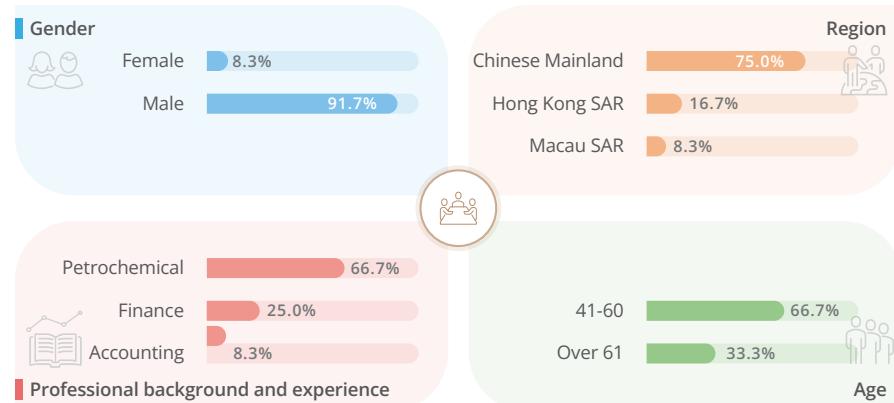
The directors of the Company are elected at the shareholders' meetings and are accountable to the shareholders of the Company. The term of office is three years, renewable at the end of the term upon re-election and re-appointment. The directors act in the interest of all shareholders, adhering strictly to the principle of diligence, integrity and pragmatism, and performing their duties with diligence. There are five Board committees under the Board of Directors, namely the Nomination Committee, the Audit Committee, the Examination and Remuneration Committee, the Investment and Development Committee, and the Sustainable Development Committee, providing support to the Board of Directors in decision-making. As of 31 December 2024, the Board of Directors consists of 12 members. For detailed information about Board members, please refer to the Company's website and the 2024 annual report.

## Board Diversity >>

The Company implements Board membership diversity policy, ensuring that the composition of the Board of Directors is strategically aligned with our organisational business model and operational requirements. Our approach comprehensively considers multiple aspects of diversity, including gender, age, cultural and educational backgrounds, and professional expertise. The Board of Directors comprises senior experts in various fields including petrochemicals, finance, accounting, bringing extensive industry insights and providing invaluable strategic guidance to the organisation. At the same time, the Company facilitates continuous professional development through targeted internal training and external learning initiatives, enabling Board members to continuously update their knowledge and competencies in alignment with the dynamic requirements of a diverse and high-performing governance structure.

For further details of Board member profiles, please refer to the Company website and the 2024 annual report.

### Board diversity





Proportion of independent directors

## Board Independence >>

In accordance with regulatory frameworks established by the China Securities Regulatory Commission's Measures for the Administration of Independent Directors of Listed Companies and the HKEX's Corporate Governance Code, we continuously enhance our system of independent directors, elevating their performance capabilities and strengthening Board independence.

In 2024, we revised and rigorously implemented the Company's Independent Directors Management Measures, further standardising the appointment and removal protocols for independent directors. The revised measures precisely delineate their responsibilities and authoritative scope, comprehensively safeguarding independent directors' right to information and providing essential working conditions and personnel support to facilitate optimal performance. These measures ensure independent directors can exercise their duties with legal, objective, and impartial oversight of corporate affairs. In 2024, we elected and appointed new independent directors. As at the end of the year, the Company had a total of 5 independent non-executive directors, accounting for 41.7% of the Board of Directors, in compliance with regulatory requirements. The proportions of independent directors in the Nomination Committee, Audit Committee, and Examination and Remuneration Committee of the Board of Directors reach two-thirds, an absolute majority. The proportions of independent directors in the Investment and Development Committee and the Sustainable Development Committee reach a quarter. Ms. Liu Xiaolei and Mr. Zhang Laibin serve as chairpersons of the Audit Committee and the Examination and Remuneration Committee, respectively. The Company's independent directors abide by their diligence and loyalty obligations, strictly follow the relevant domestic and foreign laws and regulations and the Articles of Association, use their professional knowledge and rich experience in their respective fields to provide advice for the Company's operations and business development, play a role in participating in decision-making, supervision and checks and balances, and professional consultation in the Board of Directors, safeguard the overall interests of the Company, and guarantee the legitimate rights and interests of minority shareholders.

In 2024, the independent directors proactively gained comprehensive insights into the Company's operational performance, financial performance, connected transactions, and significant strategic initiatives through multifaceted engagement strategies, including on-site investigative visits, meeting participation, senior-level interactions and correspondence, and provided valuable suggestions and proposals to enhance the Board functionality and business development.

The independent directors meticulously reviewed resolutions and accompanying documentation submitted by the Company, actively participated in shareholders' meetings, Board meetings, Board committees meetings, and independent director conferences. They provided independent and objective perspectives, safeguarding the legal entitlements of all shareholders, with particular emphasis on protecting the interests of minority shareholders. Their systematic review of periodic corporate reports ensured our compliance with regulatory disclosure requirements, maintaining the authenticity, accuracy, and comprehensiveness of corporate information dissemination. For proposals requiring Board consideration, independent directors conducted exhaustive pre-meeting document reviews, proactively sourcing relevant contextual information and comprehensively understanding resolutions' backgrounds. They diligently prepared for the Board's and Board committees' discussions, provided substantive independent opinions and analytical commentary. They actively engaged in meetings, critically examined resolutions, participated constructively in discussions, and leveraged their professional expertise to generate meaningful insights through in-depth management dialogues. They maintained rigorous oversight, monitored implementation progress after meetings, ensuring effective strategic execution. They also demonstrated a strong commitment to continuous professional development, systematically studying relevant legislative frameworks and regulatory guidelines. Through participating in critical corporate meetings, conducting targeted research initiatives, and reviewing the Company's specialised situational briefings and directorial reports, they maintained a comprehensive understanding of significant corporate developments.

For details of work performed by the independent directors during the year, please refer to the Company website and the annual report for 2024.

## Director's Participation in Surveys and Training >>

In 2024, the Company's independent non-executive directors visited PetroChina's regional companies based in Guangdong and Xinjiang in China as well as in South America for a better understanding of the operation and management of these companies. The Company organized Board training on matters such as climate-related risks and opportunities, etc., with 39 participants, greatly enhanced their expertise and capacity in performing duties.

## Supervisors and Supervisory Committee

In 2024, the Company held five Supervisory Committee meetings and considered and approved 12 important resolutions. All meetings complied with the provisions of the Company Law and the Articles of Association and were legal and valid.

The term of office of our supervisors is three years, subject to renewal upon re-election and re-appointment. Supervisors are prohibited from simultaneously holding executive positions such as director, president, vice president, or chief financial officer. In strict adherence to the Company Law and our Articles of Association, supervisors are obliged to attend Supervisory Committee meetings and participate as non-voting observers in Board meetings. They are primarily accountable to the shareholders' meeting, where they present comprehensive Supervisory Committee work reports and submit relevant proposals. As at the end of 2024, the Supervisory Committee comprised eight supervisors, four of them are employees' representative supervisors.

The Supervisory Committee is accountable to the shareholders' meeting. The Supervisory Committee revises and formulated the Rules of Procedures for the Supervisory Committee and the Rules on Supervisors' Performance Management and establishes specific regulations regarding supervisors' performance methods, content, requirements, and evaluation standards. The Supervisory Committee actively encourages all supervisors to diligently fulfil their responsibilities and conduct comprehensive supervision over the Company's finances, as well as the legal and compliance performance of the Company's directors and senior management.

## Management Team

The Company's executive leadership is structured under the president's guidance, comprising senior vice presidents, vice presidents, chief financial officer, and secretary to the Board. These executives are appointed by and directly accountable to the Board of Directors. Operating within the framework of the Company Law and the Articles of Association, they implement Board resolutions and organise the Company's day-to-day production and business activities through Board-delegated authority.

## Management Remuneration, Incentives and Evaluation >>

The remuneration of the Company's management mainly consists of basic salary, performance-based annual salary, and term incentive income. All management personnel have signed performance contracts with the Company. The Company incorporates ESG indicators such as energy conservation, emission reduction, HSE and compliance management into the management team's performance assessment and realises performance-based remuneration according to the assessment results to promote the effective implementation of sustainable development strategies. For details, please refer to "ESG Performance and Management Remuneration" on page 16 of this report.

## LAWFUL AND COMPLIANT CORPORATE GOVERNANCE

The Company incorporates compliance with laws and regulations 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.” This has been achieved through coordinating risk, compliance, and internal control work, strengthening our compliance management system, enhancing compliance management responsibilities, strengthening compliance risk control mechanisms, continuously optimising and improving our compliance management system to comprehensively enhance our level of lawful and compliant operation.

The Company has strictly implemented laws, regulations and government regulatory requirements, incorporating compliance requirements into our systems and processes. We have clearly defined the compliance management responsibilities of governance bodies and established a compliance management organisational structure where each department is responsible for its own duties, working together to manage compliance. We continuously optimise a compliance system based on the Compliance Management Regulations and the Integrity Compliance Manual, with specific regulations formulated with reference to various business norms and key compliance risk prevention guidelines as operational regulations. Continuous efforts have been made to strengthen compliance risk prevention and control, including measures such as compliance risk assessment and early warning, compliance reviews, evaluations of the effectiveness of compliance management systems, compliance assessment and reporting, thus strengthening compliance management supervision and accountability.

### Compliance management operating mechanism

Compliance risk assessment and early warning	Dynamically tracking changes in the legal environment and regulatory policies, establishing and improving information reporting mechanisms such as special reports and briefings, promptly issuing major risk alerts
Compliance review	Strengthening compliance review mechanisms, improving the list of special compliance review items, embedding compliance reviews into business processes, ensuring all required reviews are conducted
Evaluation of compliance management system effectiveness	Establishing and improving evaluation indicators, promoting continuous improvement and effective operation of the system through conducting evaluations of the effectiveness of corporate compliance management framework
Compliance assessment and reporting	Continuously improving compliance operation assessment indicators, strictly implementing assessments, strengthening incentives and constraints, specifying requirements for monthly legal compliance risk reports and major compliance risk incident reports, enhancing compliance monitoring

### Progress of key compliance management work in 2024

The Company organised the “Compliance Management Enhancement Year” activity, improving the compliance management system in five aspects including compliance management organisation responsibilities, operational mechanisms, key risk prevention and control, culture cultivation, and supervision and inspection.

Strengthening compliance operational mechanisms	Strengthening compliance risk prevention and control in key areas	Enhancing compliance awareness and training programs
<ul style="list-style-type: none"><li>Improved the list of special compliance review items , further clarifying the scope and requirements of reviews</li><li>Optimised evaluation indicators, organised enterprise self-assessment, conducted on-site evaluations for some enterprises, and incorporated evaluation results into enterprise compliance development assessment</li><li>Strengthened reporting of non-compliance information, increased risk monitoring efforts and supervised implementation of rectifications</li></ul>	<ul style="list-style-type: none"><li>Dynamically monitored the legal compliance environment, established a monthly reporting mechanism for legal compliance risk events, strengthened reporting and response to major risk events</li><li>Focused on sales and trading, safety and environmental protection, international business, anti-monopoly, bidding, and other key areas to conduct risk investigation and hidden danger management, further improved and optimised compliance management mechanisms, and strengthened judgement and prevention of major risks</li><li>Formulated and revised compliance management systems and guidelines for data information, anti-monopoly, anti-commercial bribery, etc.</li></ul>	<ul style="list-style-type: none"><li>Focused on providing compliance training for middle and senior management and key position personnel</li><li>Held special training and legal knowledge tests on compliance with laws and regulations for middle and senior management to enhance compliance awareness and capability</li><li>Conducted trainings for corporate general legal counsels and foreign-related core legal personnel to improve professional capabilities and standards</li><li>Conducted targeted compliance trainings for key position personnel</li></ul>

# INTERNAL CONTROL AND RISK MANAGEMENT SYSTEM

The Company continuously improves its internal control system and framework, establishes effective management mechanisms, comprehensively identifies and prevents various risks encountered during the Company's development process, thus enhancing corporate operational efficiency and risk prevention capabilities. The Board and the Audit Committee regularly receive reports on internal control, dynamically assess significant risks, determine prevention and control measures, as well as response plans to ensure the completeness and effectiveness of the Company's internal control framework. We have formulated and revised regulations such as Risk Management Regulations and Business Process Management Measures, incorporated various requirements of risk management into business processes, outlined management structures and responsibilities, emphasised the closed-loop management of risk assessment, monitoring, early warning and response, strengthened the cultivation of risk management culture, promoted the digitisation of risk management information, and enhanced supervision, evaluation and accountability.

## Internal control and risk management framework

Management body	Key responsibilities
Board and Board committees	As the Company's risk management decision-making bodies, they regularly receive reports on enterprise internal control and risk management and review relevant reports
Legal and Corporate Reform Department	As the department responsible for centralised management of the Company's internal control and risk management, it leads the development and operation of the internal control framework
Functional managing departments and professional firms	Driving the development of risk-based institutional processes in their respective fields, continuously strengthening professional and business risk control
Affiliated enterprises	Developing and improving the Company's internal control framework, implementing the Company's requirements for risk management work

## Closed-loop management of risks



## Internal control and risk management key tasks in 2024

### Strengthening top-level design

- Maintained improvements to the internal control framework, revised multiple standards such as Risk Assessment Specification and Business Process Evaluation Guidelines, and further standardised the working procedures and methods of risk management and process management
- Promoted the construction of internal control information systems, strengthened key node control in business information systems, and promoted “controllable, traceable, and verifiable” operational management decisions and execution activities

### Strengthening risk management

- Enhanced risk assessment and monitoring, identifying and judging various potential risks in advance, and maintained improvements in analysis and tracking disposal of major risk events
- Conducted in-depth comprehensive risk analysis, with focus on risk events, risk indicators, and risk factors, systematically reviewed major risk exposure, analysed changes in characteristics and evolution trends, thus steering a change in risk management work towards continuous refinement and precision
- Strengthened research on early risk warning, optimised and improved early risk warning work procedures, specified work responsibilities at all levels, conducted in-depth research on various approaches to framework development, determined relevant indicators and threshold standards, formulated early risk warning work guidelines, thus consolidating the foundation for early risk warning monitoring work

### Enforcing more strict process management

- Carried out routine optimisation and maintenance of headquarters processes and filing systems, optimised process time efficiency design, strengthened cross-departmental compliance review management, and improved operational efficiency
- Promoted process standardisation in specialised business areas and further standardised the operating procedures of the main businesses of our oil and gas field enterprises
- Conducted trials of business process evaluation of affiliated enterprises, strengthened closed-loop management, established pilot enterprises to refine and improve the business process evaluation indicator framework, formulated improvement measures and enhanced process management standards

### Strengthening routine supervision

- Conducted systematic supervision and targeted testing, developed precise improvement strategies that addressed both fundamental causes and immediate symptoms, ensuring a comprehensive approach to prevention and control
- Refined and enhanced daily supervision methodologies with focus on critical domains, key processes and strategic positions, and carried out effectiveness assessments of the internal control framework
- Promoted implementation of review and thorough examination of rectification of issues identified during internal control supervision, conducted comprehensive evaluations of work organisation, implementation effectiveness and rectification effectiveness, thus enhancing rectification results

In 2024, the Company conducted 1,018 internal audit projects and submitted three reports on the relevant work to the Board's Audit Committee.



We conduct internal audit work within the Company, carrying out comprehensive reviews and evaluations of the finances, operations, and risk management of PetroChina and its wholly-owned and controlled subsidiaries, thus improving and strengthening internal controls and risk management. In 2024, we focused on audit work on areas such as economic responsibility of management personnel, investment and infrastructure, and overseas projects to further standardise the operation of power, improve investment effectiveness, and prevent and resolve operational risks. We have also incorporated

business ethics into the scope of audits, continuously expanding the breadth and depth of audit supervision. We closely combine national policies and various capital market regulatory requirements, increase testing efforts on key links such as internal control framework design, bidding, project management, and information system control, provide risk warnings for key links in internal control management, strengthen internal control supervision and evaluation, and promote operation in accordance with laws and regulations. We strictly enforce the audit rectification system, focus on source governance, increase tracking and supervision efforts, and continuously enhance accountability for problems found in audits. Throughout the year, the Company has conducted 1,018 internal audit projects, achieving full audit of those who left their positions and those whose term reached four years in economic responsibility audits; full audit of completed project settlements in construction project audits; full audit of joint account books every two years for domestic and foreign cooperative projects; and full audit every three years for key overseas investment projects. The Company has passed external audits for 19 consecutive years.

## BUSINESS ETHICS AND INTEGRITY RISK PREVENTION

The Company has formulated and strictly implemented a series of regulations and ethical standards such as the Anti-Commercial Bribery Manual, Integrity and Compliance Manual, Corporate Culture Manual, Professional Code of Conduct for Senior Management, Professional Code of Conduct for Employees, and Regulations on Handling Employee Violations, requiring management personnel and employees to strictly abide by legal norms and ethical standards related to preventing bribery, extortion, fraud and money laundering, strictly prohibiting them from providing, giving, requesting, or accepting financial benefits when cooperating with business associates, and strictly prohibiting them from engaging in any form of fraudulent behaviour by taking advantage of their positions.

The Company strictly complies with the Supervision Law of the People's Republic of China ("Supervision Law"), Regulations for Implementation of the Supervision Law of the People's Republic of China, Anti-Money Laundering Law of the People's Republic of China, Anti-Unfair Competition Law of the People's Republic of China and other laws and regulations, as well as international principles and initiatives such as the United Nations Convention against Corruption and the United Nations Guiding Principles on Business and Human Rights. We uphold social ethics, business ethics and market rules, adhere to the principles of honesty, fairness, mutual benefit, and win-win cooperation, refrain from seeking improper benefits through bribery and other illegal activities, respect third party intellectual property rights such as trademarks, patents and copyrights, oppose unfair competition, and work with partners to maintain a fair market competition order.

### Integrity Risk Prevention and Control System

We consider the integrity values of "exercising power impartially and performing duties with integrity" as a fundamental component of our corporate culture, continuously constructing and improving an integrity risk prevention and control system that comprehensively covers all management personnel, company employees, and business partners. We persistently strengthen standardised operations, implement rigorous supervision checks, enhance compliance controls, and provide ongoing education and training. By coordinating internal supervision resources, including legal departments, internal control, audit, disciplinary inspection, and supervisory teams, we enhance self-supervision, implement dedicated department supervision, and maintain supervision at all levels, while consciously maintaining awareness of social supervision to comprehensively prevent and resolve business ethics and integrity risks.

## Key measures in business ethics and integrity risk prevention and control

### Institutional System Development

- Enhancing and improving the system mechanisms, such as separating the exercise of powers, dividing responsibilities by position, authorising at different levels, and regularly rotating and exchanging positions, deeply integrating integrity risk prevention and control with internal control system development
- All organisations at all levels of the Company formulate and comply with rules of procedure for the Board of Directors, management, and others, ensuring a scientific and democratic decision-making process and fair and reasonable results
- Strictly implementing a series of system regulations covering procurement, contract management, bidding, fund usage and internal control of funds, and implementing a whole-process supervision mechanism of preliminary prevention, process supervision and post evaluation

### Management supervision and inspection

- Strengthening checks and supervision of the exercise of powers by management personnel at all levels, coordinating the establishment of a joint supervision mechanism involving disciplinary inspection, inspection, audit, finance and accounting, internal control, organisational personnel, etc. Holding regular coordination meetings on supervision work, establishing a “three-line defence” consisting of business supervision, functional supervision and full-time supervision, and setting up a “five-mechanism” framework for daily communication, cooperation, results sharing, accountability and performance evaluation
- Enhancing supervision over the exercise of powers, performance, integrity, and self-discipline of management personnel, and organising all employees to sign integrity management commitments
- Strengthening real-time dynamic monitoring of key areas and critical links, and achieving comprehensive supervision over all officials exercising corporate power

### Integrity risk identification, assessment and control

- Studying and developing refined governance measures relating to work processes, operating mechanisms, power allocation and position design, formulating the Guidelines for Integrity Risk Prevention and Control in Key Areas
- Comprehensively organising enterprise business processes, thoroughly identifying and assessing potential integrity risk factors at each link from key aspects such as procurement, sales, bidding, project management, and financial management, investigating integrity risk points in key positions, and formulating corresponding prevention and control measures
- Continuously improving and perfecting the risk control system, promoting the construction and application of risk libraries, embedding risk control measures into business processes, integrating and mutually promoting with the construction of large-scale centralised ERP, investigating integrity risks, and strengthening full-cycle control of risks before, during, and after events

### Auditing for business ethics and integrity

- Incorporating ethics, compliance, and integrity as key audit content in audit project implementation plans, using information technology to screen for suspicious points and risks during the pre-audit investigation stage, focusing on verifying whether there are clues of violations of laws and disciplines, dereliction of duty, abuse of power for personal gain, and financial crimes
- Establishing integrity supervision positions in audit teams to ensure audit teams conduct audit projects in accordance with laws and regulations, ensuring the performance of objective factual analysis with integrity, and eliminating various forms of interference

### Establishing accessible whistleblower channels

- Establishing accessible whistleblower channels such as telephone lines and letterboxes. Employees, third parties associated with the Company and the general public, may report any duty-related violations involved with the Company's business under conditions of confidentiality
- Strictly handling whistleblowing and leads in accordance with standard procedures, promptly initiating processing procedures, and organising forces to investigate and dispose of them in accordance with laws and regulations

### Integrity education and training

- Conducting legal education and training sessions from time to time on laws and regulations such as the Supervision Law, Administrative Penalty Law, Anti-Fraud System, and Rules for Ethical Conduct for all members of the Board and employees
- Compiling case warning records, organising warning education meetings, pre-appointment integrity education, etc., and conducting anti-corruption education activities based on different levels and categories, forming a long-term effective mechanism for integrity education

### Business partner integrity risk control

- Providing business partners with various forms of compliance and anti-commercial bribery training
- Rigorously investigating and handling cases of abuse of power for personal gain, bribery, rent-setting and rent-seeking, and other job-related violations
- Improving the joint disciplinary mechanism for bribery, taking measures such as interviews, warnings, downgrading cooperation evaluation levels, restricting market access, and blacklisting to penalise bribe givers, fostering a fair, competitive and transparent business environment

### Business Ethics and Integrity Risk Education and Training in 2024

Training Group	Training participation (count)	Training coverage (%)
Directors and supervisors	39	100
Management personnel	33	100
Employees (including market-based employees)	430,300	100
Newly authorised suppliers and contractors	3,296	100

### Whistleblower Protection System >>

We strictly implement regulations such as the Supervision Law and the Regulations on Supervision and Law Enforcement Work of Supervisory Organs, firmly ensuring the personal freedom, life, health, property, and relief rights of individuals under review and investigation. Additionally, we enhance protection of the legitimate rights and interests of whistleblowers, accusers, witnesses, individuals under investigation, and their relatives and relevant personnel. We demonstrate zero tolerance for retaliation resulting from supervisory actions such as criticism, whistleblowing, complaints, accusations, and similar activities.

We fully respect whistleblowers' preference for anonymity and strictly prohibit the use of technical means to trace related information. For named reports, we rigorously follow the notification feedback procedure, maintaining absolute confidentiality regarding the whistleblower's name, workplace, address, and any related reporting information. Throughout the process of accepting reports or conducting verification, the identity information of the whistleblower remains undisclosed. Any retaliatory behaviour discovered will be addressed seriously and in full accordance with applicable laws and regulations.

### Anti-Unfair Competition

The Company strictly follows relevant laws and regulations such as the Anti-Unfair Competition Law of the People's Republic of China, the Anti-Monopoly Law of the People's Republic of China, the Trademark Law of the People's Republic of China, the Patent Law of the People's Republic of China and the Copyright Law of the People's Republic of China, adhering to the principles of voluntariness, equality, fairness and integrity. We resolutely resist all forms of anticompetitive behaviour such as false advertising, maintaining monopolies and infringement of trade secrets. We do not seek trading opportunities or undermine the competitive advantages of other operators through means that violate business ethics, firmly maintaining market order and respecting and protecting all legal rights and interests of all customers and partners.

The Company has formulated the Implementation Measures for the Anti-Monopoly Law of the People's Republic of China, revised and improved anti-monopoly management systems, further specifying anti-monopoly compliance management responsibilities and risk prevention and control requirements. We have systematically reviewed key compliance risks for commercial bribery and formulated corresponding prevention and control measures, compiling the Anti-Commercial Bribery Compliance Guidelines. We have specified compliance requirements to ensure that the Company's various business activities are conducted in an orderly manner within the framework of the system, eliminating unfair competition behaviours at the source. We regularly organise various forms of employee training activities, inviting industry experts to conduct special training on anti-unfair competition, effectively enhancing employees' risk awareness and ability to identify unfair competition behaviours through in-depth analysis of typical cases and detailed interpretation of laws and regulations.

# ENVIRONMENT

## 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 peak and carbon neutrality goals, requiring energy industries to accelerate their transformation. PetroChina firmly implements China's policies on carbon 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 peak and carbon neutrality goals and to safeguard energy security.

The UN Sustainable Development Goals



## ADDRESSING CLIMATE CHANGE

The Company recognises the temperature goal set out in the Paris Agreement and strives to firmly implement the goals and action plans proposed by the Chinese government to achieve carbon peak and carbon neutrality. By leveraging our own energy resources, we intend to carry out the carbon emission peak action plans systematically and on a step-by-step basis. 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 implementation plans and collaborated with other institutions on climate change issues to actively and steadily contribute to the carbon peak and carbon neutrality goals. Adhering to the relevant governance and information disclosure requirements set by the HKEX and the Shanghai Stock Exchange and based on the “four-pillar” framework of governance, risk and opportunity management, strategy, and metrics and targets, we have established and revised a climate governance system. Under this system, we have carried out climate-related risk and opportunity assessments and formulated response measures. We continuously strengthen our climate response capabilities and strive to become a key force in helping China achieve its carbon peak and carbon neutrality goals, as well as ensuring the country's energy security.

### We have participated in and supported the following goals, organisations, and initiatives related to climate change

- United Nations Framework Convention on Climate Change
- Paris Agreement
- Oil & Gas Decarbonisation Charter (OGDC)
- National Climate Change Adaptation Strategy 2035
- Carbon Peak Action Plan before 2030
- Methane Emissions Control Action Plan
- Carbon Peak and Carbon Neutrality Declaration of China's Petroleum and Chemical Industry
- The Oil and Gas Climate Initiative (OGCI)'s Zero Methane Emissions Initiative
- China Technology Strategic Alliance for Carbon Dioxide Capture, Utilisation and Storage (CTSA-CCUS)
- China Oil and Gas Methane Alliance
- China's Energy and Chemical Industry Chain Carbon Footprint Alliance



## Climate Governance

The Company attaches great importance to climate change-related governance. We have formulated the “ESG Management Measures (Trial)” to comprehensively enhance the Company's systemic, professional, and standardised approach to climate change-related governance. We have also established a top-down, three-tiered governance framework, consisting of the decision-making, management, and executive levels, to ensure the steady progress of various climate change-related initiatives. Moreover, we are actively exploring new sustainable pathways that are compatible with the Company's business operations to achieve high-quality, sustainable growth.

## Climate Governance Framework >>

To actively address the relevant risks and opportunities posed by climate change, we have incorporated climate-related initiatives into the Company's ESG governance structure and decision-making processes. Through strategic oversight by the Board, coordination by the ESG Management Committee, joint implementation by various departments, we have systematically incorporated responses to climate-related risks and opportunities into the Company's green development strategy, major decision-making processes, risk management and control framework, and relevant policy-making processes. As a result, climate change governance is embedded in all aspects of the Company's operations, effectively facilitating the implementation of climate change initiatives.

Function	Responsible Department	Major Responsibilities
Decision-making level	Board	<ul style="list-style-type: none"> <li>Bear ultimate responsibility for the governance of matters related to climate-related risks and opportunities</li> <li>Validate the Company's green and low-carbon development strategy, ensuring its alignment with the Company's overall strategy</li> <li>Supervise the Company's climate-related management and progress towards achieving goals</li> <li>Receive reports from management on climate change-related initiatives at least once a year and provide recommendations</li> </ul>
Management level	The Sustainability Committee established under the Board	<ul style="list-style-type: none"> <li>Assist the Board in fulfilling its climate governance responsibilities</li> <li>Conduct in-depth research on climate-related issues and provide recommendations to the Board</li> <li>Supervise the Company's progress towards achieving climate-related goals and performance</li> </ul>
Management level	The ESG Management Committee established under the Sustainability Committee	<ul style="list-style-type: none"> <li>Oversee the overall deployment and systematic development of the Company's climate change-related initiatives</li> <li>Coordinate and formulate, climate-related transition plans and major strategies</li> <li>Validate the climate-related reports and management working recommendations submitted by specialised management departments</li> <li>Implement the Company's green and low-carbon development strategy, paths, and action plans approved by the Board</li> <li>Manage climate change-related risks and opportunities</li> <li>Receive reports from the executive team on climate change matters at least once a year, and report to the Board</li> <li>Formulate climate-related goals and regularly review the implementation of relevant goals</li> </ul>
Executive level	The Green and Low-Carbon Professional Working Group established under the ESG Management Committee, consisting of relevant functional departments and persons in charge of all business segments	<ul style="list-style-type: none"> <li><b>The Strategic Planning Department and relevant functional departments</b> is responsible for coordinating research on green and low-carbon development policies and strategies, analysing climate risks and opportunities, providing recommendations to the Company's management based on its current low-carbon management practices, and implementing the goals and initiatives related to low-carbon management set by the Company's management</li> <li><b>The Quality, Health, Safety, and Environmental Protection Department</b> is the <b>dedicated department for managing carbon emissions</b>. It is responsible for inspecting, verifying and accounting for carbon emissions, carbon reduction, carbon trading management, and leading the work related to carbon emission assessments</li> <li>Established a <b>Carbon Asset Trading Centre</b> at the International Business Corporation, which is responsible for executing carbon asset trading and managing carbon asset reserves, among other tasks</li> <li>Established a <b>Greenhouse Gas Emissions Verification and Accounting Centre</b> at the Safety and Environmental Technology Research Institute, which is responsible for verifying and accounting for carbon emissions, as well as conducting research on carbon reduction policies, technologies, and project methodologies</li> <li><b>Persons in charge at relevant branches (subsidiaries)</b> are responsible for implementing the green and low-carbon development plan according to the Company's overall deployment and goal breakdown, as well as tracking and monitoring their unit's progress towards achieving such goals</li> </ul>

### Key actions taken by the board and the management to govern climate risks:

- Incorporated green and low-carbon initiatives into the Company's overall development strategy
- Established a Leading Group on Carbon Peak and Carbon Neutrality, which are responsible for convening regular meetings to study, deploy, and implement relevant action plans
- Continued to strengthen our top-level design and policy studying, optimise gas and electricity planning and carbon peak action plans
- Incorporated indicators for energy consumption, GHG emissions etc. into the annual performance evaluation of key management team members of the Company's headquarters and branches (subsidiaries), and embedded response to climate change as a mandatory module in the training program of our senior management
- Accelerated the building and operation of the Research Institute for New Energies in Shenzhen, the Research Institute for New Materials in Shanghai, and the Wisdom Pool Research Institute G.K. in Japan, and conducted more research on green and low-carbon strategies and technologies
- Established an internal carbon emissions cost accounting mechanism within the Company
- Incorporated the impact and evaluation of carbon emissions into the major and significant decision-making review process for fixed assets investment projects, to control carbon emissions at the source

### Climate Governance Measures and Initiatives >

To strengthen climate governance and ensure the implementation of climate-related action plans, the Company has established a Carbon Peak and Carbon Neutrality Working Group, led by the Chairman of the Board. Through regular meetings, we study, deploy, and promote action plans to continuously strengthen the management of climate-related risks, improve our carbon emission management and control system, develop low-carbon industries, improve clean energy supply, and actively participate in the global cooperation within the oil and gas industry to tackle climate change.

### Major responsibilities of the Carbon Peak and Carbon Neutrality Working Group

- Coordinate and oversee the Company's various tasks related to carbon peak and carbon neutrality, research and develop goals and pathways, as well as implementation plans, policies, and measures to achieve these two goals
- Research and develop a supervision and evaluation mechanism for the Company's work related to carbon peak and carbon neutrality
- Coordinate and resolve major issues in the Company's work related to carbon peak and carbon neutrality, direct and promote the thorough implementation of key related initiatives

### Skills and Competencies

The Company provides annual training on climate change for the Board and occasionally invites external experts to share the latest trends on climate change issues, so as to enhance the Board's awareness and understanding of climate issues, ensuring that they stay informed about the latest developments in the field. In 2024, the Company organised training for the Board, covering governance topics such as climate change-related risks and opportunities, etc., with 39 participants.

### Climate-Related Performance Incentives

To further accelerate the development of the ESG Performance Management Indicator System, the Company has formulated and published the "Enhancing ESG Work Three Year Action Plan", laying the foundation for a climate change-related performance evaluation system. At the same time, the Company has also incorporated energy-saving and carbon reduction indicators into the performance evaluation of management team members, with their remuneration linked to their performance scores, which are based on the achievement of these indicators. The energy-saving and carbon reduction indicators account for 10% of the total performance score. Employees who fail to meet their targets may face a deduction of up to 10 points from their performance score (for details, please refer to the section headed "ESG Performance and Management Remuneration" on page 16 of this Report).

## Climate Risks and Opportunities

The Company has always regarded proactive and effective risk management and internal control as a key cornerstone of its development. As such, we continued to enhance our corporate risk management capabilities. The Company conducts comprehensive risk identification and assessment every year and researches and formulates strategies and measures to strengthen management of significant (major) risks. We have established a structured division of labour for risk management, along with a tracking and monitoring mechanism, to further strengthen the connection between risk management and internal control. This ensures that significant (major) risks remain under control, providing effective protection for the Company's sustainable, stable, and healthy development.

Climate-related risks are a type of risk that poses a relatively significant impact on the oil and gas industry. Therefore, they have been incorporated into the Company's comprehensive risk management process. We have carried out the identification, assessment, and management of climate change-related risks and opportunities to strengthen our risk awareness and establish corresponding response measures.



### Climate Risks and Opportunities Identification and Assessment Process >>

Adopting the categorisation and definitions recommended by the Task Force on Climate-Related Financial Disclosures (TCFD), the Company categorised climate-related risks and opportunities into two main types: physical and transition risks. The characteristics of each type of climate-related risks are carefully considered when incorporating them into our existing risk management process. In 2024, the Company identified a total of 13 types of climate-related risks and opportunities, including 4 types of physical risks, 6 types of transition risks, and 3 types of climate opportunities.

#### Climate risks and opportunities identification and assessment process

Creating a list of climate risks and opportunities	Materiality assessment of climate risks and opportunities	Scenario analysis and climate resilience analysis
<ul style="list-style-type: none"><li>Based on the established risk management framework and by considering the characteristics of the external environment, industry, and its own business, the Company reviewed industry-level risks using methods such as policy analysis, industry comparable, and thematic research, to comprehensively map climate-related risks and opportunities that may impact the different business segments, geographical locations and functional departments of the Company. As a result, we have created a list of climate risks, and for each identified risk, we have conducted an in-depth analysis of its impact on the Company's operations and value chain, as well as its financial transmission pathway (for details, please refer to the section headed "Climate Related Risks" on page 41 of this Report)</li></ul>	<ul style="list-style-type: none"><li>Based on the results of the climate risks and opportunities identification, the Company conducted a materiality assessment of the risks and opportunities along two dimensions: the likelihood of their occurrence, and the extent of their impact on the Company's business and value chain. This assessment serves as a reference for subsequent quantification of their financial impacts and the formulation of targeted response measures</li><li>Based on the materiality assessment of climate-related risks and opportunities, the Company plans to gradually conduct and further enhance scenario analysis and climate resilience assessments in phases. Priority will be given to conducting in-depth financial impact quantification analysis for high-risk categories (for details, please refer to the section headed "Financial Impact of Climate Change" on page 44 of this Report)</li></ul>	<ul style="list-style-type: none"><li>Based on the nature of the oil and gas industry and considering the characteristics of the identified risk categories to be assessed, the determined time frame, and the publicly available scenarios, as well as referencing international industry practices, the Company has selected applicable scenarios for the material physical and transition risks identified in the assessment. We have then developed a corresponding scenario analysis model by defining the necessary external input parameters (for details, please refer to the section headed "Climate Change Scenario Analysis" on page 45 of this Report)</li></ul>

## Climate Risks and Opportunities Management >>

The Company has incorporated climate change related risks into its comprehensive risk management and control checklist, and carried out risk management work through adopting a “six-step method” that consists of risk identification, risk assessment, risk response, risk monitoring, risk evaluation, and risk reporting. We manage risks by implementing a closed-cycle risk management approach across the entire industry chain. This approach involves “identifying multi-dimensional risks, conducting integrated risk assessments, responding to risks in a collaborative manner, integrating supervision and inspection, prioritising the coordination, rectification, and optimisation of risk identification, ensuring business self-management, and following up on audit supervision”.

Every year, the Company conducts climate risk identification, analysis, and assessment, formulates risk management and control strategies and processes, regularly tracks and reports risk events, and adjusts risk prevention and control strategies in a timely manner. We strictly monitor the implementation of climate risk management and have incorporated GHG emissions into the annual performance evaluation of key management team members of the Company’s headquarters and branches (subsidiaries), where their GHG emissions performance is calculated, assessed, and rewarded every year.

## Strategic Response

The Company continued to pay attention to the potential risks and opportunities brought about by climate change. In 2024, the Company systematically analysed domestic and international policies related to climate change, and by considering the characteristics of its industry and business development, conducted a comprehensive identification of climate change-related risks and opportunities. We then created and updated a list of climate risks and opportunities applicable to the Company. Meanwhile, we also conducted scenario analyses and financial quantification assessments for the major risks identified and the business segments most affected, to continuously enhance our adaptability and resilience to climate change.

## Climate Related Risks >>

With reference to the recommendations of the TCFD, and considering factors such as national-level climate policies and self-contribution targets, the scope of the Company’s own strategic planning, and the types and duration of impact of climate-related risks to be analysed, we have identified, analysed, and assessed climate-related risks and opportunities that may affect the Company’s financial position, financial performance, and cash flow within the following time periods:

### Scope of climate risk durations

- Short-term: Up to 2030
- Medium-term: Up to 2035
- Long-term: Up to 2050

## Major climate-related risks identified by the company and our response measures

Type of Risks (Duration)	Risk Factors	Description of Risks
Policy and regulatory risks (long-term)	Price of carbon	<ul style="list-style-type: none"> <li>11 of the Company's subsidiaries have been included on the national carbon emissions trading market. With the gradual expansion of the coverage of the carbon market, the gradual tightening of carbon allowances, and the gradual decrease in free allocations, the Company will be subject to higher compliance costs in the future</li> </ul>
Policy and regulatory risks (medium to long-term)	Tightening regulations	<ul style="list-style-type: none"> <li>Since China announced its carbon peak and carbon neutrality goals, regulations related to the low-carbon transition of China's energy sector have gradually become more stringent. For example, the 14<sup>th</sup> Five-Year Plan for a Modern Energy System highlights China's concerted efforts to develop non-fossil fuel energy sources and implement more stringent measures to enhance energy conservation and carbon reduction. These progressively tightening macro-policies will accelerate the Company's low-carbon transition, while potentially increasing its expenditures on environmental protection, energy conservation and carbon reduction, etc.</li> </ul>
Technology risks (medium to long-term)	Low-carbon transition technologies	<ul style="list-style-type: none"> <li>In response to climate change, the low-carbon transition activities of the Company's business may raise the costs in additional innovative technology development and application</li> </ul>
Market risks (long-term)	Price of crude oil	<ul style="list-style-type: none"> <li>With the advancement of China's carbon peak and carbon neutrality policies and the acceleration of the global energy transition, the share of clean energy will gradually increase. In the future, the decline in crude oil demand and price fluctuations will pose market risks to the Company's operations</li> </ul>
Business decision risks (medium to long-term)	Stability of market demand	<ul style="list-style-type: none"> <li>The instability of the energy market caused by climate change may pose potential risks to our business decisions</li> <li>The promotion of the development of new energy industries (such as green energy, new energy vehicles) by the state may impose higher low-carbon transition requirements on the Company's business development planning</li> </ul>
Reputation risks (medium to long-term)	Concerns of stakeholders	<ul style="list-style-type: none"> <li>External stakeholders are increasingly concerned with the Company's climate transition and information disclosure, due to us being a listed company. Any environmental news or untransparent information disclosure may damage the Company's business reputation and potentially result in financial losses</li> </ul>
Acute risks (short-term)	Heavy rain/flooding	<ul style="list-style-type: none"> <li>Low-lying oilfields, oil pipelines, operational sites, and other low-lying areas may be impacted by heavy rain and flooding, resulting in damage to assets such as oilfields and oil pipelines, and potentially leading to increased maintenance costs</li> </ul>
Acute risks (short-term)	Typhoon	<ul style="list-style-type: none"> <li>Strong winds and heavy rain brought about by frequent typhoons may affect the transportation and sales of the Company's oil products in coastal areas, leading to a reduction in revenue</li> </ul>
Chronic risks (long-term)	Water shortage	<ul style="list-style-type: none"> <li>Water shortage resulting from changes in precipitation patterns may exacerbate water shortages in water-scarce areas, leading to higher water costs for processes such as oil extraction, etc.</li> </ul>
Chronic risks (long-term)	Rising sea levels	<ul style="list-style-type: none"> <li>Rising sea levels may pose a threat to the assets of businesses in coastal areas</li> </ul>

Impact on Value Chain	Response Measures
Operations	<ul style="list-style-type: none"> <li>Closely monitor and strictly comply with laws and regulations related to carbon emissions and carbon trading. Adopt active measures to reduce carbon emissions, and ensure strict compliance with the carbon emission regulations in the countries or regions where our business operates</li> <li>Strengthen carbon asset management and incorporate carbon emission costs into our cost-benefit analysis</li> </ul>
Operations	<ul style="list-style-type: none"> <li>Closely monitor all relevant policies that have been promulgated. Conduct in-depth analysis of the progress of domestic and international laws and regulations related to energy and incorporate them into our risk assessment process. Taking into account changes in both the internal and external environments, we will strategise well ahead of time to constantly improve the Company's low-carbon development and climate risk management and control capabilities</li> </ul>
Operations	<ul style="list-style-type: none"> <li>Increase investment into technological innovation and vigorously develop low-carbon and energy conservation technologies</li> <li>Establish research institutes focused on the R&amp;D of new energies and new materials technologies</li> </ul>
Operations Sales	<ul style="list-style-type: none"> <li>Take climate factors into account when making investment decisions, increase investments in new and alternative energy sources, vigorously promote the development of clean energy sources, and accelerate the transition to a diversified energy mix that consists of "oil, gas, geothermal, electricity, and hydrogen"</li> <li>Increase development and production of green products, providing more clean and low-carbon energy products to the market</li> <li>Conduct product carbon footprint accounting and accelerate the establishment of a product carbon footprint management system</li> </ul>
Upstream supply chain Operations Sales	<ul style="list-style-type: none"> <li>Devote greater efforts in identifying climate risks, take climate risks into account when making investment decisions, actively promote the development of clean energy, and accelerate the Company's green and low-carbon transition</li> </ul>
Operations	<ul style="list-style-type: none"> <li>Implement low-carbon development goals, intensify supervision and conduct strict assessment, accelerating the implementation the "three-step" work plan of clean energy substitution, strategic succession, and green transition</li> <li>Facilitate all-round communication and exchange, and improve the disclosure and transparency of climate change information</li> </ul>
Operations	<ul style="list-style-type: none"> <li>Continuously improve our emergency response plans for natural disasters, improve our emergency response capabilities, regularly conduct emergency flood prevention drills, be well-prepared to respond to natural disasters, and reduce their impact on the Company's production operations</li> <li>Anticipate extreme precipitation events and manage and mitigate their risks appropriately</li> <li>Develop insurance plans related to extreme weather disasters</li> </ul>
Upstream supply chain Operations Downstream transportation Sales	<ul style="list-style-type: none"> <li>Strengthen communication with governments, meteorological and emergency service departments in locations where the Company operates, in order to issue timely warnings</li> <li>Adopt relevant climate adaptation measures in early stages of our project design and construction, in order to improve the capability of assets in coastal areas to withstand natural disasters</li> <li>Strengthen our supply chain management to establish a supply chain with better resilience</li> </ul>
Operations	<ul style="list-style-type: none"> <li>Incorporate water shortage risks into project assessments</li> <li>Improve water efficiency</li> </ul>
Operations	<ul style="list-style-type: none"> <li>Adopt relevant climate adaptation measures in early stages of our project design and construction, in order to improve the capability of assets in coastal areas to withstand natural disasters</li> <li>Expand the scope of insurance to reduce property damage caused by natural disasters through insurance</li> </ul>

## Climate Opportunities >>

Climate change has brought new opportunities for the Company on our progress to green and low-carbon transition. We have actively adopted forward-looking climate adaptation measures and actions, developed green and low-carbon products and services, accelerated our transition and upgrading to a low-carbon economy.

### Major climate opportunities and action plans identified by the Company

Type of opportunities	Description of opportunities	Action plans
Business development	<ul style="list-style-type: none"> <li>The climate change crisis has triggered the demand for low-carbon and clean energy within the economy and society. The Company's oil and gas exploration and development operations are primarily distributed across Northwest, Northeast, and North China, where geothermal, wind, and solar resources are abundant. Leveraging our strengths in resources, land, and technology, the Company is well-positioned to develop clean energy, which creates new opportunities for the transformation and development of mature oilfields</li> </ul>	<ul style="list-style-type: none"> <li>Accelerate the expansion of geothermal, wind and photovoltaic power generation, hydrogen energy, and battery charging (swapping) stations, as well as other new energy businesses, and vigorously promote the integrated development of oil, gas, and new energy</li> <li>Establish development bases for new energy businesses, and accelerate the transformation of mature oil and gas fields into clean energy bases such as wind power, PV and geothermal energy</li> </ul>
Technological advancement	<ul style="list-style-type: none"> <li>Carbon reduction targets motivate the Company to strengthen our technological innovation, reduce carbon emissions in our operations, increase energy efficiency, and thereby lower production and operational costs and improve our competitiveness</li> <li>The development of technologies such as renewable energy, CCUS, etc. provides more opportunities for energy transition and facilitates the development of low-carbon businesses of the Company</li> </ul>	<ul style="list-style-type: none"> <li>Create new scenarios and new business modes for zero-carbon and carbon-negative development based mainly on the CCUS business</li> <li>Increase R&amp;D of carbon replacement technologies and vigorously promote energy conservation, carbon reduction and pollution control through technological means to improve efficiency in a coordinated manner. Steadily promote the clean substitution of production energy and build a green enterprise</li> </ul>
Capital financing	<ul style="list-style-type: none"> <li>The development of green finance and sustainable investment, and the improvement of related financial services provide more opportunities for corporate investment and financing</li> <li>The government's encouragement of the energy sector's transition and upgrading may create more policy and capital support</li> </ul>	

## Financial Impact of Climate Change >>

The Company attaches great importance to analysing the impact of climate change-related risks and opportunities on our financial position and performance. We plan to gradually conduct and advance our work on disclosing the financial impact of climate change in phases and by business sector. In 2024, we prioritized data collection and analysis of the current financial impact of physical risks and financial expenditures related to addressing transition risks.

### Current impact of climate change factors on the Company's financial condition

Type of Impact	Description of Impact	Extent of Impact	Response Measures
Financial impact of physical risks	Major acute physical risks (typhoon, storms, heavy rain, floods) may lead to loss of assets	Relatively small	<ul style="list-style-type: none"> <li>Further enhance our ability to respond to physical climate risks by strengthening climate warnings, improving disaster response capabilities, optimising supply chain management, and implementing other measures to reduce relevant financial losses</li> </ul>
Financial impact of transition risks	Potential climate-related transition risks in areas such as policy regulation, business decisions, market environment, technological innovation, and social reputation	Moderate impact	<ul style="list-style-type: none"> <li>To address the increasingly stringent regulatory policies related to carbon emissions, the Company is strengthening its carbon management capabilities and the Quality, Health, Safety, and Environmental Protection Department is the department dedicated to managing carbon emissions and responsible for establishing a comprehensive carbon management system that includes the "inspection, reduction, trading, and assessment" functions</li> <li>With the constant improvement of the carbon emissions trading market mechanism in the future, the Company is actively engaging in carbon asset trading and building appropriate carbon reserves to ensure compliance with carbon regulations</li> <li>Actively respond to the long-term market risk posed by the declining demand for traditional fossil fuel energy, increase investments in new and alternative energy sources, vigorously promote the development of clean energy sources, and accelerate the transition to becoming a diversified energy company with a focus on "oil, gas, geothermal, electricity, and hydrogen"</li> </ul>

### Climate Change Scenario Analysis >>

The Company continuously monitors and assesses the impact of climate-related risks and opportunities on our business operations and value chain, with a focus on analysing climate scenarios related to physical and transition risks. We select mainstream global climate scenarios to assess the extent of impact that major climate risks may pose on our financial position over the short, medium, and long term. Based on the assessment results, we make timely and targeted adjustments to our strategies to enhance the Company's ability to respond to climate change, optimise its strategic plans, and strengthen its financial resilience.

#### Scenario Analysis of Physical Risks

In 2024, the Company conducted a climate scenario analysis for its oil and gas exploration and development processes. The targets of our studies are major oil and gas fields. After assessing the extent of impact and duration of various types of physical risks, we further conducted a quantitative analysis of two major physical risks: "acute risks – heavy rain/flooding" and "chronic risks – water shortage".

Based on the climate scenarios titled "Representative Concentration Pathways (RCPs)" issued by the Intergovernmental Panel on Climate Change (IPCC) of the United Nations and the "Shared Socioeconomic Pathway" (SSPs) outlined in the Sixth Assessment Report, we selected two climate scenarios for analysis: low-carbon and high-carbon.

The analysis results revealed that, under both low-carbon and high-carbon scenarios, the Company's oil and gas exploration and development business faced relatively low risk of heavy rain, flooding, and water shortage.

## Scenarios selected for identifying physical climate risks

Scenarios selected	Projected temperature rise by the end of this century <sup>1</sup>	Socioeconomic characteristics	Climate scenario and sources of parameters
Low-carbon emissions scenario  RCP2.6 SSP1	1.3°C to 2.4°C	The defining characteristic of SSP1 is sustainable socioeconomic growth: including stringent environmental regulations and an effective system, rapid technological change and improvements in water efficiency, and low population growth.	<ul style="list-style-type: none"> <li>• Intergovernmental Panel on Climate Change (IPCC)</li> </ul>
High-carbon emissions scenario  RCP8.5 SSP5	3.3°C to 5.7°C	The defining characteristic of SSP5 is fossil fuel-driven development: rapid economic growth and globalisation driven by carbon-intensive energy, substantial investment in education and technology but a lack of global concern for the environment, with population growth peaking in the 21st century and gradually decline thereafter.	<ul style="list-style-type: none"> <li>• The Aqueduct Water Risk Atlas of the World Resources Institute</li> </ul>

## Scenario Analysis of Transition Risks

Based on the energy sector in which the Company operates, we conducted a comprehensive analysis of the financial impact of transition risks as a percentage of our operating revenue, based on crude oil production, crude oil prices, and carbon emissions pricing under three different climate scenarios, namely, the Stated Policies Scenario (STEPS), the Announced Pledges Scenario (APS), and the Net Zero Emissions by 2050 Scenario (NZE), as published by the International Energy Agency (IEA).

The analysis results revealed that, under the NZE scenario, crude oil production and price factors will have a moderate impact on the Company in the medium to long term.

## Scenarios selected for identifying transition climate risks

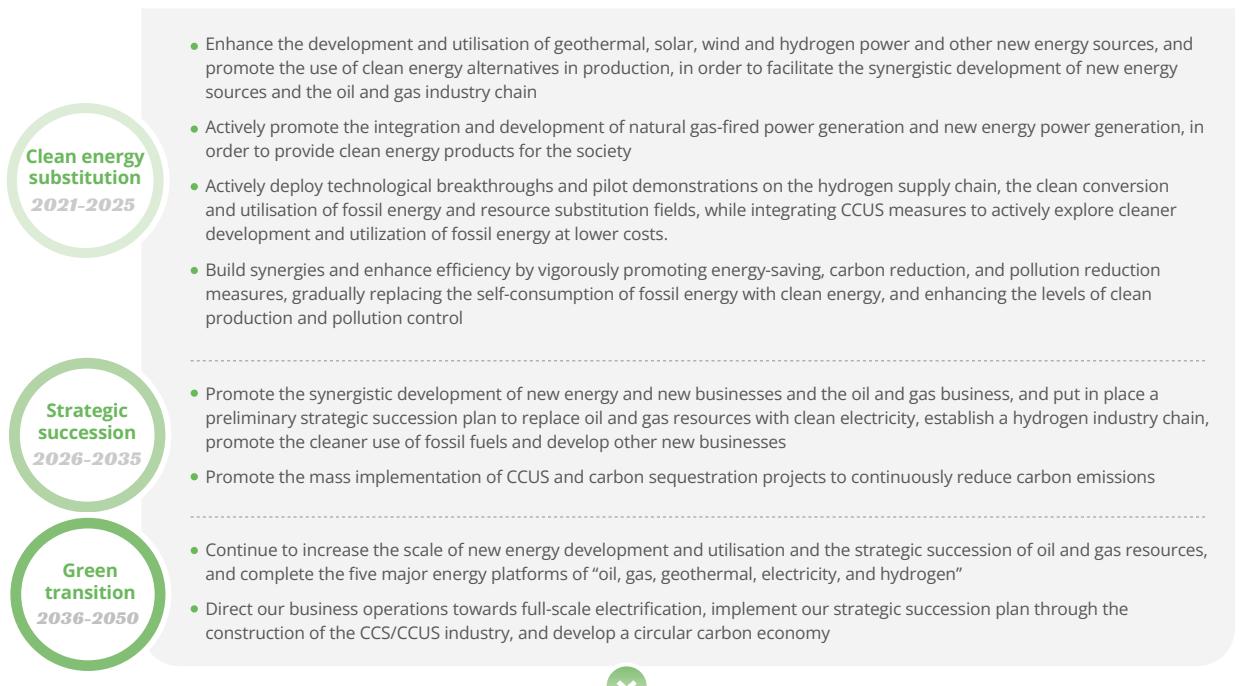
Scenarios selected	Projected temperature rise by the end of this century	Characteristics and description of climate scenarios	Climate scenario and sources of parameters
The Net-Zero Emissions by 2050 Scenario (NZE)	1.3°C to 1.5°C	The global energy sector aims to achieve net-zero emissions by mid-century while limiting global warming to 1.5°C, through measures such as the deployment of clean energy technologies and improvements in energy efficiency.	
The Announced Pledges Scenario (APS)	1.9°C to 2.3°C	By conducting analyses based on the climate commitments and targets announced by governments and industries as at the end of August 2024, this scenario assumes that these commitments, including Nationally Determined Contributions (NDCs) and long-term net-zero targets, will be fully and timely achieved.	International Energy Agency (IEA)
The Stated Policies Scenario (STEPS)	2.4°C to 2.8°C	Based on the latest market data, technology costs, and current policies of countries around the world, predictions are made regarding the future development of the global energy system.	

[ 1 ] Global average temperature rise by 2100 relative to pre-industrial (1850-1900) levels

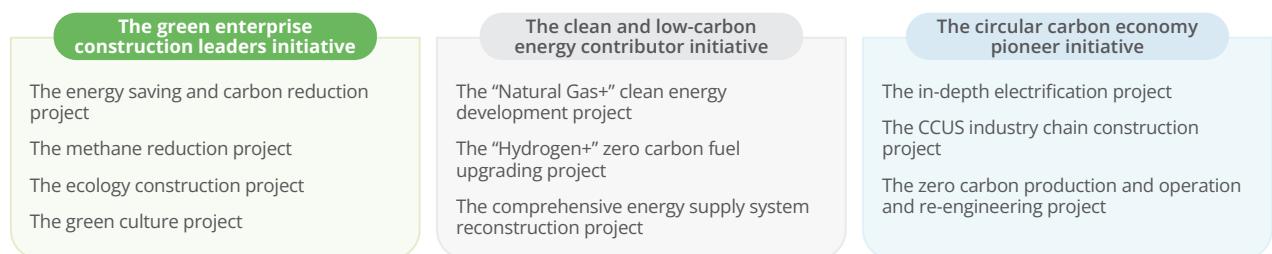
## Transition Path to Green and Low-Carbon Energy >>

Incorporating green and low-carbon initiatives into our overall development strategy and the 14th Five-Year Plan, the Company practiced the “three-step” work plan of “clean energy substitution, strategic succession and green transition”, to actively and steadily strive for carbon peak and carbon neutrality goals. We developed the Green and Low-carbon Development Action Plan 3.0, and actively implemented the “three major initiatives” and “ten major projects” to continue to accelerate our transition towards a green and low-carbon economy.

### 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

The Company has 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.

## Metrics and Targets

The Company has established climate-related performance targets and, taking into account its actual situation, broken down these targets for different departments and branches (subsidiaries). The progress of achieving these targets is reviewed and assessed annually, and the targets are optimised and adjusted based on internal and external feedback, thereby laying a solid foundation for the Company's early achievement of climate goals.

Performance indicators	Our Targets	Progress in 2024
Methane emissions intensity	<ul style="list-style-type: none"> <li>By 2025, methane emissions intensity to decrease by 50% as compared to 2019, to 0.25%</li> <li>By 2035, methane emissions intensity to decrease by 20% as compared to 2025, to 0.20%</li> </ul>	<ul style="list-style-type: none"> <li>Methane emissions intensity was 0.28%</li> </ul>

## Climate-Related Indicators<sup>2</sup>

	2022	2023	2024
Total GHG emissions (Scope 1, Scope 2) (million tCO <sub>2</sub> e)	160.56	171.18	<b>170.46</b>
-Direct GHG emissions (Scope 1) (million tCO <sub>2</sub> e)	119.68	124.66	<b>122.76</b>
-Indirect GHG emissions (Scope 2) (million tCO <sub>2</sub> e)	40.88	46.52	<b>47.70</b>
Domestic GHG emissions per unit of oil and gas production (tCO <sub>2</sub> e/toe)	0.24	0.24	<b>0.235</b>
Annual CO <sub>2</sub> injection of CCUS projects (10,000 tonnes)	-	159.2	<b>189.9</b>
Wind and photovoltaic power generation (incl. visual schedule) (100 million kWh)	-	22	<b>47.2</b>
New wind and solar power generation capacity (10,000 kW)	-	370	<b>495.4</b>

【2】 GHG emissions are direct emissions (Scope 1) and indirect emissions (Scope 2) arising within the 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) (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) (No. 2920 [2014] on Climate, NDRC), the Guide to Accounting Methods and Reporting of Greenhouse Gas Emissions by China's Chemical Production Enterprises (Trial) (No. 2526 [2016] on Climate, NDRC), Requirements of the Carbon Emission Accounting and Reporting - Part 15: Petrochemical Enterprises (GB/T 32151.15), Requirements of the Carbon Emission Accounting and Reporting - Part 16: Oil and Gas Production Enterprise (GB/T 32151.16), and other relevant industry guidelines and national accounting standards; while for overseas projects, local accounting standards and requirements of the countries where the operations are located take precedence over the PRC laws on the basis of the local indicators. Since 2024, in accordance with Requirements of the Carbon Emission Accounting and Reporting - Part 16: Oil and Gas Production Enterprise (GB/T 32151.16-2023), the Global Warming Potential (GWP) of methane was adjusted to 28, which will affect the Company's total GHG emissions by approximately 2 million tonnes.

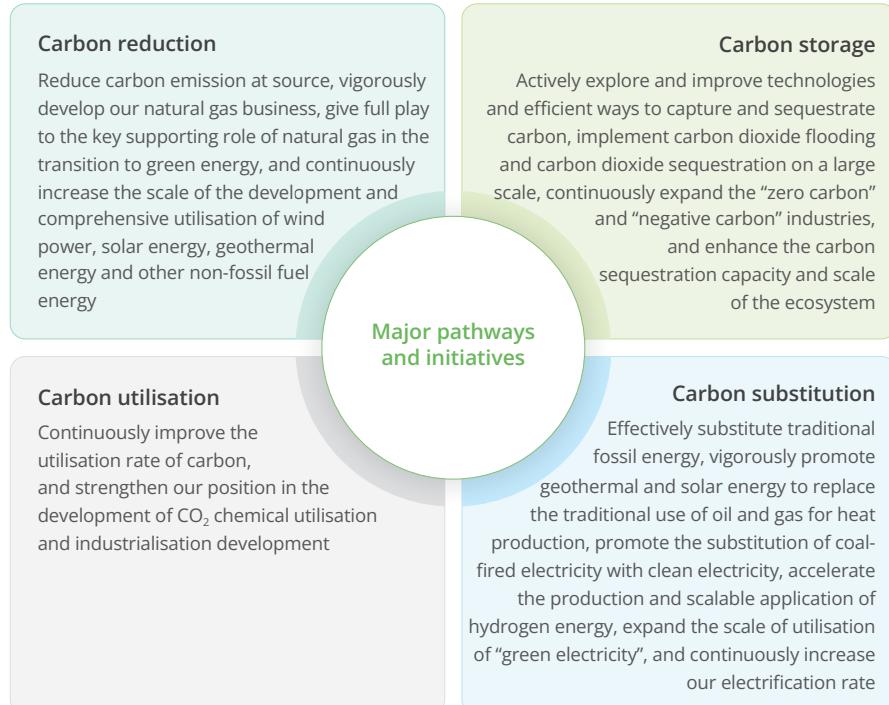
## CURBING CARBON EMISSIONS

Being concerned with our carbon emissions and carbon footprint arising from our production and operation, we continued to enhance our "1+3" carbon emission mechanism based mainly on the Guiding Opinions on Strengthening Greenhouse Gas Emission Management and Control, including the 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. The Company actively promoted the gradual shift from the dual control of energy consumption to the dual control of carbon emissions, increased its efforts in energy conservation and carbon reduction, clean energy substitution, and methane emissions control, continued to improve our GHG accounting and verification system, continued to impose strict constraints on carbon emissions assessment, strengthened its compliance management on carbon assets development and carbon trading, actively promoted the research and development as well as the commercial use of CCUS technologies, extensively carried out the building of carbon sequestration forests and carbon neutral forests, actively collaborated with other industries to reduce carbon emissions, coordinated the promotion of carbon reduction, pollution reduction, green development and growth initiatives, in an effort to contribute to the fight against climate change.

## Carbon Peak and Carbon Neutrality

Daqing Oilfield and Jidong Oilfield were awarded the title of 2024 "Carbon Peak Pacesetter" of China's Industries by the China Federation of Industrial Economics for their practices and contributions towards green and low-carbon transition and new energy development.

At PetroChina, we fully advocate the national carbon peak and carbon neutrality targets. We have adopted the four major measures of "carbon reduction, carbon utilisation, carbon substitution, and carbon storage" and carried out carbon neutrality projects to minimise and offset carbon emissions arising from our production and operation activities, and constantly strive towards the goal of "carbon peak and carbon neutrality".





## PetroChina Headquarters obtained 2024 Carbon Neutrality Certificate

In March 2025, the Company fully utilized its own carbon sink resources and obtained the 2024 "PetroChina Headquarters Carbon Neutrality Certificate" through self-declaration and certification by the Beijing Sanxing 9000 Certification Body. In 2024, PetroChina Headquarters achieved carbon neutrality through measures including fully displacing electricity-related emissions with Green Electricity Certificate from Yumen Oilfield, partially offsetting natural gas and thermal energy-related emissions through the Red Nanliang carbon neutral forests at Changqing Oilfield, and neutralizing the remaining emissions through geothermal carbon sinks at Jidong Oilfield.



## CASE STUDY

### Establishment of a "zero-carbon factory" at Jilin Oilfield

Xinli Oil Extraction Plant Sector III is the first zero-carbon oil production demonstration zone established by Jilin Oilfield. At the 2024 (5th) International Carbon Neutrality and Green Investment Conference and the 3rd Zero Carbon China Cities Summit, the zone was awarded the title of "zero-carbon factory standard demonstration zone", making Jilin Oilfield the only company in China's oil and gas production industry to receive such an honour.

Operating on an integrated large platform production, the Xinli Oil Extraction Plant Sector III at Jilin Oilfield has innovatively developed a centralised approach for oil extraction, water injection, and transmission in a limited space. This not only saved a significant amount of land but also made effective use of the well sites and surrounding open areas to establish a complementary energy supply system, generating power through wind and photovoltaic, solar and geothermal, and air source heating technologies, as well as carry out energy storage, carbon dioxide injection, and other functions. Cumulative green electricity produced by this zero-carbon demonstration zone as of the end of 2024 has reached 58 million kWh, saving 410,000 m<sup>3</sup> of natural gas and replacing all regional energy consumption with 100% clean energy. This initiative has fostered the deep integration of oil and gas with new energy sources and created a replicable pathway for traditional fossil fuel energy production companies to transition to a green and low-carbon model and achieve the "carbon peak and carbon neutrality" goals.



Cumulative green electricity produced by this zero-carbon demonstration zone as of the end of 2024



Xinli oil extraction plant

## Building Green Enterprises >>

The Company incorporates low-carbon and environmental protection initiatives into every step of its corporate development. We made tremendous efforts to improve our environmental management in relation to our design and construction, production and operation, product sales and other business processes. We also optimise our production procedures by increasing our resource utilisation efficiency, minimising carbon and pollution emissions, to build a green enterprise in all respects.

We issued the Guidelines for Building Green Enterprises and continued to carry out activities to build green enterprises. Every year, we assess our subsidiaries' green qualifications and grant green enterprise certifications to motivate and accelerate our subsidiaries' transition into green and low-carbon businesses. We also continuously enhanced the standards for obtaining a green enterprise certification, expanded the scope of certification to fully cover our major businesses of oil and gas production, refining and chemicals, and oil product sales. In 2024, the Company issued the PetroChina's Action Plan for Establishing and Improving Green Enterprises, 6 green enterprise certification specifications and reassessment specifications, to improve our certification reassessment procedures and requirements, further assisting companies in accelerating their green and low-carbon transition.

### CASE STUDY

#### "National Green Factory"—Yunnan Petrochemical

PetroChina Yunnan Petrochemical Company ("Yunnan Petrochemical") is a national green industrial zone located in Anning Industrial Park, Kunming, Yunnan. It is PetroChina's first refining and petrochemical company to establish a pilot ESG system and has been awarded the titles of "National Green Factory", "Green Factory in the Oil and Petrochemical Industry", and "PetroChina's Green Enterprise".

Yunnan Petrochemical has invested more than RMB 4.5 billion in environmental protection in total and adopted various measures to establish itself as a "green enterprise":

- **Improving energy efficiency:** By optimising its process flow, Yunnan Petrochemical reduced the energy consumed by its production and processing procedures, achieving remarkable energy saving and carbon reduction results. Since 2020, Yunnan Petrochemical has reduced the comprehensive energy consumption of its refining process for four consecutive years.
- **"Circular economy" of water:** Yunnan Petrochemical manages wastewater as a product. By adopting "four water initiatives", namely, wastewater recycling, rainwater recycling, reclaimed water utilisation, and strict management of freshwater, it has built the industry's most comprehensive wastewater treatment and recycling plant, featuring the longest processes and a wastewater reuse rate, which is among the highest in China.
- **"Pollution Control + Recycling":** Through a standardised sulphur recycling device, Yunnan Petrochemical produces 300,000 tonnes of liquid sulphur every year, which becomes the raw production material for downstream enterprises; catalytic filter residue is directly supplied to the coking process to transform 3,000 tonnes of filter residue into petroleum coke products of higher value every year; the resource utilisation rate of general industrial solid waste exceeds 100,000 tonnes annually, achieving "zero emission", and the resource utilisation rate of hazardous waste increased from 34% at the initial stage of operation to 60%.
- **Digitalisation and green transition:** As one of PetroChina's first digitalised smart factories, Yunnan Petrochemical has developed 46 information systems and constructed 13 application scenarios. It promoted tasks such as photovoltaic power generation, built carbon sequestration forests, electrified its operations, etc., and established a new energy system to accelerate its transition towards a green company.

## Carbon Emission Management

In 2024, the Company systematically deployed measures to improve its carbon assessment, carbon evaluation, carbon trading, carbon footprint, carbon exchange and other management practices in accordance with the Opinions on Improving the Quality of Carbon Emissions Data and Establishing a Dual Control System for Carbon Emissions.

In accordance with the national GHG verification and accounting standards, we set up a GHG verification and accounting mechanism and founded the GHG verification and Accounting Centre, which enabled us to carry out regular GHG emission accounting and reporting procedures, in order to continuously improve our GHG emissions supervising, reporting, and accounting system. In 2024, the Company upgraded the operation of its carbon assets management and control platform. Carbon emission accounting, previously conducted quarterly at the enterprise level, has now been transitioned to monthly analyses at the equipment level, thereby enhancing the precision and sophistication of management.

The 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 and incorporated as part of the framework of the annual performance evaluation for key management team members at our headquarters and branches (subsidiaries), which are accounted for, evaluated, and fulfilled each year. Carbon evaluations are conducted for fixed asset investments projects to strengthen control over carbon emissions at the source.

The Company has developed an internal carbon emission cost accounting method, benchmarking against industry leaders and actual company data to determine the permissible carbon emissions intensity baseline. The Company calculates the carbon emission costs for any enterprise that exceeds its annual emissions cap. Additionally, the Company has conducted carbon footprint accounting for seven product categories (crude oil, natural gas, gasoline, diesel, and coal-based refined products, ethylene, and synthetic ammonia), using six subsidiaries (including Daqing Oilfield and Dagang Oilfield) as pilot projects. This allowed the Company to establish rules for calculating the carbon footprints of its key products.

### Development of our carbon emissions management system and our annual progress

Development of a "dual control" system	Appraisal and competency assessment	Verification and accounting	Carbon evaluation
<ul style="list-style-type: none"><li>Issued the Opinions on Improving the Quality of Carbon Emissions Data and Establishing a Dual Control System for Carbon Emissions, strengthened our basic management skills, and planned the construction of a dual control system for carbon emissions at the top level</li></ul>	<ul style="list-style-type: none"><li>Incorporated eight indicators in two categories (total carbon emissions and carbon emissions intensity) and process management into the performance appraisal of management members, and carried out carbon emission cost accounting</li><li>Formulated the Comprehensive Assessment Indicator System and Grading Standards for Low-carbon Management, and carried out a graded assessment of the low-carbon management capabilities of enterprises</li></ul>	<ul style="list-style-type: none"><li>Thoroughly inspected and analysed the elemental carbon content and calorific value of coal combustion in enterprises participating in carbon trading, and used this data for carbon accounting</li><li>Conducted research on the testing standards for elemental carbon content in the gases emitted from the refining processes to further standardise the verification and accounting of carbon emissions</li></ul>	<ul style="list-style-type: none"><li>Clarified the key points of carbon management review for fixed asset investment, and strengthened the source management and control of carbon evaluation for construction projects</li></ul>

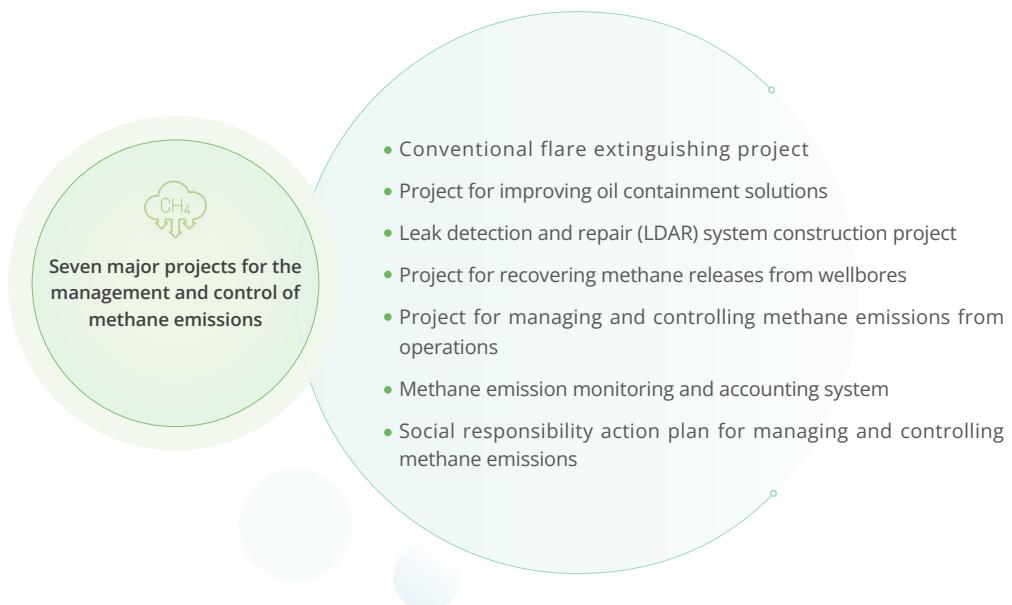
#### CASE STUDY

##### Improvement of carbon footprint management at Karamay Petrochemical

PetroChina Karamay Petrochemical Co., Ltd. has accelerated the enhancement of its product carbon footprint management. It has conducted quantitative analysis of the carbon footprints for four products in two categories: gasoline and diesel. Using life cycle assessment methodology, the company has completed several tasks, including production process mapping, data collection and organisation, life cycle analysis, carbon footprint modelling, carbon footprint calculation and analysis, data quality assessment, and the preparation of carbon footprint quantification reports. In 2024, the gasoline and diesel produced by the company were awarded the "Product Carbon Label Evaluation Certificate" by the China Electronic Energy Conservation Technology Association.

Methane emissions	
Methane emissions	
<b>308,700</b>	tonnes
Methane emission intensity	
<b>0.28%</b>	

The Company implemented the "Methane Emission Control and Enhancement Action Plan" to further strengthen its control over methane emissions, improve the Methane Monitoring, Reporting, and Verification (MRV) system, and foster technological innovations. It actively promoted the recovery and utilisation of associated gas and vented gas, the extinguishing of conventional flares, the improvement of oil containment solutions, and other measures to enhance the Company's methane emission management. The Company also actively participated in the China Oil and Gas Methane Alliance (COGMA) initiatives, supporting and engaging in the Chinese government's voluntary actions for reducing non-CO<sub>2</sub> greenhouse gases. Additionally, it facilitated technical exchanges and the sharing of methane emission control achievements within the oil and gas industry, leading the sector in advancing voluntary reduction efforts. In the "Turning Pledges into Action" report issued by the International Energy Agency's (IEA), the establishment of COGMA was recognised as one of the key global voluntary actions within the oil and gas sector. In 2024, the Company's methane emission intensity stood at 0.28%.



#### CASE STUDY

##### PetroChina's methane reduction results showcased at COP29

The 29th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP29) took place in Baku, Azerbaijan in 2024. PetroChina sent a delegation to participate in multiple events at the conference.

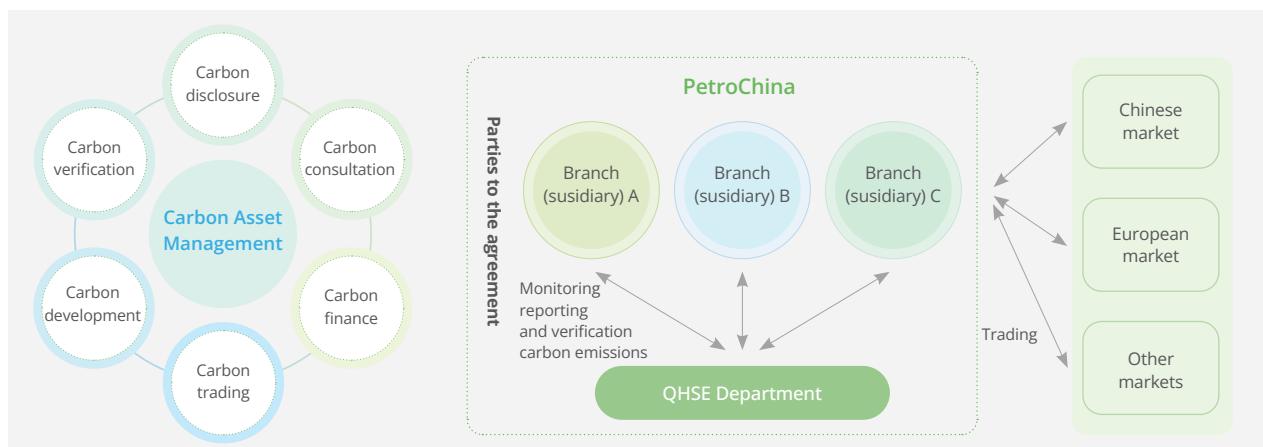
At the COP29 China Pavilion, PetroChina successfully hosted a side event titled "China's Active Efforts in Methane Emission Reduction", aimed at sharing the results of global and Chinese methane reduction practices. This is the second consecutive year that PetroChina has hosted a side event on methane management and control at COP China Pavilion, demonstrating the Company's determination and actions in its fight against climate change. At the "China's State Enterprises Going Green" event, PetroChina presented the actions taken and positive progress achieved by the Company in recent years regarding green development and jointly launched the Green and Low-Carbon Lifestyle Initiative. Moreover, PetroChina also joined side events titled "Green and Low-Carbon Technology Innovation, Practice and Cooperation" and "Public Communication of Climate Media", showcasing its innovative practices and achievements in carbon reduction and carbon-negative technology in relation to CCUS.

## Carbon Asset Management and Carbon Trading

The Company has established and continuously improved its carbon asset management system, and implemented the Management Measures for Carbon Trading, the Management Measures for the Voluntary Greenhouse Gas Reduction Project and the Financial Management Measures for Carbon Assets. A Carbon Asset Trading Centre has been set up at the International Business Corporation to standardise the compliance, management, and control of companies trading in the carbon market, and to promote the centralised and standardised management of carbon assets. We have also enhanced our carbon asset products, forming a diverse trading and reserve of China Emission Allowance (CEA), China Certified Emission Reduction (CCER), and European Union Allowances (EUA).

We are actively involved in the establishment of China's carbon market and are one of the first ten companies to participate in national carbon market transactions. Actively complying with the China Certified Emission Reduction (CCER) policy, we encourage our branches (subsidiaries) to launch voluntary carbon reduction projects at home and abroad, generate green electricity and obtain Renewable Energy Certificates (RECs). The Jilin Oilfield 150,000 kW wind and photovoltaic power generation project yielded RMB 32 million, while all four international voluntary reduction projects, namely, the two photovoltaic power generation projects at Daqing Oilfield Factories No. 1 and No. 6, the Jilin Oilfield Waste Heat Utilisation Project, and the Tarim 24 MW PV Power Generation Project, passed initial assessment. Moreover, we have strengthened the management of carbon allowance compliance for our branches (subsidiaries). In 2024, by purchasing 1.668 million tonnes of CEA and CCER from the market, all 11 branches (subsidiaries) of the Company participating in the national carbon emissions trading market have fulfilled their annual carbon compliance obligations, with no rectification orders or investigations made by the relevant authorities.

### Petrochina's Carbon Asset Management System



CASE STUDY

### Promoting “biomass energy + natural gas-electricity-carbon integrated” trading

The international business subsidiaries of the Company actively developed its new energy businesses, and has successively set up an electricity trading team and a global carbon emissions trading team to strengthen the trading capabilities of its “natural gas-electricity-carbon integrated” new energy business, so as to further secure the needs of the Company in achieving its green and low-carbon development strategy.

#### • Carrying out carbon credit trading for the natural gas industry chain

In 2021, we entered into the world's first five-year carbon-neutral LNG trade agreement with Shell, to conduct full-lifecycle GHG emission accounting for certain shipments under the long-term LNG import trade agreement, and at the same time, purchase high quality and nature-based carbon credits to offset our accounted emissions, so as to realise carbon neutral LNG. As of the end of December 2024, 19 shipments have been delivered under the long-term carbon-neutral LNG trade agreement, completing approximately USD800 million in carbon-neutral LNG transactions. By applying International Verified Carbon Units (VCUs) to the carbon offsets of the pipeline natural gas industry chain, we helped green energy enterprises in Sichuan Province to build “zero-carbon factories”.

#### • Expanding green electricity business in Australia

In March 2024, we entered into a memorandum of understanding (MOU) with Pacific Blue, a wholly-owned subsidiary of State Power Investment Corporation Limited, in relation to a wind power trade cooperation in Melbourne, Australia. This is the first green electricity trading project that the Company proposes to carry out in Australia. Based on the MOU, the parties signed a two-year power purchase agreement in relation to 60 MW wind power from Portland Wind Farm in Victoria, Australia.

#### • Deep involvement in biofuel trading

The Company has been deeply involved in the European biofuel market and European carbon emission trading, while closely monitoring developments in the European sustainable aviation fuel (SAF) market. In April 2024, we completed our first SAF transaction on Argus Open Markets, marking the world's first SAF trade involving the delivery of actual goods. In June, the Company successfully delivered a shipment of SAF sold to KLM Royal Dutch Airlines, completing the world's first SAF transaction settled in RMB.

## Tree Planting and Forest Carbon Sinks

The Company actively develops strategies to build carbon sequestration forests and carbon neutral forests, with the aim to achieve carbon neutrality through carbon compensation. We formulated the 14th Five-Year Plan for Green Development, the PetroChina's Carbon Neutrality Guidebook, and the PetroChina's Guidebook for Carbon Sequestration Forest Construction. Implementing these strategies, together with the construction of a “zero-carbon” demonstration zone, we devote strong efforts to build carbon sequestration forests and carbon neutral forests.

The “Tree Planting for Carbon Neutrality” campaign was awarded the title of “Outstanding Contributor to Greening China’s National Soil” by the China Green Foundation. At the same time, the campaign was also selected by the Ministry of Ecology and Environment as an example of a corporate climate action under the “Beautiful China, I am an Actor” initiative in 2024, and was showcased in the United Nations Framework Convention on Climate Change (COP29).

We actively participated in the “Tree Planting for Carbon Neutrality” campaign organised by CNPC. Since its launched in 2022, a total of RMB 47.00 million has been raised by the Company's employees and the public, planting more than 300 hectares of carbon sequestration forests, and generating approximately 100,000 tonnes of forest carbon sinks. In response to the World Economic Forum's “One Trillion Trees” initiative, we have launched the “Afforestation at 10,000 Well Sites” program at our oil and gas field companies since 2023. Until now, an accumulative total of 1.624 million trees have been planted at 8,724 well sites. Voluntary tree planting activities were also organised all year round, planting a total of 3.41 million trees. Through a combination of voluntary tree planting and forest engineering measures, the Company has accumulatively built 1,467 hectares of carbon sequestration forests and carbon neutral forests in total. As of the end of 2024, we have a total of 35,600 hectares of shared green space, of which 14,900 hectares are forested, contributing 100,000 to 130,000 tonnes of carbon sinks annually.

## Green and Low-Carbon Technology

Led by scientific and technological innovation, the Company has researched and developed technologies related to clean energy development and utilisation, energy conservation and carbon reduction, carbon capture, utilisation, and storage (CCUS), and other areas to drive the transformation of its production methods towards green and low-carbon transition. We formulated the "Top-Level Design Plan for New Energy Enhancement Projects" and "PetroChina's Clean and Low-Carbon Technology Guidelines". We also conducted special research and tackled technological challenges in the study "Key Technologies for the Integrated Development of Oil and Gas and New Energy", increased investment in low-carbon technology R&D, and established more scientific research platforms. In addition, we have also set up innovative research institutes in Shanghai, Shenzhen, and Japan, focusing on new energy, new materials, and new businesses. Meanwhile, we have closely collaborated with universities and research institutions, making significant progress in green and low-carbon technology R&D.

### Progress in green and low-carbon technology R&D



## Carbon Capture, Utilisation and Storage (CCUS) >>

PetroChina attaches great importance to the development of the CCUS industry. We actively explore technologies and efficient ways to capture and sequester carbon, and promote CO<sub>2</sub> enhanced oil recovery technology. A technology system that serves the entire CCUS industry chain has been newly established, which enables the carbon dioxide flooding process to be industrially applicable in our CCUS project.

In 2024, the Company accelerated the construction of the entire CCUS industry chain. We improved its technological framework, steadily advancing oil and gas field CCUS projects in Daqing, Jilin, Changqing and other areas. Our on-site experiments covered multiple types of oil reservoirs, including low permeability, fractured, buried hills, conglomerate, and water-sensitive reservoirs, further enhancing our CO<sub>2</sub> injection and storage capabilities. A total of 1.899 million tonnes of CO<sub>2</sub> was injected throughout the year.

### Targets and progress

Indicator	Progress in 2024	2025 Target
Annual CO <sub>2</sub> injection of CCUS projects	1.899 million tonnes	2.20 million tonnes

### CASE STUDY

#### CCUS project at Jilin Oilfield

Jilin Oilfield has independently developed core technologies for carbon dioxide capture, storage and enhanced oil recovery (CCUS-EOR), and has created China's first and Asia's largest full industry chain and full-process CCUS-EOR demonstration project. Within China, this project is the first to adopt centralised CO<sub>2</sub> injection technology, has the largest hydrocarbon pore volume (HCPV) injected, the most comprehensive CCUS process, the most CO<sub>2</sub> injected underground, and the best oil recovery performance. As of the end of 2024, over 3.50 million tonnes of CO<sub>2</sub> have been injected and stored under Jilin Oilfield, the highest storage amount in China, which is equivalent to planting more than 30 million trees. The project has therefore made significant contributions to the reduction of GHG emissions and the mitigation of climate change.

**Independent Research and Development, Creating a Complete Set of CCUS Technology.** Jilin Oilfield has continuously researched the mechanisms of CO<sub>2</sub> oil recovery, capture, transportation, and injection technologies. It has gradually carried out pilot tests to adjust and perfect the supporting technologies for the entire CCUS process and independently developed a technology that extracts and recycles energy-associated CO<sub>2</sub> for underground injection—the first of its kind in China. Jilin Oilfield has also built and is operating China's first industrial-scale CO<sub>2</sub> recycling and injection station. This enables "zero emission" of associated gas, completing the full technological framework for CO<sub>2</sub> capture, transportation, injection and recycling.

**Committed to the Concept of Shared Development, Enhancing CCUS Social Benefits.** Jilin Oilfield has formed collaborative alliances with Jilin Petrochemical, Daqing Petrochemical and other companies to join hands with other upstream carbon capture companies in forming a local green and low-carbon industrial cluster, fostering the green transition of the entire sector. Additionally, Jilin Oilfield has built a CCUS technology training base to cultivate CCUS talents for the society, thus completing the development of a CCUS training system.

## Exchanges on Reduction of Carbon Emissions

The Company actively advocates and implements a sustainable development model of “low energy consumption, low pollution, and low emissions”. We joined the “Oil and Gas Decarbonisation Charter” (OGDC) and became a member of its steering committee. Together with CNPC, our parent company, we strengthened our collaboration with Oil and Gas Climate Initiative (OGCI) and shared technologies and experiences with other member companies, contributing to the fight against climate change and realising the low-carbon transition of the oil and gas industry. We participated extensively in and promoted the relevant work of the China Oil and Gas Methane Alliance, and the influence of the Alliance continues to expand.

### Major progress achieved in carbon reduction collaboration and exchange during the year

#### Oil and Gas Climate Initiative (OGCI)

- As the only member of the OGCI in China, we were deeply involved in research across various fields, including CCUS, methane emission reduction, natural climate solutions, energy efficiency enhancement, decarbonisation in the transportation sector, etc. We have been recognised by the Ministry of Ecology and Environment, the Ministry of Science and Technology, and the National Energy Administration, and are becoming one of the think tanks for international negotiations and cooperation in China's response to climate change
- We actively implemented the US-China “Sunnylands Statement on Enhancing Cooperation to Address the Climate Crisis”, carried out exchanges on carbon management, fostering collaboration between Chinese and US oil and gas enterprises and renowned universities

#### Oil and Gas Decarbonisation Charter (OGDC)

- We became a member of the steering committee, formed the OGDC working group, and participated in OGDC collaboration and exchange activities

#### The 29<sup>th</sup> United Nations Climate Change Conference (COP29)

- We sent a delegation to attend the 29<sup>th</sup> United Nations Climate Change Conference (COP29) and hosted the side event titled “China’s Active Efforts in Methane Emission Reduction”, co-hosted/participated in side events including “China’s State Enterprises Going Green” “Public Communication of Climate Media” and “Green and Low-Carbon Technology Innovation, Practice and Cooperation”

#### China Oil and Gas Methane Alliance

- We appointed six domestic experts as its first advisors to jointly carry out discussions and exchanges on cutting-edge technologies
- We undertook the task of setting up the national methane data reporting system, and facilitated the updating of methane emission factors for the onshore oil and gas field industry
- We led the formulation of the ISO standard titled “Methane Leak Detection and Repair in Oil and Gas Fields”
- We were invited to participate in China-Europe and China-US exchange activities for multiple times

### Innovative Consortium of State-owned Enterprises

- We led the formation of the CCUS Innovative Consortium of State-owned Enterprises, focused on building an integrated platform for the entire industry chain, covering upstream, mid-stream and downstream enterprises, tackled key and core technologies, established a standardised architecture consisting of an entire industry chain to capture, transport, utilise, and store carbon, and accelerated the marketisation and commercialisation of CCUS

### Energy and Petrochemical Industry Chain Carbon Footprint Alliance

- Together with 8 enterprises in the sector, we established the Energy and Petrochemical Industry Chain Carbon Footprint Alliance, and led the carbon footprint standardisation working group for the oil and gas upstream sector. We completed the pilot carbon footprint calculations for crude oil, natural gas, refined oil, ethylene, and synthetic ammonia, and established a carbon footprint quantification methodology that is mutually recognised within the industry. We were also responsible for researching and preparing the national standards for carbon footprint accounting of crude oil and natural gas
- The Alliance will promote the accurate accounting and application of carbon footprints in China's energy and petrochemical industry chain, through the sharing and collaboration of technologies and experience among members, aiming to foster international collaboration and mutual recognition.

### CASE STUDY

#### PetroChina signed the “Oil and Gas Decarbonisation Charter” (OGDC)

In 2024, PetroChina became a signatory of OGDC, joining more than 50 oil and gas companies in the world to stay committed in reducing carbon emissions. As a member of the steering committee, PetroChina will accelerate its green and low-carbon development and transition into an integrated energy company covering “oil, gas, geothermal, electricity, and hydrogen”.

OGDC was launched at the 28th United Nations Climate Change Conference (COP28). It aims to accelerate the decarbonisation process of the oil and gas industry in accordance with the targets set under the Paris Agreement.



CCUS Project of China Southern Petroleum Exploration and Development Co., Ltd.

## GREEN AND LOW-CARBON TRANSITION

We have adopted the “green and low-carbon” policy as one of the five key strategies of the Company. We attach equal importance to new energy and new businesses as well as oil and gas operations. Following the “three-step” work plan, we are actively promoting the Company’s transformation and development towards green and low-carbon practices. We actively responded to the national “Action Plan for Accelerating the Integration of Oil and Gas Exploration and Development with New Energy (2023–2025)”, which has laid out a path of transitioning to a green and low-carbon economy based on carbon peak and carbon neutrality goals and hard constraints. We also implemented stable oil production, increased gas production, accelerated the layout of new energies and new businesses, and vigorously promoted the integrated development of different renewable energy systems (oil, gas, geothermal, electricity, and hydrogen), in order to create a green and low-carbon future for PetroChina.



Our target

By 2025, the proportion of natural gas in the Company's total domestic oil and gas equivalent production to be increased to approximately

55%



Proportion of natural gas in the Company's domestic oil and gas equivalent production



The proportion of the Company's domestic natural gas production relative to China's natural gas output

### Natural Gas Development and Utilisation

Natural gas is the Company's strategic, growing, and value-added business, which plays a key supporting role in the process of energy transition as well as bridging the transition from fossil energy to clean energy. Intensive development and utilisation of natural gas is key to the green and low-carbon transition and development of the Company. Thus, we have determined natural gas to be the strategic focus of our green development, focusing on two key objectives: “high-quality development of a natural gas ecosystem” and “mutually supportive development of natural gas and new energy.” The Company continues to promote the clean transformation of fossil energy, the scaling up of clean energy, and the low-carbon transition of production processes, thereby enhancing its green and low-carbon competitiveness.

In 2024, the Company continued to step up its efforts to explore and develop natural gas, diversified the channels for importing foreign natural gas resources, and expedited the construction of liquid natural gas (“LNG”) terminals and gas storage tanks to create a diverse energy supply system to ensure stable natural gas supply. Throughout the year, we produced 158.64 billion cubic metres of domestic natural gas, representing a year-on-year increase of 3.8%, of which the domestic saleable natural gas volume was 140.36 billion cubic metres, representing a year-on-year increase of 4.6%. The Company also continued to enhance its natural gas marketing network with gas supply covering 31 provinces (autonomous regions and municipalities) and the Hong Kong Special Administrative Region. We sold 227.83 billion cubic metres of natural gas domestically during the year. Additionally, we made great efforts to develop our gas-to-power business and continued to strengthen our joint ventures with major power companies. We accelerated the development of natural gas distributed operations in load centres that handle cooling, heating, and electricity demands, and vigorously developed our peak-shaving gas-to-power business and cogeneration business. By addressing the diverse energy demands of our users for electricity, heating, cooling, and natural gas, we promoted the integration of natural gas with new energy sources consumed by end-users, with a particular focus on the development of scenarios such as integrated parks, public infrastructure and industrial enterprises, contributing to the optimisation of China's energy consumption structure.





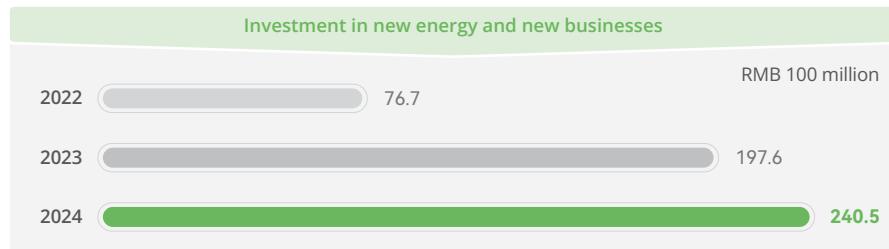
## New Energy and New Businesses

The development of new energy and new businesses is indispensable to address climate change and achieve energy transition. PetroChina considers the development of new energies as a driver for the transition towards a green and low-carbon future. As such, we have formulated development plans including "PetroChina's Carbon Peak Action Plan" and "Action Plan for Accelerating the Integration of Oil and Gas Exploration and Development with New Energy (2023-2025)" to lay out a comprehensive plan for our new energy businesses, accelerated the expansion of new energy businesses such as geothermal energy, wind and photovoltaic power, hydrogen energy, and battery charging (swapping) stations, promoted the integrated development of our oil and gas and new energy businesses and established a "low-carbon energy ecosystem".

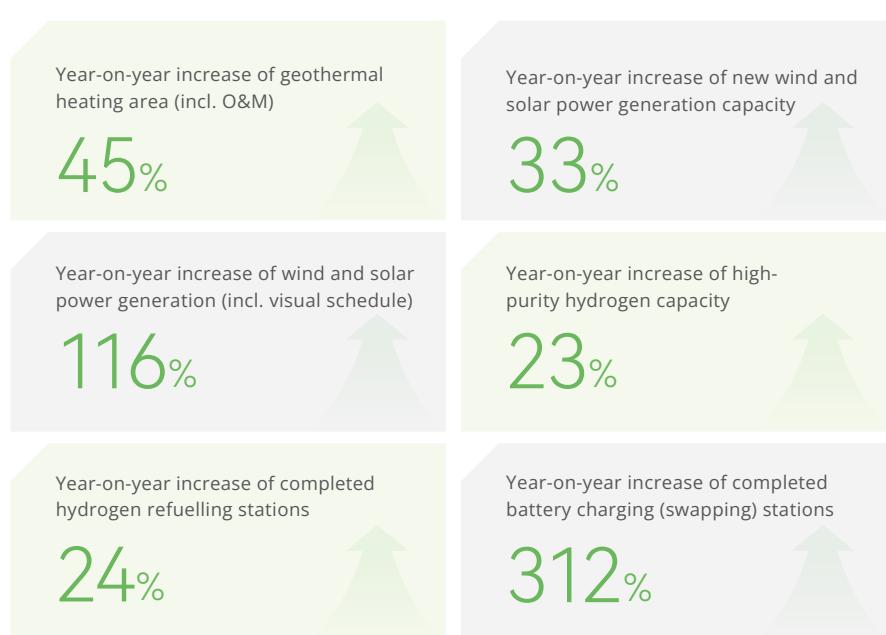
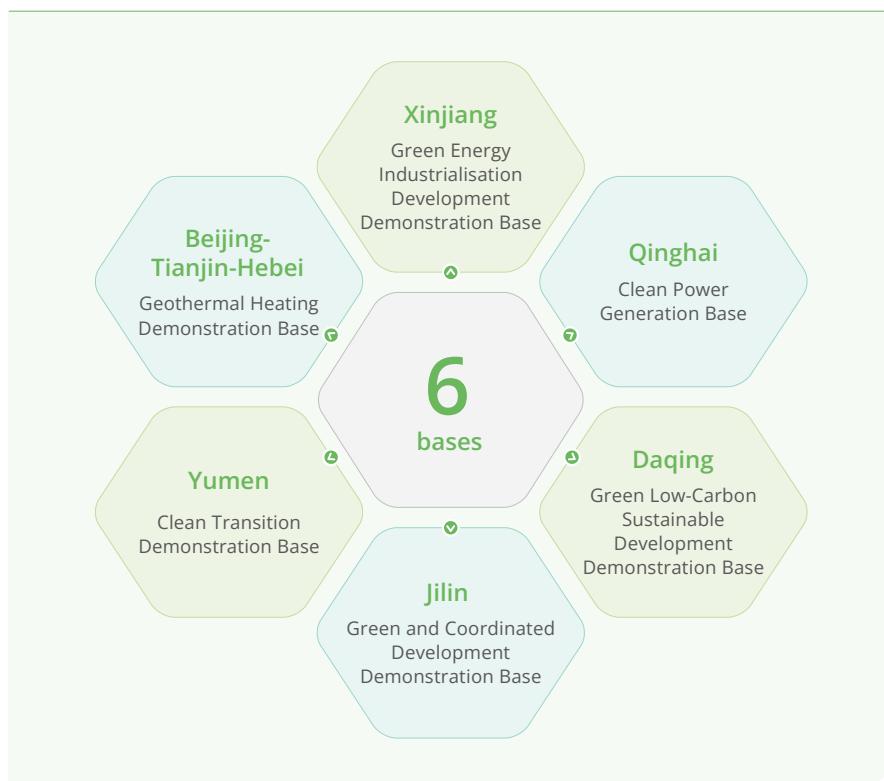
The Board of Directors and the management team convene meetings regularly to strategically oversee the development of new energy and new business. We have strengthened our strategic planning and established a business management framework for the growth of our new energy businesses. New energy departments have been established within both our oil and gas and new energy subsidiaries and 16 upstream oil and gas enterprises, which have adopted an innovative, streamlined organisational management structure. Moreover, new energy performance targets have been incorporated into the annual performance assessments of key leaders at our oilfield companies, thus injecting impetus to the development of new energy and new businesses. Research institutes have been established in Shanghai, Shenzhen, and Japan to provide technical support to the development of new energy and new business. A New Energy Professional Standards and Technical Committee has also been established to develop top-level designs for standard systems across 66 areas, including clean heating, clean electricity, hydrogen power, energy storage, and CCUS/CCS.



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



### Six development bases for new energy and new businesses



## Development progress of new energy and new businesses in 2024

### Geothermal

- Total geothermal heating area (including operation and maintenance) exceeded 50.00 million square metres, a 45% increase from the previous year
- Actively expanded the geothermal heating markets, with a newly contracted area of more than 75.12 million square metres
- Set a new record for the largest single medium-depth geothermal heating project in China in Jidong Caofeidian

### Wind and solar

- Annual wind and solar power generation (including visual progress) amounted to 4.72 billion kWh
- Newly installed capacity of wind and solar power generation plants exceeded 4.954 million kW, a 33% increase from the previous year
- The Qinghai Oilfield Golmud 1 million kW Photovoltaic Project has been connected to the grid for power generation; Jilin Angge 550,000 kW Wind Power Project, the Company's first large-scale centralised wind power project, has begun generating electricity

### Hydrogen

- Our total high-purity hydrogen capacity reached 8,100 tonnes/year, an increase of 23% from the previous year
- 813 tonnes of high-purity hydrogen was produced during the year
- The Company's first "hydrogen-replacing-oil" engineering project, the Changqing Sulige "hydrogen-replacing-oil" drilling project, is under construction
- A cumulative total of 26 hydrogen refuelling stations have been constructed, an increase of 24% from the previous year

### Charging (swapping) stations

- A cumulative total of 3,803 charging (swapping) stations have been constructed, an increase of 312% from the previous year

### CASE STUDY

#### Acquisition of CNPC Electric Power by Daqing Oilfield

In August 2024, Daqing Oilfield, a wholly-owned subsidiary of the Company, acquired CNPC Electric Power Co., Ltd. This acquisition will integrate the development of new energy and electricity sales businesses of PetroChina, enhance the performance of the Company's electricity business, and increase its overall profitability and core competitiveness.



Renewable energy hydrogen production project in the Yumen Oilfield

# ENVIRONMENT

## ENVIRONMENTAL PROTECTION

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

### The UN Sustainable Development Goals



## ENVIRONMENTAL PROTECTION MANAGEMENT SYSTEM

The Company actively responds to widely recognised international environmental protection conventions, such as the United Nations' 2030 Agenda for Sustainable Development and the Global Pact for the Environment and actively adheres to our green development concept of "integration and coordination between development activities and environmental protection, giving priority to environmental protection". 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, to establish and continue to enhance a "1+N" environmental protection management system that is based on the Company's Regulations on Environmental Protection Management, which includes multiple specific management measures in relation to environmental protection management for construction projects, environmental information, environmental incidents, wastewater discharge permits, and online monitoring and management of pollution sources.

### "1+N" Environmental protection management system



We implement an integrated and uniform Health, Safety, and Environmental Protection (HSE) management system across our global operations that is applicable to all employees (including temporary workers) and suppliers. We published and implemented an HSE management system standard with PetroChina characteristics (Q/SY08002.1, 08002.2, 08002.3), which fully covers the requirements of the Environmental Management System (ISO14001) in all technical aspects. Moreover, the Company conducts annual audits on its subsidiaries under the HSE management system, the scope of which covers all its enterprises and subsidiaries. For more information on our HSE management system, please refer to "The HSE Management System" on page 110 in this Report.

We have incorporated environmental protection into the performance assessment for key management team members of the Company's headquarters and branches (subsidiaries). We have established a system of accountability for environmental protection and lifetime accountability for ecological protection. We have also established an incentive mechanism to recognise units and individuals with outstanding performance in environmental protection.

The Company incorporates environmental protection as an important component of its audit supervision in its audit project implementation plan. We continuously monitor national ecological civilisation policies, the decisions made regarding their implementation, regularly inspect the performance of relevant laws and regulations and policies related to natural resource and asset management and ecological environment protection. In 2024, with regards to the 12 completed construction projects and 7 ongoing construction projects that we conducted level-one audits on, we checked whether the construction met environmental assessment requirements, whether environmental protection measures were properly implemented, whether the "Three Simultaneous" requirements (safety measures for a construction project must be designed, constructed, put into production at the same time) and other protection measures such as soil and water conservation, were adhered to, whether the emissions of the "three wastes" (waste gas, wastewater and waste residues) met standards, whether effective protection measures were adopted during construction as required by cultural heritage departments, whether any construction commenced without or failed to comply with environmental impact assessment requirements, and whether reclamation, vegetation restoration, and remediation were performed in a timely manner in accordance with environmental protection policies and requirements.



## ENVIRONMENTAL RISK PREVENTION

The Company incorporates environmental risks into its overall risk prevention and control system, conducts in-depth identification, review and assessment of ecological and environmental risks, and established an environmental risk monitoring system, focusing on strengthening risk prevention and control for the "six major environmental risk factors" identified. We continue to improve our "three-tiered prevention and control" system and our environmental risk categorisation and evaluation system. We formulated the Categorisation and Evaluation Standards for Environmentally Risky Enterprises (Trial), which implements classified and tiered management for different types of enterprises. Based on the environmental risk level and the environmental management performance of the region where the enterprise is located, we classify different types of enterprises into different risk categories to manage and control risks using targeted measures. We also formulated the Standards for Inspecting Ecological and Environmental Hazards and maintained efforts in carrying out annual environmental hazard inspections and remediation. To prevent major environmental risks, we make it our priority to rectify major ecological and environmental hazards. Moreover, we formulated and revised the Special Emergency Response Plan for Environmental Emergencies, specifying the respective responsibilities of all departments at all levels within the Company, and improved the operability of the plan. We regularly conduct environmental emergency drills to constantly improve our risk response capabilities.

In 2024, no major or significant environmental pollution incidents occurred at the Company during the Year, nor were there any cases of significant administrative penalties or criminal liability related to environmental incidents imposed by the Ministry of Ecology and Environment or other departments. The Company and its branches (subsidiaries) were not included on the list of heavily polluting companies published by the Ministry of Ecology and Environment.

### Three-level Environmental Risk Prevention and Control System



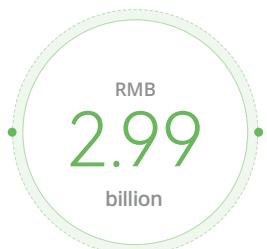
### PetroChina's "Six Major Environmental Risk Factors"



## ENVIRONMENTAL GOVERNANCE

The Company strictly abides by the relevant laws and regulations in relation to environmental protection and pollutant prevention and control and strictly implements all discharge standards in relation to the atmosphere, bodies of water, soil, solid waste and other types of pollutants. We also implemented the Opinions on Further Promoting the Battle to Prevent and Control Pollution, systematically carried out key tasks on pollution prevention and control, standardised the implementation of pollutant discharge management procedures for enterprises, improved the quality and performance of pollutant prevention and control and treatment, and continued the fight against pollution to keep our skies blue, waters clear, and lands clean.

The QHSE department is responsible for the general management in environmental protection, including pollutants emissions, and supervision of subsidiaries' environmental performance. The Company also implemented the Regulations on Environmental Protection, requiring affiliated companies to take measures to prevent and control the impact of on the environment from waste water, waste gas, solid waste, radioactive substances, noise, vibration, optical radiation and electromagnetic radiation generated in production and business activities.



Environmental protection expenditure

### Complied with and implemented national laws and regulations in relation to environmental protection

- The Environmental Protection Law of the People's Republic of China, the Water Law of the People's Republic of China, the Water and Soil Conservation Law of the People's Republic of China, the Yangtze River Protection Law of the People's Republic of China, the Yellow River Protection Law of the People's Republic of China, and other laws and regulations
- The Law of the People's Republic of China 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 Soil Pollution Prevention and Control Law of the People's Republic of China, the Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste, the Regulation on the Administration of Permitting of Pollutant Discharges, and other relevant laws and regulations

### Met national and industrial pollutant emission standards

- The Comprehensive Sewage Drainage Standards, the Atmospheric Pollutant Discharge Standards, the Hazardous Waste Storage and Pollution Control Standards, Standard for Pollution Control on Hazardous Waste Landfill, the Standards for Soil Environment Quality: Soil Pollution Risk of Construction Land, and other national standards
- The Emission Standard of Pollutants for Petroleum Refining Industry, the Emission Standard of Pollutants for Petroleum Chemistry Industry, the Emission Standard of Air Pollutants for Onshore Oil and Gas Exploitation and Production Industry, and other industry standards

### Formulated regulations and standards in relation to pollutant management and control

- Measures for the Administration of Environmental Protection, Management Measures for Industrial Solid Waste, Management Measures for Ecological Environment Protection of Construction Projects, Management Measures for Environmental Incidents, Measures for Environmental Monitoring and Environmental Information Management, Management Measures for Implementation of Wastewater Discharge Permits, Management Measures for the Operation of Online Monitoring Systems for Pollution Sources, Technical Specifications for Environment Statistics, Standards for Reviewing and Addressing Potential Ecological and Environmental Hazards

## Key measures in environmental governance

### Strengthening pollutant emissions management and control

- Strengthening the construction of the ecological and environmental management system, formulating the Management Measures for Industrial Solid Waste, issuing the Action Plan for Strengthening Air Pollution Prevention and Control (2024-2025), the Action Plan for Soil and Ground Water Pollution Prevention and Control, and the Action Plan for Enterprises in the Yangtze and Yellow River Basins to Achieve High-level Ecological and Environmental Protection, developing and deploying in-depth plans to fight and win the battle against pollution, and collaborating with other parties to promote the implementation of key remediation tasks
- Incorporating wastewater and exhaust gas pollutant indicators into the annual performance evaluation of the key management of enterprises, establishing tiered assessment criteria, and ensuring that responsible personnel at each level fulfil their environmental protection management responsibilities
- Issuing requirements in relation to the construction and management of wastewater outfalls, and carrying out comprehensive inspections on wastewater outfalls
- Analysing the potential of reducing wastewater discharge of enterprises, creating a list of wastewater discharge reduction projects

### Strengthening the early warning and monitoring system of pollutant emissions

- Conducting real-time online monitoring of key pollutant emissions from fixed sources of every enterprise, and performing analysis on a daily basis and conducting assessments on a monthly basis, to ensure that all pollutants are discharged in accordance with the standards

### Increasing the implementation of pollution reduction measures

- Improving the fine management of our environmental protection, and strengthening the operation and management of existing pollutant treatment equipment, to ensure that all pollutants are discharged in accordance with the standards
- Strengthening source control, further increasing wastewater reuse rates, and optimising the operation and daily management of wastewater treatment facilities
- Accelerating the implementation of projects such as upgrading our wastewater treatment system, transforming our ultra-low emission exhaust gas treatment facilities, and implementing the advanced treatment of volatile organic compounds (VOCs)

### Strengthening our sewage discharge permit management

- Through the Company's sewage discharge permit management system and the execution report submission and information reporting system, we track and schedule the status of permit compliance on a monthly basis, ensuring that sewage is only discharged with a permit and in accordance with the law

### Real-time online monitoring

The Company strictly monitors the pollutant discharge compliance of enterprises, analyses and issues warnings for those with excessive and abnormal emissions and carries out on-site inspection of automatic pollutant source monitoring equipment of enterprises. In 2024, 881 monitoring points were connected to our comprehensive monitoring network, ensuring that key pollutant sources were monitored in accordance with the national requirements. The scope of the automatic pollutant source monitoring covered major production equipment and pollutant sources of PetroChina, with real-time data transmitted to national and local regulatory platforms.

## Air Pollutant Control



Year-on-year decrease of nitrogen oxide (NOx) emissions

The Company has implemented the State Council's revised requirements of national pollutant emission standards, including the Action Plan for the Continuous Improvement of Air Quality and the Pollutant Emission Standards for the Petroleum Refining Industry. The Company continued our fight to protect blue skies and coordinate our air pollution prevention and control efforts. We issued the Action Plan for Strengthening Air Pollution Prevention and Control (2024-2025) and launched 276 remediation projects across five major areas, namely, air pollution source control, advanced treatment of volatile organic compounds (VOCs), advanced treatment of conventional pollutants, enhancement of air pollution management, and monitoring, control and information management. Through these measures, we aim to meet new air pollution control standards in key sectors such as oil and gas fields, refining, and sales, while continuing to step up our efforts in online monitoring and control of air pollutant sources. In 2024, 125 air pollutant remediation projects were completed, with pollutant emissions generally meeting the required standards.

	2022	2023	2024
Nitrogen oxide (NOx) emissions (10,000 tonnes)	5.01	4.85	4.48
Volatile organic compound (VOCs) emissions (from refining operations) (10,000 tonnes)	6.82	6.39	5.82

Note: Flaring emissions are included in the waste gas emission data



Year-on-year decrease of volatile organic compound (VOCs) emissions (from refining operations)

## Water Pollution Prevention and Control

The Company remains committed to prioritising both water pollution prevention and control, as well as water recycling and reuse, to maximise water conservation and protection. We ensured that wastewater discharge points are constructed and managed according to established standards, conducted investigations and remediations of river discharge points, standardised the setup of rainwater and wastewater discharge points, improved the rainwater and wastewater separation and discharge point monitoring system, and strengthened the prevention and control of surface runoff in our production and operation areas to prevent wastewater from being directly discharged into the rainwater network. We strengthened our compliance with wastewater management standards by adopting a tiered management approach for production wastewater and carrying out preliminary and advanced wastewater treatment, to ensure the stable operation of our wastewater treatment facilities and enhance our pollutant treatment efficiency, to ensure full and stable compliance with pollutant discharge standards. We

also strengthened wastewater source control, increased our wastewater reuse rate, and optimised the operation and daily management of our wastewater treatment facilities. In 2024, we launched 56 wastewater pollution prevention and control projects in key watersheds, including initiatives for wastewater reuse and advanced treatment, and continued to promote the orderly implementation of such projects. We also completed six key wastewater discharge reduction projects. The wastewater discharge volume of 21 companies, including Jilin Petrochemical and Lanzhou Petrochemical, showed a year-on-year reduction. Meanwhile, PetroChina's chemical oxygen demand (COD) emissions decreased by 14.29% as compared to the previous year.

	2022	2023	2024
Chemical oxygen demand (COD) emissions (10,000 tonnes)	0.50	0.49	0.42



Year-on-year decrease of chemical oxygen demand (COD) emissions

## Soil and Groundwater Pollution Prevention and Control

The Company has fully implemented the national requirements for soil and groundwater pollution prevention and control, established a robust soil and groundwater pollution prevention and control system, and set up a Soil and Groundwater Management Centre within the Company. We issued the Action Plan for Soil and Ground Water Pollution Prevention and Control (2024-2027), which outlined 15 key tasks across five areas, including: ensuring the effective fulfilment of key pollution prevention and control responsibilities, advancing major source control projects, conducting pilot control and remediation projects for operating enterprises, enhancing the standardised management of key units, and continually improving the soil pollution prevention and control system, to minimise or eliminate the impact of our production and operational activities on water resources. Key regulatory units for soil pollution prevention have fulfilled their obligations related to hazard inspection and self-monitoring and accelerated the remediation of soil pollution at decommissioned or relocated sites.

The Company effectively fulfilled its corporate social responsibility, with enterprises such as Lanzhou Petrochemical, Liaoyang Petrochemical, Changqing Petrochemical, Fushun Petrochemical, and Gansu Marketing launching pilot projects to "control pollution during production". These projects actively explore and improve the pollution management and control systems of operating enterprises, effectively reducing environmental risks of soil and groundwater at these sites through pollution inspections, risk assessments and management and remediation efforts. By the end of 2024, the Company has completed nine key projects for soil pollutant source control.

## Solid Waste Disposal

The Company attaches great importance to the compliant management of solid waste, especially hazardous waste. In 2024, the Company issued the Management Measures for Industrial Solid Waste, which implemented the principles of "reduction, valorisation, and environmentally sound management". These measures highlighted the obligation of full compliance with the management standards at every stage of the hazardous waste lifecycle, from generation, collection, storage, transportation, utilisation, to disposal. The Company conducted on-site inspections across its enterprises to ensure that their solid waste management complied with the established measures.



### Our Objective

Compliant disposal rate of general solid waste

100%

Solid Waste Disposal		Principal measures for the legal disposal of general industrial solid waste and hazardous waste
General solid waste	<b>2.468</b> million tonnes	<b>Strengthen whole-process management</b> <ul style="list-style-type: none"><li>Establish an industrial solid waste management system, strengthen the management of accounts and the transfer processes, strictly enforce the requirement for the separate collection and storage of industrial solid waste, prohibit waste mixing, and build self-owned facilities for the comprehensive utilisation and disposal of solid waste</li></ul>
Compliance disposal rate of general solid waste	<b>100%</b>	<b>Apply waste reduction technology</b> <ul style="list-style-type: none"><li>Adopt box-type drilling platforms, a closed-loop steam clean and recovery system within wellbores, and a non-falling drilling cuttings technology during the operation process</li><li>Use nitrogen gas to purge tanks in a closed system and implement thermal circulation measures during the collection and transportation processes to reduce the generation of general industrial soil waste and hazardous waste</li></ul>
Hazardous waste	<b>1.257</b> million tonnes	<b>Increase recycling rate</b> <ul style="list-style-type: none"><li>Promote the adoption of environmentally-sound and comprehensive disposal technologies for solid waste generated during oil and gas production, use drilling cuttings and other solid waste for paving roads, manufacturing construction materials and water shutoff agents, after undergoing treatment that meet control standards</li></ul>
Compliance disposal rate of hazardous waste	<b>100%</b>	<b>Establish a uniform and full-process solid waste management and control platform</b> <ul style="list-style-type: none"><li>Precise management and monitoring at every stage of the general industrial solid waste lifecycle, from hazardous waste generation, collection, storage, transportation, utilisation, to disposal</li></ul>



By deploying advanced energy conservation techniques, emission reduction solutions and harmless drilling waste treatment technologies, the Company establishes new benchmarks for green, low-carbon drilling operations

## ECOLOGICAL SYSTEM AND BIODIVERSITY PROTECTION

We actively respond to global initiatives and international conventions such as the 2030 Agenda for Sustainable Development and the Convention on Biological Diversity, and the Kunming-Montreal Global Biodiversity Framework issued by the United Nations, as well as national policies and plans such as the Opinions on Further Strengthening Biodiversity Protection and China's National Biodiversity Conservation Strategy and Action Plan (2023-2030), and have firmly established a concept of ecological civilisation that respects nature, conforms to nature, and protects nature.

The QHSE department is responsible for the comprehensive management of environmental protection, including biodiversity conservation; Each professional company is specifically responsible for the relevant supervision and management; Each affiliated enterprise shall, in accordance with the requirements of PetroChina management system, protect biodiversity and ensure ecological safety.

The Company has issued the Ecological Protection Action Plan, and formulated regulations such as the Regulations on Environmental Protection Management, the Management Measures for Ecological Environment Protection of Construction Projects, and the Measures for Environmental Monitoring and Environmental Information Management. These policies integrate the concept of ecological, environmental, and biodiversity conservation into the entire operational process of the Company. At the same time, we actively participate in global biodiversity conservation, working to protect wetlands, rainforests, oceans, deserts (including the Gobi Desert), and other natural ecosystems and endangered wildlife and plants. Through these efforts, we help to increase the diversity, stability and sustainability of ecosystems, and help achieve the goals of "protecting, restoring and sustainably utilising ecosystems and curbing biodiversity loss".

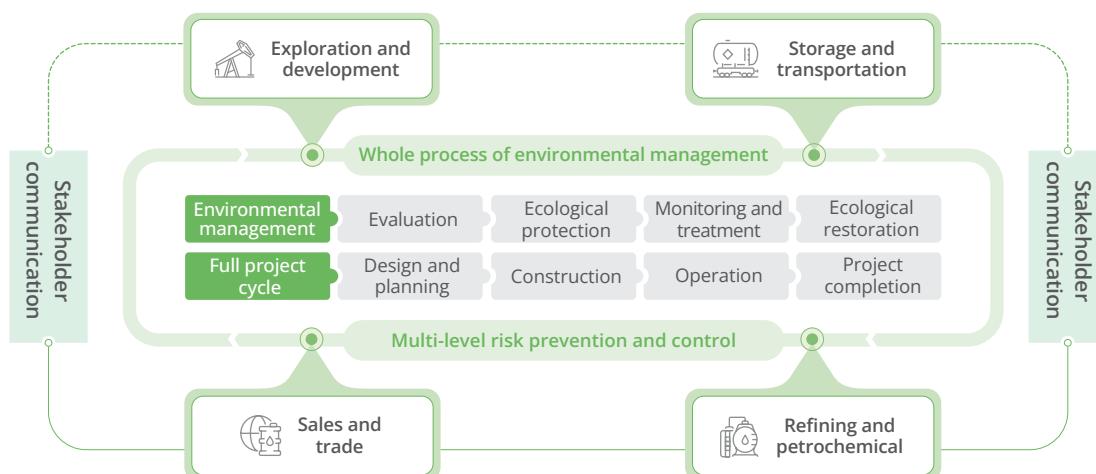
### Our Commitments

We shall strictly adhere to the relevant laws and regulations of China and other countries where our operations are located, and refrain from conducting oil and gas activities in environmentally sensitive areas and nature reserves prohibited by law.

## Ecological and Environmental Management

The Company is committed to reducing and eliminating the potential impacts that our production and operations may have on the ecological environment and biodiversity. We aim to reduce the impact and reliance of our projects on the ecosystem, animal species and their habitats, and genetic resources throughout the entire lifecycle. Dedicated to both ecological protection and restoration, we prioritise source control and implement an ecological and environment management system across the entire industry chain and lifecycle.

### Whole-process Eco-environmental Management of Whole Industry Chain



## Ecological environment protection throughout the project cycle

### Project design and planning

We create a strict access list for projects in accordance with the laws and regulations, carry out investigations on the types of wildlife and plants and the ecological environment, conduct environmental impact assessments, and propose targeted protection measures to avoid disturbance to wildlife as much as possible, require facilities and access routes to bypass natural, vulnerable, and important wildlife habitats, to prevent ecological damage at source.

### Project construction

We make adjustments to our site and route selection or optimise project plans to avoid ecologically sensitive areas; we coordinate construction works to avoid sensitive times, such as breeding, wintering, and migration seasons and special protection periods for vulnerable species; upon project completion, we carry out ecological restoration in areas where ground vegetation has been destroyed.

### Project operation

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 minimise our impact on biodiversity.

### After project completion

We carry out greening, ecological restoration and improvement work based on local ecological characteristics, prioritise the use of topsoil and species native to the area over invasive species to prevent ecological harm, and create plant communities that are compatible with its surrounding ecological environment to gradually restore impacted areas, ultimately forming self-sustainable ecosystems; we also carry out biodiversity offsetting activities in receptor sites.

## Comprehensive Biodiversity Monitoring >>

We work closely with local governments and institutions to monitor the operation sites and surrounding environment. The Company has formulated an Implementation Plan and Guidelines for Comprehensive Biodiversity Protection Monitoring. We have promoted the construction of a comprehensive biodiversity protection monitoring networking system and launched the first phase of the Comprehensive Biodiversity Monitoring System. In addition, we have established monitoring points at three Other Effective Area-based Conservation Measures (OECMs), which can supervise and analyse animal video footage 24/7 in OECMs as well as precisely assess the effectiveness of our ecological protection efforts, scientifically formulate subsequent protection measures, and significantly enhance our protection level.

## Ecological Protection in Key Areas

The Company stays committed to protecting, restoring, and utilising the ecosystem in a sustainable manner. We strictly abide by ecological conservation red lines, redouble efforts to adopt ecological protection and restoration measures, and continue to construct environmentally friendly mines.

## Exiting Nature Reserves >>

We strictly adhere to ecological red lines and refrain from conducting oil and gas activities in environmentally sensitive areas and nature reserves prohibited by law. For production facilities already established within Ecological Conservation Redlines (ECRs), we decommission them in accordance with national and local requirements, in order to protect ecologically sensitive and vulnerable areas, as well as protected area for wildlife.

In 2024, the Company instructed its enterprises to carry out a thorough inspection of production facilities operating within ECRs, in accordance with the latest national ECR zoning plan. All enterprises that fall within existing ECRs are required to create an asset ledger. Following the principle of “zoning, classification, and orderly exit”, we formulated exit plans to decommission non-permitted businesses from the ECRs in an orderly manner. Since the 14th Five-Year Plan, a total of 1,464 oil and gas wells have been decommissioned.

CASE STUDY

### Decommissioning wells and restoring forests to protect waters and mountains

PetroChina has always adhered to the principle of "achieving integration and coordination between development and environmental protection, with environmental protection as a priority". To this end, we have continued to promote green production, stepped up our environmental protection efforts, and consistently taken actions towards building an ecological civilisation. Over the years, PetroChina has decommissioned operations in environmentally sensitive areas in an orderly manner, delivering green oil while maintaining harmonious coexistence between human and nature.

- **Daqing Oilfield:** Targeted measures have been implemented to restore the ecology at decommissioned well sites. To protect the biodiversity of the wetland ecosystem in the Zhalong National Nature Reserve in Heilongjiang, we sealed and dismantled all oil wells and their ancillary facilities within the reverse's buffer zone. As at now, the land used for production and construction has been effectively restored through reclamation, vegetation restoration, microtopographic modifications, and other measures.
- **Liaohe Oilfield:** We have accelerated the exit plans for our production facilities and the ecological restoration work within the nature reserve, protecting the habitats of nearly 500 species of wildlife, including the red-crowned crane, the Saunders's gull, and the spotted seal.
- **Tarim Oilfield:** We have proactively avoided operating in natural forests, wetlands, and other environmentally sensitive areas, gradually decommissioned oil and gas production facilities in nature reserves, and carried out ecological restoration and land reclamation work.
- **Dagang Oilfield:** We have completed the construction of ecological protection projects, such as the Suaeda Grass Observation Corridor, and formulated exit plans for decommissioning oilfield development and production in five environmentally sensitive areas, including the Beidagang Wetland Nature Reserve, South Dagang Wetland, and Bird Nature Reserve.

### Ecological Protection of the Yellow River Basin and the Yangtze River Economic Belt >>

The Company has fully implemented the Yellow River Protection Law of the People's Republic of China, the Yangtze River Protection Law of the People's Republic of China, and the ecological protection requirements for the Yangtze and Yellow Rivers to promote high-level ecological and environmental protection in key river basins. It has also issued and implemented the Action Plan for Enterprises in the Yangtze and Yellow River Basins to Achieve High-level Ecological and Environmental Protection, which outlined 10 major tasks and 142 key projects aimed at coordinating pollution control and ecological protection efforts. We conducted a thorough investigation of wastewater and exhaust gas discharge points in enterprises along the Yangtze and Yellow Rivers, established a list of such discharge points, and implemented a tiered management approach. Since 2020, we have invested a total of RMB 6.67 billion and completed 136 key remediation projects in the Yangtze and Yellow River areas.

### Building Environmentally Friendly Mines >>

We carried out environmentally friendly mine construction activities and released the Standard for Oil and Gas Field Enterprises to Construct Environmentally Friendly Mines. Throughout the entire process of oil and gas exploration and production, we implement scientifically organised extraction methods to minimise disturbances to the mining area and surrounding ecological environment within our control, building green mines that are environmentally friendly, based on ecological principles, with scientific extraction methods, highly efficient resource utilisation, digitalised management, and a harmonious mining community. By the end of 2024, a total of 295 mining rights held by the Company have been approved as environmentally friendly mines at the national and provincial levels.

## Land Resource Protection and Ecological Restoration

The Company places great importance on land resource protection and has strictly implemented China's arable land protection system and land conservation policies. The Company formulates regulations such as Measures for Land Management, Rules for Temporary Land Use Management, Rules for Acquiring New Construction Land, and Rules for Land Use and Protection. We clarified the requirements for the sustainable use of land resources. These include planning, controlling development, revitalising existing land resources, optimising land structure, land restoration, and land withdrawal. This ensures that our operations develop sustainably, with minimal land use and an optimal structure, while striving to achieve a harmonious balance among oil and gas resources, land resources, and environmental resources.

According to the principle of "farming where suitable, planting forests and grassland where suitable, and carrying out construction where suitable", we restore temporary or construction lands that are no longer in use in our production activities to their original or usable states. This is achieved through measures such as topsoil removal, land clearing, levelling, re-ploughing, soil fertilisation, and vegetation restoration. After reclamation and restoration, we promptly submit the work to the relevant local government departments for verification and acceptance. The lands are then transferred back to the original owners for their use in a timely manner.

The Company has reduced soil erosion caused by oil and gas exploration and development by carrying out vegetation restoration, ecological reconstruction, and other remedial measures in a timely manner. This has curbed the degradation of the ecological system at oil sites and the desertification of land caused by wind erosion, improved land use structure, increased land productivity and vegetation coverage, and facilitated the synergistic development of local agriculture and forestry.

The Company has fully implemented a technology that prevents drilling mud from spilling onto the ground in 100% of our oil and gas exploration and production procedures, allowing us to effectively protect land resources.



### Annual progress in efficient and intensive use of land

#### Efficient and intensive use of land

- Applied technologies to construct cluster wells, horizontal wells, integrated stations and multi-layer oilfields, optimised 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 revitalise existing land

New construction land saved annually: approximately

**1,200** hectares

Annual temporary land saved: approximately

**3,100** hectares

#### Restoring land

- Actively carried out ecological restoration, converting unused construction land into arable land through both by ourselves and third-party commissioning to strictly fulfil the obligation of restoring temporary land

Restored approximately

**86** hectares

of construction land throughout the year

Restored approximately

**7,300** hectares

of temporary land throughout the year

#### Exiting from inefficient and ineffective construction land

- Returned inefficient and ineffective construction land to the local government

Withdrew from approximately

**47** hectares

of construction land throughout the year

## Biodiversity Protection

We have incorporated biodiversity protection into the 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, established Other Effective Area-based Conservation Measures (OECMs) and environmentally-friendly mines, and implemented a variety of biodiversity protection measures. Relying on nature-based solutions (NbS), 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 ecological corridors. Aside from encouraging employees to actively participate in biodiversity conservation activities, we have also actively mobilised communities, the public, business partners and other stakeholders in our operational locations to collaborate with each other in contributing to biodiversity protection.

### Key measures and actions adopted to protect biodiversity

Measures	Major actions
Incorporating biodiversity into our Company's management system	<ul style="list-style-type: none"> <li>• Formulated and issued the Ecological Protection Action Plan, the 14th Five-Year Plan for Green Development, the Ecological Ban, the Opinions on the Development of PetroChina's Other Effective Area-based Conservation Measures (OECMs), and other regulations and management systems</li> <li>• Issued the Technical Specifications for Vegetation Restoration in Onshore Oil and Gas Fields, and organically integrating biodiversity conservation with vegetation restoration</li> <li>• Continuously improved our biodiversity protection system and incorporated biodiversity risk assessments into the whole-life-cycle management of our projects</li> </ul>
Carrying out a variety of biodiversity protection practices	<ul style="list-style-type: none"> <li>• Exploring nature-based solutions (NbS), we established a total of 10 Other Effective Area-based Conservation Measures (OECMs) for wildlife and natural habitat protection</li> <li>• Continuously carried out voluntary tree planting activities. every year, we organise tree planting and afforestation activities to create multi-layered and mixed natural forests of different ages that align with biodiversity conservation goals. Various green public welfare events such as "Tree Planting for Carbon Neutrality" have been promoted, and positive progress has been made in our construction of carbon sequestration forests and carbon neutral forests. For details, please refer to "Tree Planting and Forest Carbon Sinks" on page 55 of this Report</li> <li>• Protected water and soil resources, restored vegetation, and strived to restore the ecological environment of areas where our operations are located</li> <li>• Continuously carried out actions to protect biodiversity such as valuable and old trees and wildlife habitats</li> </ul>
Promoting biodiversity awareness	<ul style="list-style-type: none"> <li>• Encouraged staff to participate in educational events such as "World Wildlife Day" and "World Environment Day" to enhance their awareness towards biodiversity conservation</li> <li>• Established a platform for promoting biodiversity awareness by building our first batch of five green shared cabins</li> <li>• Formed volunteer service teams for biodiversity conservation, with a total of nine teams consisting of 135 members. These volunteers serve as both tour guides and wildlife rangers</li> </ul>

CASE STUDY

### Establishing Other Effective Area-based Conservation Measures (OECMs)

PetroChina continued to explore nature-based solutions for biodiversity protection. The Company issued the Opinions on the Development of PetroChina's OECMs, which designated the OECMs as an important task and actively carried out specialised research on biodiversity protection.

In 2023, the Company unveiled its first three OECMs at Guowu Lake and Laohu Mountain at Daqing Oilfield, as well as Arshan Donghu Wetland at North China Oilfield. In 2024, the Company concurrently established a second batch of seven OECMs at Changqing Oilfield, Tarim Oilfield, Hainan Natural Gas Sales Company, and other enterprises. As of the end of 2024, we have established 10 OECMs across China, covering a total area of 4,018.8 hectares. Among them, the OECMs at Area 6 of Sulige gas field in Changqing Oilfield was selected as one of China's First Potential OECMs Cases and was showcased at the Convention on Biological Diversity at COP16.

In 2024, the OECMs at Guowu Lake, Daqing Oilfield was successfully included in A Stocktaking Report on OECMs in China by the China office of the International Union for the Conservation of Nature (IUCN). In September of the same year, the Report was presented at the Asia Regional Conservation Forum and published globally on the IUCN website.

At the same time, we have built five green shared cabins, covering a total area of 870 square metres to create a platform for promoting biodiversity awareness. We also formed a volunteer service team for biodiversity conservation consisting of 135 volunteers, who serve as both wildlife rangers and tour guides. Moreover, we have established eight comprehensive monitoring points that can collect and transmit animal video footage 24/7, enabling us to perform multi-dimensional analysis and dynamic visualisation of the collected data. We are working to expand the coverage of these comprehensive monitoring points to all the OECMs. With this "four-in-one" working model (OECMs, green shared cabins, volunteer service team, and comprehensive biodiversity monitoring), PetroChina has advanced its biodiversity protection efforts into a systematic and scalable infrastructure.



By developing its own OECMs, Dagang Oilfield has transformed former saline-alkaline wasteland into flourishing wetland ecosystems

CASE STUDY

### Building a green gas province

In recent years, Changqing Oilfield has adhered to the concept of integrating ecological industrialisation with industrial ecology. Beginning with the design of gas development plans, it has carried out biodiversity protection. Additionally, by establishing a comprehensive operation framework for managing biodiversity, it has also actively improved its ecological design, adopted intensive land use, ensured clean and civilised production, and implemented integrated and comprehensive governance.

Changqing Oilfield places great importance on the transformation and innovation of its development model. It has fully implemented a standard “nine wells per cluster” layout throughout the South Sulige area and further explored a wide range of technologies and measures, such as zero spill systems and fracturing gas recovery, to preserve the integrity of the grassland ecosystem to the greatest extent.

Changqing Oilfield carried out ecological management work such as wind proofing and sand consolidation, vegetation restoration, and land restoration in accordance with local conditions. Green and protected plants were planted around the production site, pipelines, and employee accommodation and support facilities. Using remote sensing satellite imagery monitoring technology, the company selected more than 35,000 vegetated and sand verification points of interest in the oilfield for precise analysis, in order to dynamically monitor the growth of rhamnus erythroxylon, licorice, hedysarum mongolicum (rare wild plants under national and autonomous regional protection), by analysing the proportion of vegetation to sand in its image data.

Over the past ten years, vegetation coverage in the gas province increased by 69%. In particular, with the advancement of the gas field's digitalisation and smart construction, the company achieved 100% compliance in waste gas emissions and solid waste disposal, thereby providing a high-quality living environment for flora and fauna, truly realising the concept of “Building a green gas province”.



Over the past ten years, vegetation coverage in the gas field increased by



Compliance of waste gas emissions and solid waste disposal



Changqing Oilfield's ecological governance efforts: windbreak and sand fixation, vegetation restoration and land reclamation based on local conditions

# ENVIRONMENT

## SUSTAINABLE USE OF NATURAL RESOURCES

Natural resources are precious and limited assets bestowed upon humanity by mother nature. Therefore, the protection and conservation of natural resources is an important mission for humankind. At PetroChina, we are committed to adopting scientific and rational methods to utilise energy, freshwater and other resources in an intensive and highly efficient manner. By strengthening our efforts in resource protection, conservation and management throughout the resource utilisation process, promoting clean substitution during production, and vigorously developing a circular economy, we aim to realise the sustainable use of natural resources.



### The UN Sustainable Development Goals



## SUSTAINABLE UTILISATION AND MANAGEMENT OF NATURAL RESOURCES



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

We greatly value the protection and rational use of natural resources. We have formulated and implemented the Measures for Energy and Water Conservation and other management systems and established a three-tiered management structure consisting of our headquarters, specialised corporations, and affiliates. Under this structure, we aim to conserve water resources, enhance energy efficiency, promote resource recycling and clean substitution, minimise resource consumption, to achieve the sustainable use of our resources.

In 2024, the Company implemented a comprehensive conservation strategy by formulating and implementing the Energy Conservation and Carbon Reduction Action Plan (2024-2025) and undertaking 11 key tasks, including improving oil and gas field production system efficiency, meeting and exceeding refining efficiency standards, promoting clean substitution, and increasing electrification rates. We also coordinated and strengthened the energy and water conservation efforts across all business processes and areas, fostered technological innovation in energy and water conservation, improved energy and water efficiency, and vigorously promoted energy conservation, carbon reduction, and efficiency improvements, all of which support the Company's high-quality development through high-level energy conservation and carbon reduction.

In 2024, our subsidiaries actively implemented energy and water saving measures. Several enterprises were recognised as Energy Efficiency "Pacesetters" and Water Efficiency "Pacesetters" within the oil and petrochemical industry by the China Petroleum and Chemical Industry Federation in the nationwide energy and water efficiency "Pacesetters" competition.

### Energy Efficiency "Pacesetters"

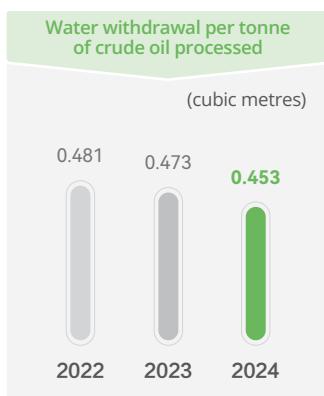
- Product Energy Efficiency "Pacesetters" among crude oil processing enterprises: Jinzhou Petrochemical
- Product Energy Efficiency "Pacesetters" among ethylene production enterprises: Guangdong Petrochemical, Dushanzi Petrochemical, Lanzhou Petrochemical Yulin Chemical Co., Ltd.

### Water Efficiency "Pacesetters"

- Product Water Efficiency "Pacesetters" among ethylene production enterprises: Dushanzi Petrochemical, Tarim Petrochemical
- Product Water Efficiency "Pacesetters" among synthetic ammonia production enterprises: Tarim Petrochemical



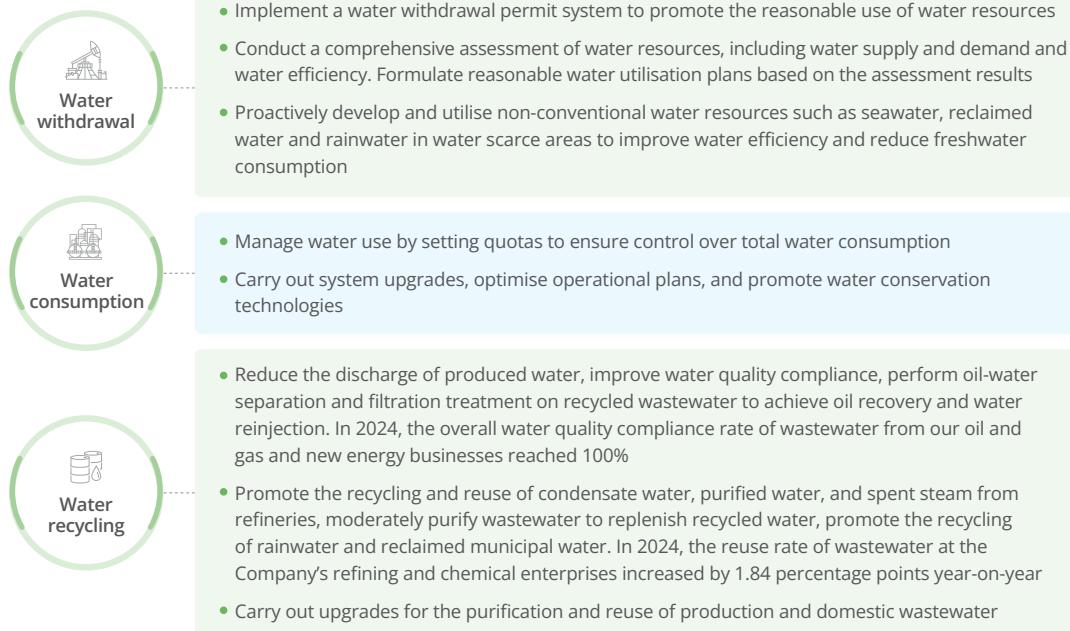
## WATER CONSERVATION



The Company strictly adheres to the Environmental Protection Law, the Water Law of the People's Republic of China, the Law of the People's Republic of China on the Prevention and Control of Water Pollution, the Yangtze River Protection Law, the Yellow River Protection Law, and other relevant laws and regulations. We fully implement the National Water Conservation Action Plan, the National Water Saving Action Plan, the Regulation on Water Conservation, and other relevant policies. We have also formulated and implemented regulations such as the Management Measures for Water Withdrawal and Utilisation by Refining Enterprises and are committed to prioritising both water conservation and efficient recycling. Moreover, we are actively exploring water management strategies, including quota setting and total volume control, with the goal of enhancing water efficiency and achieving sustainable water use in every aspect of our production activities.

We have designated appropriate management personnel at different organisational levels and implemented a target responsibility system, along with an appraisal and evaluation system, where water saving targets are incorporated, to continuously strengthen our water conservation efforts. To enhance our water efficiency, we conduct full-lifecycle management of our water resources. Through optimising the production and operation of our water system, applying advanced water-saving and wastewater reuse technologies, and improving the use of non-conventional water resources, we continued to improve our water efficiency and reasonably controlled our freshwater usage. In 2024, the total annual freshwater consumption of the Company was 748.01 million cubic metres, with a water withdrawal amount of 0.453 cubic metres per tonne of crude oil processed, resulting in 7.83 million cubic metres of water saved. This exceeded our 2024 target<sup>3</sup> and signified a continuous improvement in water efficiency.

### Full-life-cycle water resource management



[ 3 ] 2024 water saving target: over 6.00 million cubic metres, water withdrawal target per tonne of crude oil processed: below 0.478 cubic metres

## IMPROVING ENERGY EFFICIENCY

In accordance with the requirements of the Energy Conservation Law of the People's Republic of China, the Energy Conservation and Carbon Reduction Action Plan (2024-2025), the Energy Efficiency Benchmarking Levels and Standard Levels in Key Areas of Industries (2023 Edition) and other regulations and policies, we actively carried out our energy conservation work.

In 2024, the Company actively organised efficiency benchmarking and Energy Pacesetter activities, took up a leadership role in demonstrating energy conservation and carbon reduction practices, strengthened energy efficiency benchmarking, and explored ways to continuously improve energy efficiency. As a result, we made ongoing progress in meeting key energy efficiency targets for our oil and gas production, refining, and petrochemical businesses. By implementing quicker energy efficiency upgrades for our refinery and ethylene plants, as well as upgrading and eliminating outdated and inefficient equipment, we gained greater control over our total energy consumption and continued to enhance our energy efficiency. Throughout the year, we saved 0.74 million tonnes of standard coal, with the comprehensive energy consumption per unit of oil and gas equivalent production reaching 101 kilograms of standard coal/tonne, both exceeding our 2024 target<sup>4</sup>.

<b>Energy efficiency management</b>
Energy saved
<b>0.74</b>
million tonnes of standard coal
Total energy consumption
<b>64.98</b>
million tonnes of standard coal

	2022	2023	2024
Comprehensive energy consumption per unit of oil and gas equivalent production (kg of standard coal/tonne)	109	106	<b>101</b>
Energy consumption per unit energy factor (kg of standard oil/[tonne · energy factor])	7.89	7.77	<b>7.77</b>
Comprehensive energy consumption per unit product of ethylene (kg of standard oil/tonne)	604	595	<b>574</b>



The Company consistently drives technological innovation to enhance energy utilisation efficiency.

<sup>4</sup> 2024 energy saving target: over 560,000 tonnes of standard coal, comprehensive energy consumption target per unit of oil and gas equivalent production: below 108 kilograms of standard coal/tonne.

## Annual progress of energy efficiency management

Improved top-level design	Optimised energy conservation standards and system	Strengthened source control
Implemented the Company's Energy Conservation and Carbon Reduction Action Plan (2024-2025) and established the "1+7" Energy Conservation and Carbon Reduction Action Plan	Completed the revision of six standards, including the Technical Standards for Energy Management and Control – Part One: Management, and continued to optimise the energy and water efficiency of our refining equipment and the renewable energy consumption report	Focused on improving energy efficiency at the source, conducted more rigorous assessments and energy conservation evaluations, and carried out technical reviews of energy conservation reports for 14 key projects with energy consumption exceeding 20,000 tonnes of standard coal
Carried out energy efficiency improvement projects	Implemented energy-saving and water saving technical transformations	Monitored and evaluated energy and water-consuming equipment
Carried out upgrade projects to improve energy efficiency in the oil refining and ethylene plants at enterprises such as Dushanzi Petrochemical and Jilin Petrochemical	Implemented energy and water saving technical transformation projects, including improvements in mechanised mining system efficiency, optimisation of public works, and enhancement of equipment efficiency. The completed projects achieved energy savings of 152,800 tonnes of standard coal	Tested and evaluated the energy usage of more than 14,700 major energy and water-consuming equipment such as oil pumps, heating furnaces and oil transfer pumps

## CLEAN ENERGY SUBSTITUTION IN PRODUCTION

<b>Oil and gas and new energy businesses</b>
Year-on-year increase in the proportion of electricity in total energy consumption
<b>0.8</b> percentage points
Year-on-year increase in the proportion of non-fossil energy in total energy consumption
<b>2.5</b> percentage points

The Company has strictly implemented policies for energy conservation, carbon reduction, and clean energy substitution in its production process. By optimising our energy structure and increasing the use of clean energy sources, we have reduced fossil fuel consumption and carbon dioxide emissions, facilitating the transition of the entire production process to a green and low-carbon framework.

In 2024, the Company continued to build photovoltaic and wind power projects to significantly improve our clean energy self-sufficiency. Through the construction of distributed PV systems, distributed wind power systems, differential pressure power generation, and cold energy utilisation projects, we enhanced our clean energy self-sufficiency, reduced carbon emissions, and created low-carbon and zero-carbon sites. Moreover, we adopted key measures such as improving the efficiency of oil and gas field production systems, upgrading the energy efficiency standard of refining activities, upgrading equipment to enhance efficiency, and managing and controlling oil and gas consumption. These measures promoted clean energy alternatives and electrification based on energy conservation and optimisation, enabling us to accelerate the improvement of our capacity for consuming clean electricity and the increase in electrification rate of end-user energy consumption, gradually replacing fossil energy with clean energy.



**Refining, chemical, and new materials businesses**

Reduced coal consumption

**585,000** tonnes

Year-on-year increase in the proportion of non-fossil energy consumption

**0.6** percentage points

Year-on-year increase in the proportion of green electricity in total electricity consumption

**3.7** percentage points

**Natural gas sales business**

Cumulative number of sites with completed PV power generation and differential pressure power generation projects

**57**

Cumulative installed capacity of clean alternative energy power generation

**13.5** MW

**Sales business**

Petrol stations with PV

**3,264**

Carbon neutral pilot petrol stations

**69**

**Key measures for clean energy substitution**

Key measures	Description
<b>Accelerating the implementation of clean electricity substitution</b>	<ul style="list-style-type: none"> <li>Based on the energy consumption capacity of the oil and gas fields, we fully leveraged on the advantages of idle land, wind and solar resources, and the power grid to promote the electrification of operational processes, and explored ways to develop a full-process low-carbon framework that covers "well sites, stations, operation areas, oil extraction plants, and oilfields"</li> <li>The national shale oil demonstration area in Gulong, Daqing started construction. This new shale oil electricity system primarily utilises new energy sources, and is also supported by gas-fired power and regulated by energy cabins. It aims to address the problems of regional electricity shortages, high energy costs for diesel-powered drilling and fracturing, and high carbon emissions</li> <li>We are advancing the construction of differential pressure power generation projects and systematically promoting the phased transition of electricity-powered technological and products, starting with electricity supported by thermal power, followed by a shift to primarily electricity with minimal thermal power, and ultimately achieving full electrification. We are also continuing to improve the cleanliness of electricity used in production, while replacing existing energy consumption through measures such as procuring clean electricity</li> </ul>
<b>Breakthroughs in clean thermal substitution</b>	<ul style="list-style-type: none"> <li>Accelerate the transition to clean heat energy in our production processes through technologies such as "the diverse utilisation of residual heat, breakthroughs in solar thermal energy, optimisation of geothermal energy, and thermoelectric coupling experiments"</li> <li>At Daqing Oilfield, we built a "clean energy island" that integrates multiple energy sources, including "oil, natural gas, geothermal, and electricity"</li> <li>At Liaohe Oilfield, we built the world's first molten salt energy storage and steam injection station powered by electric-thermal energy, and developed a 1 MW downhole high-power electric heating and drying device</li> <li>At Xinjiang Oilfield, we conducted a pilot experiment for the use of high-temperature solar thermal energy for heavy oil, supplying 52,000 tonnes of "zero-carbon superheated steam" annually</li> </ul>

## DEVELOPING A CIRCULAR ECONOMY

PetroChina is committed to establishing itself as a resource-efficient and environmentally friendly enterprise and is actively developing a circular economy. Centred around the efficient, clean, and circular use of resources, we encourage the reduction, reuse, and recycling of resources throughout the production and distribution processes. Our goal is to minimise resource consumption and waste emissions, to facilitate the green and sustainable development of the entire industry chain.

### Key measures in developing a circular economy

Key measures	Description
Realising the efficient use of resources	<ul style="list-style-type: none"><li>Vigorously promoting energy conservation, carbon reduction, and efficiency enhancement, fostering technological innovation in energy and water conservation, improving energy efficiency, promoting resource recycling, minimising resource consumption (for details, please refer to "Water Conservation" and "Improving Energy Efficiency" on pages 82 and 83 of this Report)</li><li>Comprehensively developing and utilising associated resources such as associated gas and geothermal energy, as well as waste heat generated during oil and gas production, establishing recovery units and treatment facilities, and using the recovered resources for power generation, heating, or as chemical raw material, maximising resource utilisation</li></ul>
Promoting the development of new energy sources and clean substitution of energy	<ul style="list-style-type: none"><li>The Company continues to build PV and wind power projects, significantly increasing the self-sufficiency of clean energy supply, optimising its energy consumption structure, and reducing its fossil fuels consumption and carbon dioxide emissions during the production process, thereby realising the transition towards a green and low-carbon economy throughout its production process (for details, please refer to "Clean Energy Substitution in Production" on page 84 of this Report)</li></ul>
Recycling emissions and wastes	<ul style="list-style-type: none"><li>Thoroughly treating wastewater generated during the production processes using physical, chemical, and biological treatment methods, such that the treated water meets recycling standards, and is reused for cooling, water injection, and other production processes. This approach enables us to achieve water recycling and reduce freshwater consumption and wastewater discharge (for details, please refer to "Water Pollution Prevention and Control" and "Water Conservation" on pages 70 and 82 of this Report)</li><li>Treating nitrogen oxides, sulphur dioxides, and other waste gases generated during the production processes using desulfurisation, decarbonisation, and other technologies, and recovering useful substances from these gases for recycling</li><li>Actively exploring and improving technical and economic pathways for CCUS, advancing research on CO<sub>2</sub>-EOR technology, innovating to form a complete CCUS industry chain technological system, and making carbon dioxide flooding industrially applicable in CCUS projects (for details, please refer to "Carbon Capture, Utilisation and Storage (CCUS)" on page 57 of this Report)</li><li>Separating, collecting, and treating solid waste generated during oil and petrochemical production using pyrolysis, extraction, regeneration, and other technologies, to achieve reduction, recycling of solid wastes (for details, please refer to "Solid Waste Disposal" on page 71 of this Report)</li></ul>

CASE STUDY

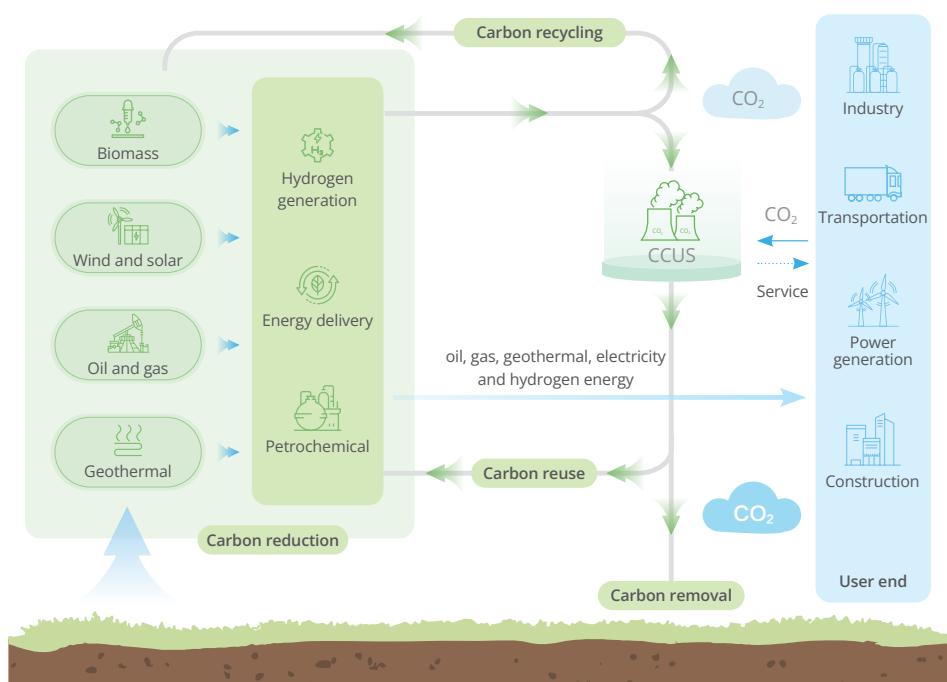
### Optimising low-temperature waste heat power generation to promote energy conservation and carbon reduction

Liaoyang Petrochemical has made energy conservation and carbon reduction a key driver in promoting its transition towards a green economy. By focusing on technical transformations to improve equipment energy efficiency, it has optimised the operation of its low-temperature waste heat ORC system. This system recycles low-temperature waste heat generated from the industrial production process, and reuses it to generate high-quality, clean electricity, significantly improving energy efficiency and effectively reducing carbon emissions. In 2024, the company's ORC system generated 6.3% more electricity as compared to the previous year, resulting in a reduction of 9,800 tonnes of carbon dioxide emissions.

## Building a Carbon Circular Economy Structure

PetroChina has formulated the Green and Low-carbon Development Action Plan 3.0, centred around four principles: carbon reduction, carbon reuse, carbon recycling and carbon removal (collectively referred to as the 4Rs), as proposed in the 2020 G20 Summit. Under the Plan, we introduced the concept of developing a “circular carbon economy”. In addition, we launched the Circular Carbon Economy Pioneer Initiative, which includes the full implementation of our in-depth electrification transformation project, the CCUS industry chain construction project, and the zero-carbon production and operation transformation project. By continuously optimising our energy and carbon flows, we are transforming the Company's processes related to carbon dioxide reduction, reutilisation and valorisation. We are also actively exploring new energy sources, new materials, and new industries, building a CCUS industry chain, accelerating the realisation of clean energy supply and a large-scale carbon industry, to promote green and low-carbon transition.

### PetroChina's development path towards a circular carbon economy



# SOCIETY

## SOCIAL CONTRIBUTION

Businesses are deeply rooted in society. PetroChina embraces its fundamental obligation to drive positive social impact. Strategically aligning our corporate social responsibility initiatives with our core business operations, we proactively support rural revitalisation, advance social welfare programmes, and contribute to overseas community development. While maintaining a steadfast commitment to the Company's sustainable growth and delivering consistent shareholder value, we foster broader economic and social sustainability.

The UN Sustainable Development Goals



## MAINTAINING POSITIVE COMMUNITY RELATIONS

We actively maintain good relations with the community through responsible operations, by enhancing communication, creating employment, paying taxes, participating in community welfare and other activities, in order to protect the rights of community residents and facilitate the improvement of local self-development capabilities.

### Community relationship management in full-cycle projects



#### Before commencement

- Conducting comprehensive community engagement through multifaceted research methodologies, including questionnaires, community forums, and targeted door-to-door interviews. This strategic approach enables a holistic understanding of community demographics, economic landscape, cultural nuances, existing infrastructure, and the critical concerns and fundamental needs of residents
- Leveraging research insights to develop a detailed impact assessment addressing potential environmental, social, and economic implications, subsequently formulating tailored management strategies and ensuring transparent public disclosure to community stakeholders

#### In implementation

- Rigorously implementing comprehensive management protocols to minimise construction-related disruptions to communities
- Maintaining dynamic, transparent communication channels with community residents through strategic initiatives such as community open days, providing regular project progress updates and establishing responsive mechanisms for promptly addressing community concerns and resident feedback
- Formulating traffic diversion strategies, carefully optimising construction vehicle routing and scheduling, implementing clear, comprehensive traffic signage and warning markers to mitigate potential travel interference for local residents
- Proactively engaging with local businesses and vendors, prioritising local raw material and service procurement, creating employment opportunities

#### After completion

- Executing site restoration and environmental rehabilitation, ensuring comprehensive recovery of construction sites
- Continuously reinforcing community relationships through welfare project funding, community planning and development, and providing professional expertise to support sustainable community development

## Maintaining community relations

### Enhancing community engagement

- Maintaining robust communication with communities where we operate our businesses, government departments, and NGOs through strategic engagement initiatives, including regular community visits, compassionate support for employees facing difficulties, and donations of essential living materials to disadvantaged families within the community
- Establishing dedicated community relations coordination agencies and expanding local staff positions, developing diverse communication mechanisms with local governments, non-governmental organisations, and community representatives to comprehensively understand the needs of community residents

### Community human rights protection

- Rigorously adhering to international conventions and legal frameworks concerning labour rights, ecological environment, and consumer rights, demonstrating profound respect for local customs and cultural traditions, thereby safeguarding the fundamental human rights of community residents
- Collaborating with stakeholders to promote human rights through energy transition and to support a just transition
- Developing a comprehensive framework for establishing and maintaining harmonious relationships with indigenous communities in our asset project and operational sites, actively listening to local community residents' concerns
- Inviting surrounding residents, social environmental protection volunteers, and professional experts to visit our sites, enabling direct observation and supervision of our environmental protection efforts
- Strengthening management of security contractors to ensure protection of human rights

### Community investment, development and capacity building

- Strategically planning community investment projects by aligning with local socio-economic development plans and the needs of community residents, implementing comprehensive supervision of public welfare project progress, conducting regular effectiveness assessments and making necessary improvements
- Supporting community capacity-building projects and investing in public welfare initiatives across environmental protection, health, education and public infrastructure
- Prioritising local talent recruitment, providing skills training, facilitating project construction participation and creating opportunities to enhance the income of community residents
- Leveraging local social resources to actively support local businesses, emphasising procurement of local products and services, strengthening collaborative partnerships with local enterprises in technical services and other domains, thereby driving and promoting the development of relevant small and medium-sized enterprises

## Key mechanisms and measures for enhancing community engagement

The Company rigorously adheres to the Free, Prior and Informed Consent (FPIC) principle, establishing multifaceted engagement mechanisms with local governments, non-governmental organisations, and community representatives. Through proactive communication, we ensure comprehensive protection of the fundamental rights and interests of local residents.

- Develop tailored management regulations for local community relationships with sound implementation
- Establish dedicated environmental protection and community relationship coordination agencies, continuously conducting environmental and social impact assessments to ensure regular and smooth communication channels
- Convene meetings with government officials, local enterprises, and community representatives regularly to communicate and manage stakeholder relationships, addressing critical local community concerns
- In the event of significant community-related incidents, host specialised meetings or public hearings with local communities to collaboratively identify associated risks and opportunities, and discuss comprehensive resolution strategies
- Proactively fulfil disclosure obligations by developing robust notification procedures for major events and emergencies, ensuring timely dissemination of relevant information to local communities
- Invite local media to report on corporate activities, publishing materials and multimedia content to enhance community understanding of our organisational initiatives
- Develop a comprehensive community relations complaint handling mechanism, meticulously managing community feedback, providing timely responses, and rigorously protecting the privacy and safety of complainants
- Establish community open days, facilitating interactive engagement and creating communication opportunities for governments and local residents

### Key measures to ensure security contractors protect human rights

- Abide by local standards and legal frameworks regarding human rights and conflict prevention in operational areas, develop comprehensive corporate human rights protection policies and management implementation methodologies, mandating strict compliance and execution by security contractors
- Conduct thorough due diligence to rigorously assess the competencies of security contractors in protecting human rights
- Maintain regular communication channels with security companies and personnel, and negotiate and resolve operational challenges and concerns
- Strengthen and emphasise professional ethics education throughout the entire security personnel management lifecycle, establishing ethical conduct as the primary evaluation criterion for personnel performance and character
- Provide targeted human rights protection training for security contractors, implementing consistent legal education and awareness programmes
- Continuously enhance security contractor management through systematic audits and performance evaluations, ensuring robust monitoring of human rights protection policy implementation
- Prohibit inappropriate treatment towards local employees and community residents

## RURAL REVITALISATION AND SOCIAL WELFARE

PetroChina has actively responded to the United Nations 2030 Agenda for Sustainable Development and China's rural revitalisation strategy. In the contemporary context of shared prosperity, our strategic objective is to cultivate sustainable development capabilities within local communities through targeted welfare initiatives, thereby creating a transformative pathway to shared social value. In partnership with our parent company, CNPC, we focus on key domains including industry, talent, culture, and ecological development, implementing targeted poverty alleviation strategies that integrated with rural revitalisation, thereby driving sustainable local economic progress.

In 2024, our mission centred on enhancing the endogenous development potential of previously impoverished regions and communities. We successfully executed 1,000 rural revitalisation projects, including the Special Industry Improvement Initiative, the "Village Craftsmen" Capacity Building Programme, and the Consumption Empowerment Project. These initiatives directly benefited over 6 million individuals. By leveraging our brand influence, developing innovative charitable models, and utilising our strategic platform, we collaborated across multiple societal sectors, consolidating diverse resources and advantages to actively advance our social impact agenda.



## Enhancing Sustainable Development Capabilities

PetroChina actively develops strategic community initiatives across key sectors, including agricultural product processing, distinctive rural industries, rural leisure tourism, and innovative rural service sectors. We implement targeted, localised approaches, strategically investing financial, human, material, and technological resources to drive agricultural industrialisation and integrated rural industrial development. By aligning our comprehensive corporate strengths with local resource advantages, we aim to enhance rural industrial operational capabilities and support farmer income generation.

In 2024, we embraced a “one county, one strategy” approach, tailoring our support to specific county-level resources and developmental requirements. Our strategic investments included establishing critical infrastructure such as the National Down Quality Inspection Centre, Red Anthurium Flower Seedling Centre, and Glacier Crayfish Industrial Park, strategically leveraging local resource potential to develop distinctive industry clusters. We actively explored innovative pathways for ecological and cultural tourism integration, supporting transformative projects like the Xinjiang Qapqal Sightseeing Agricultural Industrial Park and Jiangxi Hengfeng “West Slope” Boutique Homestay. By developing cultural sightseeing routes and rural study tour programmes, we promoted deep cultural and tourism synergies, creating new economic growth vectors for rural communities. Investment in 16 industrial projects increased by over 100% year-on-year, thus establishing a robust foundation for comprehensive rural revitalisation in our target regions.



Supporting the development of the Anthurium Flower Industrial Park in Fan County, Henan



Supporting the construction of an agricultural-cultural-tourism model homestay project in Hengfeng County, Jiangxi

CASE STUDY

### Driving local development of industries with local distinction

PetroChina places high importance on industrial aid projects in its active pursuit of corporate social responsibility and sustainable development concepts, designating these as key focus areas. The aim is to comprehensively promote economic and social development in project locations while creating more employment opportunities for surrounding populations.

In 2024, PetroChina fully leveraged the important role of targeted assistance funds, investing RMB 10 million to support the construction of the Henan Taiqian County Down Garment Industrial Park - National Down Garment Quality Inspection Centre project which generated over RMB 2 million of income in inspection work alone. At the same time, the initiative attracted industry leaders and well-known enterprises to settle in Taiqian, forming an industry cluster which is worth billions. The project directly created employment for over 2,000 people and indirectly drove employment in related industries for more than 5,000 people, making a positive contribution to alleviating local employment pressure and raising resident income levels. This initiative closely centred on the development needs of Taiqian County's down feather characteristic industry, improved and perfected the local down industry chain, promoted the upgrading of existing down enterprises in Taiqian County, enhanced industry influence, and injected strong momentum into high-quality county economic development.

## Improving Rural Infrastructure

Our goal is to achieve basic modern living conditions for rural villages, ranging from living facilities, public services, ecological environment to rural landscape, striving to improve the completeness of rural infrastructure and the convenience of public services, and support villages stepping up from clean and tidy to beautiful and liveable conditions.

In 2024, the Company supported the improvement of the living environment in Qinghe County, Jimunai County, and Nileke County in Xinjiang, advancing the "rural toilet revolution", sewage treatment, garbage collection and disposal, and improvement of village appearance. We promoted agricultural and rural emission reduction and carbon sequestration practices, created "zero-carbon courtyards", and continued to build "rural revitalisation demonstration villages" and "beautiful villages suitable for living and working". We implemented the "Sending Mongolian Beavers Home" and "Ecological Poverty Alleviation Factory" projects, strengthening biodiversity protection, and effectively protecting the ecological environment.

## Raising Employment Skills

PetroChina makes use of its advantages in resources to provide and create employment opportunities, build employment platforms and launch differentiated skills training programmes, for talents in different regions. By raising their skill level, we motivate and help the local population to find employment and start businesses.

In 2024, the Company cooperated with organisations such as the China Rural Development Foundation and the China Rural Development Association to carry out projects such as the "Village Craftsmen Project", "Sending Mums to Work", etc., providing comprehensive skills training for the inheritance of traditional crafts, rural women returning to work, and more. We conducted multiple special training courses on topics such as "Rural Revitalisation" and "Rural Living Environment", inviting personnel from multiple counties in Henan, Xinjiang, Jiangxi, Guizhou, Sichuan, and other provinces to participate in training and learning. In 2024, a total of 64 offline training sessions and 260 online courses were offered, totalling approximately 140,000 participation times.

## Increasing Consumption Assistance

PetroChina has vigorously implemented consumption assistance initiatives, significantly increasing the procurement of products from designated support counties. By leveraging our nationwide network of over 20,000 gas stations, we have been able to distribute rural specialty products across the country. This strategy not only helps increase income and wealth among rural populations but also aims to enhance the quality and efficiency of local industries with distinctions, thereby stimulating the internal driving force for revitalisation and development.

In 2024, the Company focused on Xinjiang, Tibet, and 160 key rural revitalisation counties nationwide, coordinating more than 140 affiliated units to engage in "Consumption Assistance Empowerment Action" in depth. We organised the uSmile 4th Shopping Festival special brand activity, actively participated in a series of consumption assistance activities organised by the National Development and Reform Commission, the State-owned Assets Supervision and Administration Commission, and the National Energy Administration. We organised 121 online livestream sales events and conducted a "Hundred Cities, Ten Thousand Stations" series of physical marketing initiatives, with total purchase and sales amount exceeding RMB 2 billion for the year, maintaining our position among the top central enterprises in consumption assistance scale. Leveraging local resource endowments, we guided the creation of local specialty products such as Xinjiang Qinghe sea buckthorn and Nileke horse meat, gradually enhancing capabilities to comprehensively develop and utilise consumption assistance products, in turn promoting sustainable income increases for farmers.

## Improving Healthcare Standards

The Company takes an active role in improving health center 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 2024, the Company continued to support the "Come on, Baby" children's health charity project to alleviate the healthcare burden for rural children and families. We partnered with the Beijing Youmai Charity Foundation to carry out medical talent training projects in the form of "medical + internet", building regional medical brand programmes and comprehensively promoting healthcare assistance.

### CASE STUDY

#### Building a health foundation, forging a "golden key" for rural healthcare

PetroChina has devoted efforts towards developing a sustainable medical assistance model through cooperation with the Beijing Union Charity Foundation ("Union Charity") on assistance projects, integrating quality medical resources into assistance actions, improving the medical service level in assisted areas, gradually expanding the scope of grassroots doctor training and service coverage, helping achieve balanced distribution of regional medical resources, thus developing a sustainable medical assistance model.

Since formally establishing rural revitalisation health assistance cooperation with Union Charity in 2021, PetroChina has continuously provided funds for health assistance projects, with Union Charity serving as the executing foundation for PetroChina's rural revitalisation health assistance project, applying the funds towards designated assistance areas. We have organised nearly a thousand authoritative experts from tertiary hospitals, mainly from Peking Union Medical College Hospital, to provide medical assistance training and major disease consultation assistance to the counterpart assistance areas through a combination of online and offline assistance methods. Currently, the project has benefited 2,556,500 people in 11 counties and helped 378,700 people living in difficulty, directly or indirectly helped close to 3,000 grassroots doctors improve their clinical practice abilities and medical skill levels, thus building a healthy foundation for economic development, creating positive social impact in the process.

PetroChina scholarship programme

**24** consecutive years

Scholarship provided for 685 excellent university students in 17 universities including the China University of Petroleum in 2024

RMB **4.47** million

Our "Teacher Training Programme" provided training to teachers with a cumulative attendance of

**250,000** participants

Approximately

**1,200**

high school seniors will benefit from the "Xuhang" student assistance project

## Promoting Education Development

From improving the 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.

In 2024, the Company 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 2024, the "Xuhang Programme" provided grants to 3,150 high school students from 24 schools, including RMB 6.3 million in grants and RMB 3.305 million in scholarships. Through conducting a school-enterprise cooperation with Karamay Vocational and Technical College, we offered the PetroChina Future Talents Programme targeted class, with 69 oil and gas industry trainees from Xinjiang's designated assistance counties joining PetroChina, enabling young talents from the assisted areas to master practical skills and securing stable employment.



## Staff Volunteer Projects

The Company promotes and advocates the volunteer spirit. We organise the "Gem Flower" Youth Volunteer service campaign with a focus on energy supply security, ecological civilisation, rural revitalisation, emergency rescue, elderly care and student assistance and community services.

In 2024, we had 4,119 youth volunteer service teams and 97,000 youth volunteers, conducting 16,000 various youth volunteer service activities. In the "Green Bottles for Golden Years" environmental protection rural elderly assistance volunteer service, volunteers addressed the problem of rural elderly in difficult circumstances who are financially unable to continue medical insurance payments. The Company set up "Green Bottles for Golden Years" collection boxes at 210 demonstration gas stations, encouraging customers to dispose of waste bottles for centralised recycling, with the proceeds used to purchase medical insurance for eligible elderly people. The project has coverage over 65 villages and communities near our petrol stations and over two consecutive years has successfully purchased medical insurance for 54 rural elderly people in difficult circumstances. The "Blooming Gem Flower • Shining Scholars" volunteer service project provides scholarships to students from poor families, and in addition to scholarship assistance, we added three assistance schemes and received high recognition from local governments, students, and parents.

## OVERSEAS COMMUNITY DEVELOPMENT

We maintain our philosophy of “win-win cooperation and common development” 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 the 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 development

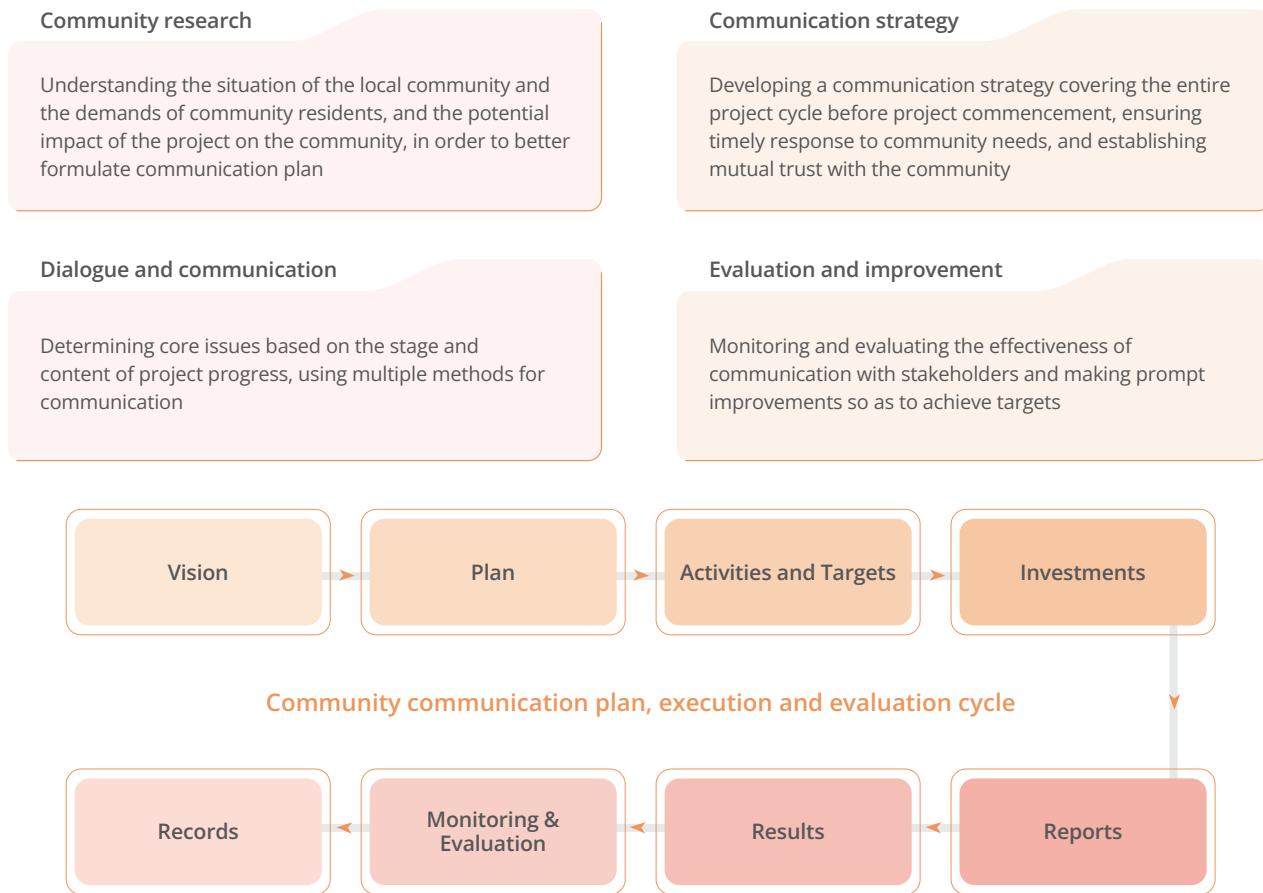
- Comply with all applicable international and local laws that relate to community affairs and social responsibility and dynamically revise company policies and procedures
- Respect, defend and protect human rights and respect local customs and cultural traditions
- Conduct all activities in an ethical, fair, transparent and responsible manner, and commit to the protection of local ecological environment so as 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 development projects, regularly assess the results and make necessary improvements
- Provide stakeholders with timely information about the projects and activities relating to community construction and encourage all employees to participate in such activities
- Promote the 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

## Conducting Overseas Community Engagement

We adhere to the principle of Free, Prior, and Informed Consent (FPIC), actively engaging in community communication, focusing on local livelihoods and social progress. This enhances mutual trust and friendship with local communities, fosters mutual understanding, and encourages joint participation in sustainable community development.

We have developed a manual for overseas community communication, which provides detailed regulations on the functional setup, departmental coordination, and communication processes for community communication, in order to promote enhanced communication awareness, establish communication mechanisms, master communication patterns, and improve communication effectiveness in overseas projects.

## Community communication process



### CASE STUDY

#### Organising cultural exchange activities to showcase harmonious cultural integration

PetroChina International Iraq (PetroChina Halfaya) embraces an open and inclusive corporate culture, fully respecting the religious beliefs and cultural customs of various countries and nationalities, promoting cultural exchange through humanistic care.

The company organises various cultural exchange activities during traditional festivals, such as making dumplings, hosting staff meals and writing spring festival couplets during the Chinese New Year; holding barbecue celebrations for Eid al-Fitr and Eid al-Adha; and organising colourful fun sports games for new year. These activities allow employees to experience the cultural charm of different countries and bring them closer together.

The company also holds open days, inviting community representatives to visit the Halfaya Oilfield base, oil and gas processing centre stations, and arranging professional technical personnel to provide explanations, allowing representatives to have close contact with the Halfaya Oilfield. Currently, Halfaya Oilfield has become a base for educational practical activities for local Iraqi youth, with many university students expressing their desire to join the Halfaya company after graduation.

## Protecting 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 protect the local ecological environment and historical and cultural heritage during operations.

### CASE STUDY

#### Commitment to “Protect in Development, Develop in Protection”

PetroChina (Kazakhstan) North Buzachi Company practices low-carbon, green development concepts, focusing on environmental protection, achieving harmonious development with the environment. For years, the company has implemented a series of measures to strengthen ecological and environmental protection:

- Implementing pitless drilling and zero-discharge mud operations, effectively protecting soil and groundwater
- Ensuring new wells enter a closed production system upon commissioning, effectively reducing impact to the environment
- Primarily using associated gas for self-consumption, eliminating venting and flaring, effectively promoting carbon emission reduction
- Strengthening communication with local residents, holding environmental protection hearings, addressing concerns from residents about the environmental impact of drilling operations
- Commissioning professional third parties to conduct biodiversity monitoring, setting up warning signs and environmental protection posters in the forest protection areas outside the oilfield, strictly prohibiting any oilfield production and development operations in the protected areas

#### Actively practising the “Green and Low-Carbon” development concept

Sino-Pipeline International Co. (SPI) has implemented the “Green Belt” construction project along the China-Central Asia Natural Gas Pipeline, striving to transform the areas where the pipeline and stations are located into oases in the desert. So far, the company has planted more than 10,000 trees, sequestering approximately 370 tonnes of carbon, effectively improving the ecological system around the stations and greatly enhancing the working and living environment for station employees.



Staff on the Halfaya project in Iraq conducts environmental monitoring work to ensure production activities meet ecological protection requirements

## Protecting Human Rights in Communities

We strictly comply with the legal regulations and human rights protection requirements of the countries where we operate. Before project commencement, we assess the social, environmental, and economic conditions of local communities, including their needs, human rights protection, natural environment, and cultural heritage. We operate in accordance with regulations, and fully protecting the legal rights and interests of community residents.

The Company incorporates knowledge of human rights and compliance management into its daily management system, clearly defining employee rights and corporate responsibilities through the Collective Labour Agreement and internal management regulations. The Human Resources Department regularly conducts specialised training for management and various departments, providing detailed interpretations of relevant policy content, and distributing relevant policy and system manuals for department managers to study. At the same time, compliance management reminders are sent each week, providing in-depth interpretation of core policies and systems, strengthening all employees' understanding and execution of human rights protection and compliance management, providing strong support for building a fair and respectful work environment.

To protect the interests of residents around oilfields, the Company has established an "Oilfield Land Acquisition Compensation Mechanism" in accordance with the relevant laws and regulations of the resource countries. In the process of oilfield land acquisition, we actively coordinate with local governments, oil companies, and landowners. After obtaining consent from landowners, we organise representatives from the three parties to measure the land acquisition area on site and provide timely compensation to the displaced residents according to the compensation policy.

## Human Rights Protection in Overseas Security Work >>

The Company strictly manages security contractors, requiring them to conduct their security duties responsibly and in accordance with ethical standards to ensure the protection of human rights. For details on measures to ensure security contractors fulfil human rights protection obligations, please refer to page 91 in this Report.

 CASE STUDY

### Strict prevention of security incidents by PetroChina's PK Company in Kazakhstan

PetroChina International Kazakhstan strictly follows the UN Guiding Principles on Business and Human Rights, relevant standards of the International Labour Organisation, and relevant laws and regulations of Kazakhstan, ensuring that security activities respect human rights and minimise impacts on communities. The company actively communicates with community representatives to create a good and harmonious atmosphere. In 2024, there were no security incident in violation of the above standards or norms.

## Promoting Localisation

We actively promote localisation, strictly comply with the laws and regulations in the places of our operations, observe tax transparency, promote local hiring, prioritise procurement and usage of local products and services, provide opportunities for local suppliers, contractors and service providers to participate in our projects, and support the development of local SMEs as well as community entrepreneurs.

### Tax Payments According to Law >>

The Company strictly complies with the laws and regulations in the countries where it operates, and pays taxes to local governments according to law. 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 contribute to socioeconomic development. For example, in Kazakhstan, the Company strictly complies with the Tax Code, the Foreign Investment Law, and other relevant regulations relating to special tax regulations for mineral resource development enterprises. We have conducted regular training in relation to the formulation and strict implementation of relevant management systems such as tax compliance, transparent reporting mechanisms, etc.

### Promoting Local Employment >>



In 2024, the proportion of foreign employees in the Company's overseas projects

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 programmes for local employees to enhance their growth, so that local society and the economy can grow and develop with us. In 2024, the proportion of foreign employees in the Company's overseas projects was 96.89%. For example, the Company actively implements a localisation development strategy in Indonesia, formulating annual talent localisation cultivation goals and detailed plans, strengthening business knowledge training for local employees, and improving employee business quality and management capabilities. In 2024, the Company organised 182 business training sessions with more than 630 participants.

For more information on employee localisation, please refer to "Local Hiring in Overseas Operations" on page 107 of this Report.



PetroChina Halfaya, Iraq actively conducts training programmes for Iraqi youth

## Local Procurement >

The Company gives priority to local products and services in our procurement process. We consider localisation of procurement as a natural 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 SMEs and community entrepreneurs. For example, in Kazakhstan, the Company actively supports local supply chain development, prioritising local suppliers and contractors to promote the development of the local economy. Key measures include establishing fair and transparent procurement procedures, encouraging local enterprises to participate in bidding, supporting local suppliers in improving their technical capabilities and quality standards, achieving win-win outcomes through cooperation. Additionally, we increase the proportion of locally produced equipment, materials, and services which meet technical requirements as much as possible.

### CASE STUDY

#### PetroChina Chad enhances cooperation with local businesses

In 2024, the Chad project 31 new cooperating local companies and signed a total of 78 service contracts. Currently, the total number of local contractors, service providers, and suppliers amount to 480, accounting for 53%.



The total number of local contractors,  
service providers, and suppliers



Accounting for

- Strengthening training for local companies, with a focus on the bidding process and HSE management
- Increasing bidding opportunities for local companies, inviting mostly local companies to bid for basic service businesses while non-local companies will be subject to stringent localisation requirements, and prioritising local companies when equal conditions are offered. The Company plans to achieve 100% localisation for all basic services such as road construction, logistics, transportation, security and vehicle rental from 2025 onwards
- Encouraging local companies to improve their competitiveness through measures such as forming consortiums for bidding

## Engaging in Community Welfare

We actively participate in local community building, deeply integrating into the economic and social development of the countries and regions where we operate. Based on the actual needs of local communities, we provide support to surrounding communities in areas such as the environment, health, education, public facilities, and community activities. Through various public welfare activities, we actively fulfil our social responsibility, achieve harmonious integration with communities, and help communities achieve sustainable development.

In 2024, we carried out a variety of community welfare activities overseas

VENEZUELA	<ul style="list-style-type: none"><li>Jointly organised community activities for women and Virgen del Valle Festival celebrations with local associations and communities, promoting women's protection policies, conducting labour skills training and health consultations for local women and community residents</li><li>Donated a small fitness plaza for the Morichal oilfield community</li><li>Conducted fire safety lectures for local primary schools</li></ul>
CHAD	<ul style="list-style-type: none"><li>Donated a total of 10 water wells and maintained 47 water wells for local communities in the oilfield area</li><li>Donated 100 sets of desks and chairs to local primary schools and renovated primary school classrooms</li><li>Provided medicines for the prevention and treatment of malaria, anti-mosquito materials and other specialised medical supplies to local communities</li></ul>
IRAQ	<ul style="list-style-type: none"><li>Gifted Ramadan care packages to families in difficult circumstances during Ramadan</li><li>Visited children with cancer and the elderly in nursing homes during Muslim traditional festivals, gifting traditional costumes, daily necessities</li><li>Donated medical equipment to community hospitals, and carried out public welfare activities such as renovating community court office buildings</li></ul>
KAZAKHSTAN	<ul style="list-style-type: none"><li>Provided funding, material goods and personnel support to local schools, sports organisations, welfare institutions, charitable foundations and festival celebration activities</li><li>Focused on the living conditions of families with disabilities, and families impoverished due to illness, providing donation support</li></ul>
SINGAPORE	<ul style="list-style-type: none"><li>Joined efforts with the Singapore Women's Association (SWA) to hold a Chinese New Year luncheon for the elderly and jointly organised a volunteer activity conveying care to more than 300 seniors</li></ul>
INDONESIA	<ul style="list-style-type: none"><li>Actively participated in infrastructure construction around the oilfield operation area</li><li>Invested in building an eco-tourism area, established coffee plantations and processing factories, expanded employment opportunities for residents, and promoted local economic development</li><li>Cooperated with local governments in rescue operations during natural disasters</li></ul>
U.S.	<ul style="list-style-type: none"><li>Participated in the Texas MS150 charity bicycle ride for the 4th consecutive year, raising donations for patients with multiple sclerosis</li></ul>

CASE STUDY

### PetroChina Rumaila lights the way for community healthcare

PetroChina Rumaila built a clinic for the Qarmat Ali Water Plant community, staffed by six medical professionals who provide consultation to more than 300 patients each month, alleviating local difficulty in accessing medical care, bringing warmth and care to tens of thousands of households. For the Al Khora community healthcare service project, the company organised more than 40 health volunteers to local communities, conducting home visits, health promotion, and community school health lectures. The volunteers visit local families, sharing health knowledge and raising health awareness among local residents to protect the health of the community.

### PetroChina International (America) caring for local indigenous people

In 2024, PetroChina International (America), together with local Chinese residents, formed a volunteer team to visit a Kuna tribe village in the eastern tropical rainforest of Panama, interacting with more than 700 indigenous residents and providing care services to low-income groups.

This natural village is located deep in the rainforest. Based on the actual needs of the villagers, the volunteers brought various living and learning supplies such as grain and oil, stationery, toys, candy and inflatable castles. Company employees made popcorn and cotton candy on site for more than 300 children, visited villagers' homes to offer care and engagement.



The Company helps local communities in Indonesia build coffee plantations and processing factories

# SOCIETY

## EMPLOYEE RIGHTS AND INTERESTS AND DEVELOPMENT

Employees are our most valuable assets. We protect their legal rights in accordance with the law, provide healthy and safe working conditions, ensure timely payment of remuneration and social insurance contributions, offer rigorous training, establish a reasonable and effective grievance system, create platforms for employee development, prioritise local employment, and foster a diverse, inclusive, equal, mutually trusting, and collaborative working environment, aligning employee values with our own.

### The UN Sustainable Development Goals



## EMPLOYEE RIGHTS PROTECTION

### Employees Rights

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

We rigorously comply with international conventions including the International Covenant on Economic, Social and Cultural Rights (ICESCR) and the Discrimination (Employment and Occupation) Convention, 1958 (No. 111), etc, along with domestic laws including the Labour Law of the People's Republic of China, the Labour Contract Law of the People's Republic of China, and the Trade Union Law of the People's Republic of China, relevant laws, rules and regulations of the host countries, and support the Human Rights Action Plan of China (2021-2025). We have formulated and implemented regulations such as the Measures for the Management of Employment Contracts and the Measures for the Management of Overseas Business Employment and established an employment management system to regulate employment practices according to the law. The system covers all employees, and its content includes labour contract management, remuneration insurance and benefits, leave, performance appraisal and vocational training. We inspect and examine our employment compliance on a regular basis, to regulate the process of recruitment, promotion and the termination of employee contracts, safeguarding the human rights of our employees.

We strictly abide by the Forced Labour Convention 1930, the Abolition of Forced Labour Convention 1957, the Minimum Age Convention, and the Worst Forms of Child Labour Convention promulgated by the International Labour Organisation, and the Law on the Protection of Minors and the Provisions on the Prohibition of Child Labour promulgated by the State and similar legal requirements of countries and regions where we operate our overseas businesses. We prohibit the employment of child labour and reject all forms of forced or compulsory labour. The 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. The Company has never used any child labour or forced labour.

The Company has established an employee grievance system and a labour dispute resolution system with explicit terms of reference and resolution procedures, to ensure fairness and transparency across the relevant departments at its headquarters and its subsidiaries. We have also established a mailbox, a hotline, and a dedicated section on our website for handling grievances. Relevant departments at the headquarters are responsible for policy interpretation and supervision, while subsidiaries are responsible for policy implementation and issue follow-up. The Company prioritises negotiation and mediation and, when necessary, involves independent third parties to assist in resolving disputes, to protect the legal rights and interests of our employees. For disputes related to remuneration and contract termination, relevant policies specify compensation standards and procedures to reduce labour disputes arising from improper procedures. Furthermore, we have adopted stringent international business ethics standards for our production operation and management systems and have established effective employee grievance channels.

The Company actively creates employment opportunities. By tapping into the potential of internal human resources and improving the efficiency and effectiveness of human resources allocation, we have fully implemented an employment-first strategy, aiming to expand our employment capacity through various measures. Leveraging the advantage of our business scale, we guide and encourage our partner enterprises on our industrial chains and supply chains to attract talent and actively promote local employment.

The Company treats employees of different genders, nationalities, and ethnicities equally in all aspects of recruitment, management, job allocation, remuneration, promotion, advancement, disciplinary actions, transfers, dismissals, job training, and the distribution of social benefits. In terms of human resources management, we firmly uphold the principles of "fairness, transparency, and impartiality", ensuring fair and impartial recruitment and promotion processes through transparent and well-established recruitment and selection procedures, as well as scientific and objective assessments. Labour contracts are terminated in strict accordance with the regulations under the labour laws and regulations and relevant policies of the Company, to safeguard the legal rights and interests of employees.

Percentage of employees who returned to work and retained their positions after maternity/paternity leave in 2024

100 %



The Company strictly adheres to national labour laws and regulations. Based on actual operational needs, we have scientifically developed and strictly enforced a management system for working hours and rest, ensuring that employees enjoy rest and holiday breaks as mandated by law while fulfilling their job responsibilities. The Company offers both standard and special working hours tailored to the nature and requirements of different roles, and schedules shifts reasonably. Regarding annual, maternal, and sick leaves, the Company strictly complies with legal requirements to ensure adequate protection in line with actual circumstances. In addition, the Company also provides special leave arrangements, such as caregiving leave and breastfeeding leave, to meet the reasonable needs of employees under special circumstances, fully safeguarding their legal rights.

## Diversity, Equality and Inclusiveness

The Company advocates a corporate culture of diversity, equality, and inclusiveness, ensuring that all employees are treated fairly and justly, regardless of nationality, ethnicity, gender, religion, or cultural background, in all aspects of recruitment, training, and career development, in order to create a harmonious environment for the growth and development of our employees.

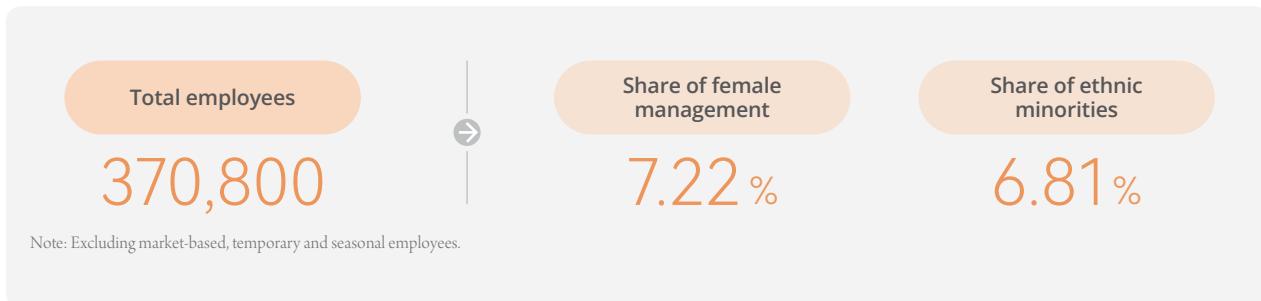
### Equal Employment >

The Company upholds an equal and non-discriminatory employment policy. Every employee enjoys full rights to equal development opportunities. When formulating employment policies, we take factors such as equal opportunity, diversity, and anti-discrimination into full consideration, and established a human resources management system covering recruitment and selection, training and development, performance management, remuneration and benefits, and other aspects, to ensure the effectiveness and fairness of our personnel management. We pay extra attention to providing equal employment and advancement opportunities to vulnerable groups such as women, ethnic minority employees and people with disabilities, ensuring fairness in labour rights.

During the recruitment process, the Company explicitly emphasises that candidates must not be discriminated against on the grounds of gender, ethnicity, religious belief, or physical condition. Candidates for all positions are selected primarily based on merit, with preference given to local candidates.

Regarding employee promotion and development, the Company has formulated detailed performance management and promotion policies and conducts rigorous employee assessments based on the principles of "openness, fairness and transparency" to ensure that women, ethnic minority employees, and people with disabilities have equal promotion opportunities. Through training and development programs, we provide them with opportunities to enhance their career skills, thereby strengthening their competitiveness at the workplace.

Regarding protection of rights, we focus on and actively safeguard women's rights. We strictly implement maternity leave provisions related to pregnancy, childbirth, and breastfeeding, ensuring that female employees receive equal pay and benefits, as well as equal opportunities for career development. For employees with disabilities, the Company provides reasonable accommodation in the work environment and job positions to meet their actual needs. We also emphasise and advocate better employment opportunities in areas with ethnic minorities and economically underdeveloped areas by actively creating job positions. When recruiting graduates, we provide positions to those from remote areas such as Tibet, Qinghai, and Xinjiang, as well as to households receiving social benefits, and households with no employment.



### Local Hiring in Overseas Operations >>



Percentage of foreign employees in overseas projects

We are committed to "local, specialized, and market-based employment". We comply with all relevant laws and regulations of countries where our operations are located. We have established an optimal system for recruitment, deployment, performance appraisal, incentives and penalties. We strive to attract and train top local talents and to provide them with a working environment conducive to their growth.

We actively recruit and train local employees and do not discriminate against outstanding local candidates, increase local job opportunities. Professionals employed in our overseas projects involve multiple disciplines, such as environmental protection, ESG management, exploration and development, refining and chemicals, pipeline operation, international trade, finance, accounting, and human resources management. With continuous efforts, the Company has gradually established localised, regionalised and internationalised career development channels.

#### CASE STUDY

##### Nurturing local talents in host countries

PetroChina has paid close attention to the actual development of the oil industry and human resources situation at our Halfaya project in Iraq. On one hand, we hired professional trainers to provide 15-20 months of tailored training to recent graduates at the Halfaya company, to equip interns with the necessary skills to become our local employees. As of the end of 2024, the Halfaya company has independently completed 4 batches of recruitment and training, nurturing a total of 422 Iraqi interns, many of those from earlier training sessions have grown into the backbone at various departments of the company. On the other hand, in accordance with the requirements of the Technology Transfer Support Fund (TTSF), PetroChina has created opportunities for employees designated by the local petrochemical enterprises to receive on-the-job training in Iraq or study abroad. In 2024, we have organised 31 overseas training sessions for the Ministry of Oil of Iraq and Missan Oil Company, and recorded a total 345 attendance. We also sponsored 37 local students to pursue degrees related to petroleum and business in the UK. Moreover, we arranged for a delegation of Iraqi youth representatives to visit China, allowing them to deeply experience China's modernisation process and gain a deeper understanding of PetroChina's corporate culture and management experiences.

## Promoting Cultural Integration >>

We fully respect the cultural diversity of different nations and peoples as well as local customs. We create an environment of multicultural integration, promote communication and exchanges between employees with different cultural backgrounds and enhance their understandings, in order to foster cross-cultural collaboration in workplace.

### CASE STUDY

#### Fostering cultural exchange to enhance Sino-Venezuelan friendship

PetroChina's MPE3 project in Venezuela aims to foster friendship between the two nations and their peoples through Sino-Venezuelan exchanges and mutual assistance. In 2024, the Company organised a book club event titled "Cultural Integration and Exchange" to facilitate cultural exchange between Chinese and Venezuelan employees. During the Spring Festival, we also hosted a "Happy Chinese New Year" celebration, where we invited foreign employees to put up spring festival couplets and window decorations, enjoy dumplings and other traditional Chinese dishes. In addition, the Company regularly organised activities such as table tennis and basketball competitions to celebrate the 16th anniversary of its joint venture, promoting exchanges between different cultures and deepening friendship.



"Chinese Food Festival" event



## Improving Remuneration and Benefits

The Company deeply understands the needs and expectations of its employees. We have formulated a remuneration and benefits policy that aligns with our employees' actual needs, established a scientific performance review system, and consistently ensured that the distribution of remuneration and benefits is fair and just, in order to motivate employees to work enthusiastically and creatively.

The Company implements a relatively standardised remuneration system, which mainly consists of an annual salary system for corporate leaders, a position-grade salary system for middle and lower management and technical personnel, a skill-based salary system for operational personnel, and an agreement-based salary system for scarce talents and easily replaceable positions. We continuously improve our market-oriented remuneration distribution mechanism, ensuring that pay raises align with the labour market and are linked to the Company's economic efficiency and labour productivity. We have also revised policies to support the introduction of core talents and other innovation, incentives, and safeguarding measures. Furthermore, we have optimised our remuneration structure, improved our internal distribution system, and continued to prioritise the distribution of remuneration to grassroots frontline personnel, those in key challenging positions, and professional and technical staff. Targeted incentives have been provided to key employee groups, with ongoing focus on high-end operational and management talents, core R&D talents, and high-skilled leaders.

The Company implements a holiday system in accordance with relevant regulations, such as the Regulation on Paid Annual Leave for Employees and the Regulation on Public Holidays for National Annual Festivals and Memorial Days issued by the State Council. Under this system, we provide paid annual leave, family reunion leave, marriage and bereavement leave, maternity leave, sick leave and other types of leave to employees. The Company strictly adheres to the provisions of the Social Insurance Law of the People's Republic of China, making punctual and complete payments on time and in full for the five categories of social insurance: basic pension, basic medical, work-related injury, unemployment, and maternity insurance. We have established and will consistently refine our enterprise annuity and corporate health insurance systems, implementing unified coverage for serious illness protection programmes, effectively protecting employees' rights and interests.

### In 2024, we



Enhanced remuneration distribution  
incentives and expanded medium and  
long-term incentive programs



Strengthened the assessment  
mechanism and refined the  
performance evaluation framework

## Employee Communication and Engagement

The Company fully respects the democratic rights and legal interests of our employees. We attach great importance to the role of employees in democratic management, participation, and oversight. We have extensively established and continually improved trade unions, as well as implemented a democratic and transparent management approach for addressing plant affairs in the form of Employees' Congress. By adhering to and enhancing the Employee Supervisor systems, the Company safeguards the rights of employees to information, participation, expression, and supervision. We have further standardised the content, procedures, and format of our transparent plant affairs system by clarifying the duties, authorities, organisational structure, and work processes of employee representative meetings. Through the establishment of trade unions, we strengthened union development, invigorated union activities, and continuously enhanced cohesion and unity.

The Company has established multiple channels to communicate with employees and conducted in-depth research at the grassroots level to gather the opinions and suggestions of our employees. We implemented communication policies such as "Employee Reception Day" and the "Requests and Suggestions", staying committed to upholding democratic procedures. Through employee representative meetings and online interactions, we engaged with multi-level communication and exchanges with our employees and encouraged them to participate in the production and business management processes. The Company conducts employee satisfaction surveys and listens to employees' suggestions.

## HEALTH AND SAFETY

Employee health and safety is the top priority of the Company. We have established a health and safety management system that covers all employees of the Company and our suppliers. We attach great importance to production safety, continue to improve labour conditions, improve the physical and mental well-being of our employees, in order to enhance HSE capabilities.

### HSE Management System Accreditation

Number of subsidiaries certified by HSE

Management System  
(Q/SY08002.1)

104

### The HSE Management System

Our Company pursues the goal of “zero accident, zero pollution, zero harm” and always regards HSE as a fundamental requirement for successful business development. We implemented a uniform HSE management system in our Company, establishing a unified HSE management framework and policy system across our domestic and international operations. Adhering to our green development concept of “integration and coordination between development activities and environmental protection, giving priority to environmental protection”, we continuously strengthen our supervision and strengthen our safety training, and strive to improve our HSE management performance.

The Company attaches great importance to the establishment of an 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, 08002.2, 08002.3), 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 the Company have implemented the HSE management system based on these standards. As a result, the Company has developed a comprehensive and effective set of HSE management system documents, and implemented a HSE management system covering all employees (including temporary workers) and contractors.

The Company devotes strong efforts to implement the HSE management system at the grassroot level. We organised activities to raise awareness about HSE standardisation and implementation among our front-line workers, focusing on standardised management, standardised operations, and standardised on-site practices. In this regard, we continued to organise the “Hundred-Thousand Demonstration Project” for our front-line teams. We fostered and recognised those that excel in HSE standardisation, showcased their examples and promoted similar practices across our operations. We also worked hard to encourage front-line workers to reference the HSE responsibility list and HSE risk list and reinforce the application and execution of these protocols. These lists help us ensure that employees fulfil their responsibilities, understand their risks, and work according to the list requirements. This allows us to continuously enhance job safety, improve environmental performance, and ensure precise risk prevention and control.

Upholding the audit principle of “integration, specialisation, and differentiation”, the Company strengthened its audit team and standardised the audit document templates. We conducted quality assessments in a tiered and categorised approach, with tailored plans for each enterprise, and advanced with steady progress. We completed the annual comprehensive audit work on major production enterprises, focusing on risk prevention and control as well as the fulfilment of responsibilities. We also enforced stricter supervision of the audit process to ensure its accuracy and effectiveness. In this way, we continued to maintain full coverage, strict regulatory, and zero-tolerance approach to continuously enhance HSE performance.

The Company implemented the Guiding Opinions on Optimising and Enhancing HSE Training to provide experimental training on job safety skills and increase the assessment weight of practical operation. We updated the HSE training curriculum for key job positions such as contractors, overseas workers, and full-time safety supervisors, updated the question bank for job assessments, optimised the evaluation methods, and provided specialised training for safety directors at our regional enterprises.

## Occupational Health of Employees

The Company strictly complies with the Law of the People's Republic of China on the Prevention and Control of Occupational Diseases and the Law of the People's Republic of China on Basic Medical and Health Care and the Promotion of Health, implementing the Outline of the "Healthy China 2030" Plan and accelerating the creation of a healthy enterprise, in order to provide a safe and healthy working environment to our employees and ensure their physical and mental well-being.

### Occupational Health >>

The Company continued to standardise its Occupational health management regulations by developing the Management Standards for the Qualification Verification of Occupational Health Examination Institutions, which clarified standards related to institutional qualifications, allocation of professional healthcare workers, and configuration of examination devices. It also enforced strict selection criteria for regional companies when choosing occupational health examination institutes, ensuring the quality of occupational health checkups for employees. We have also developed the Healthy Corporate Development and Improvement Plan, adopting a tiered management approach for occupational disease prevention facilities based on the "Three Simultaneous" requirements (simultaneous design, construction, and implementation), detection of occupational hazards in the workplace, and supervision of occupational health examinations for employees at risk. Identified hazards are promptly rectified, ensuring that regional companies fulfil their primary responsibilities for preventing and controlling occupational diseases, addressing occupational hazards at the source.

#### Key actions related to occupational health in 2024

##### Occupational health popularization

- Organised the "Occupational Disease Prevention" publicity campaign
- Raised occupational health awareness by organising a competition for entries showcasing excellent occupational health promotion works, and was recognised as a "Contributor to the National 3rd Occupational Health Publicity Works Collection Activity"

##### Building a healthy enterprise

- Launched the Healthy Corporate Development and Improvement Programme, with 73 regional companies receiving the Healthy Corporate Certification

##### Occupational health management

- Conducted a pilot programme for the classification, assessment, and management of occupational hazards and risks, carried out self-assessments on occupational hazards and risks and occupational health management conditions, and provided special supervision, inspections, and guidance based on the identified occupational hazards and risks
- Launched the "Health Management Year" activity to provide more scientific guidance on health management and promote healthy lifestyles, in order to improve employees' health

##### Health management of overseas employees

- Revised the Management Measures for Health Checks and Assessments for Personnel Going Abroad. We conducted a total of 24,000 health assessments for employees going abroad, with a pass rate of 97.67%
- Provided more support for overseas employees with sudden illnesses. There were 22 instances of remote emergency medical treatment performed for our overseas employees. We successfully provided cross-border medical transfer and treatment for one employee with life-threatening myocardial infarction
- PetroChina launched a pilot overseas medical protection system in Africa. Under this system, we established a three-tiered medical framework ("central, advanced, basic") in Chad and other countries. We upgraded medical equipment in clinics, enhanced the professional skills of medical staff, jointly built and shared medical resources, streamlined emergency treatment channels, and established a "four-in-one" integrated system consisting of monitoring, early warning, prevention and control, and treatment
- The Company established an emergency medical protection fund of RMB 5 million, to provide financial assistance for the emergency treatment of employees in critical conditions

### Occupational Health

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

112

Percentage of health records created for employees

100%

Detection rate of occupational health hazards in workplace

100%

Percentage of employees exposed to occupational health hazards receiving health checks

100%

### CASE STUDY

#### Comprehensive enhancement of employees' health

PetroChina's Jinzhou Oil Extraction Plant has actively incorporated the concept of a healthy corporate culture into every aspect of its corporate development, significantly improving employees' health and well-being.

##### Strengthening top-level design and building a healthy framework

Focusing on employees' health, Jinzhou Oil Extraction Plant has formulated the "Jinzhou Oil Extraction Plant Implementation Plan for a Healthy Corporate". These tasks focus on four major elements, namely: health mechanisms, health environment, health services, and health culture. Five initiatives have also been implemented: promoting fitness for all employees, ensuring balanced diets, supporting mental health, controlling smoking and alcohol consumption, and preventing and treating cardiovascular diseases. Moreover, three major health management systems have been set up: occupational health management, health services, and public health.

##### Implementing scientific and targeted measures to strengthen the foundation of health

Adhering to the management philosophy of "health is the greatest aspect of people's livelihood", the Plant has scientifically developed health intervention plans tailored to each individual ("one person, one plan"). Employees and family members have benefited from the full integration of occupational and non-occupational health checkups with a cumulative total of 11,000 instances demonstrating clear effectiveness.

##### Focusing on multilevel collaboration to promote health development

The Oil Extraction Plant is located in a remote and independent mining area. In collaboration with hospitals, property management companies, fire departments, and other units, it has established a Mining Committee and a Joint Leadership Working Group, aimed at improving housing and public welfare services, upgrading fitness facilities, and incorporating employee health into its public welfare improvement project. The Committee has established seven indoor sports venues, built more than 3,000 sq.m. of new track fields, and installed and maintained 60 pieces of fitness equipment. Playing the role of a cultural and sports association, the Committee has organised over 100 enriching sports and cultural events, including summer night parties, volleyball and football competitions, and calligraphy and painting exhibitions, with a total of more than 5,000 participants in total.



The Company cares for employee health and arranges regular physical examinations

## Mental Health >

We pay close attention to the mental health of our employees and have incorporated mental wellbeing into our overall plan for building a healthy enterprise. A psychological counselling hotline and website have been set up, and various mental health awareness and training programmes have been carried out, in order to guide employees in developing a positive and healthy mindset.

### Key mental health initiatives in 2024

#### Enhancing the effectiveness of mental health management

- Provided employees with facilities such as stress-testing devices and music therapy relaxation pods to alleviate their anxiety and fatigue

#### Promoting mental health awareness

- Organised and conducted a series of seminars titled "Eight Lessons on Physical and Mental Wellbeing for PetroChina Employees"

#### Enhancing the impact of our Psychological Counselling Volunteer Service Team

- Formed a volunteer service team, in 2024 the team helped to resolve over 680 cases related to issues such as families, work stress, and sleep disorders
- The Lanzhou Petrochemical-led "PetroChina's 'Watch Over Me' 24-Hour Psychological Counselling Hotline for Corporate Employees' Mental Health" initiative won the "First Prize for Excellent Case Results among Brand-Strengthening Enterprises" awarded by the China Cultural Management Association. It was also recognised as a "2024 Typical Case for Mental Health Services among State Enterprises" by the National Centre for Mental Health, China.

#### Managing the mental health of overseas employees

- Developed the Employee Assistance Programme (EAP) for overseas employees
- Conducted over 4,600 mental health assessments for overseas employees, and conducted well-being interviews with overseas employees
- Organised the "Strengthening One's Mind, Warming the Heart of Everyone" activity during Health Awareness Month, which included nine activities such as mental health talks, health seminars, medical transfer drills, psychological counselling, and group therapy, benefitting overseas employees and their family



Cross-border medical emergency drill

The Company's overseas mental health services in 2024

Service hours of mental health hotline throughout the year

1,000 hours

950

counselling cases

1

crisis case resolved

Number of mental health assessments for overseas employees over

4,600

CASE STUDY

### A people-centred approach to employee mental health

PetroChina Halfaya has adopted a well-coordinated and mutually-enforcing mental health management framework. The Company addresses challenges with the goal of ensuring the mental health of our employees, enhancing their sense of happiness, and improving work efficiency.

Conducted mental health assessments for employees to stay informed about their wellbeing. Since 2019, the company has been conducting mental health assessments for employees. At the same time, it also extended mental health support to include family members of our employees

Provided mental health training and campaigns to promote mental health awareness. Professional psychological counsellors have been hired to offer more than 40 training to employees and produced over 70 monthly newsletters on mental health

Provided physical and mental therapy, as well as mental health crisis intervention, to address issues in a timely manner. Treatment is provided based on employee's condition identified after counselling. A comprehensive emergency plan is in place, and mental health first-aid training and drills are conducted regularly. In the event of a mental health crisis, employees can be transferred to more advanced medical institutions

Physiotherapy and health management to support a health enterprise. The Company has hired certified rehabilitation therapists to provide exercise, rehabilitation, and fitness consultations to employees. At the same time, the company is equipped with equipment such as a full set of occupational health management equipment and AR glasses for remote medical diagnosis equipment, comprehensively enhancing its employee health management

On 31 October 2024, PetroChina Halfaya was honoured with the "Highly Commended" award in the "Workplace Wellbeing" category at the International SOS Foundation's Duty of Care Awards 2024 ceremony in Sydney, for its outstanding performance in employee wellbeing and safety.

## Employee Safety



The concept of production safety is incorporated across all aspects and processes of our production and operations, integrating the safety of our contractors' employees within the management scope. By continuously improving our safety management system, comprehensively strengthening our management and supervision, and enhancing our security measures, we ensure the safety and health of all employees.

### Strengthening Safety Management >>

In 2024, we further advanced the establishment of this system by issuing regulations such as the Management Measures for Contractor Safety Supervision, the Management Measures for Safety and Environment Hazard Inspection, Treatment, and Supervision, the Advanced Selection Criteria for Quality, Health and Safety, Environmental Protection, and Energy Conservation, and the Management Measures for Marine Oil Safety Production and Environmental Protection. These enable us to improve our dual prevention mechanism for production safety risk prevention and control as well as accident and hazard inspection and treatment, establish stricter safety and environmental protection assessment criteria, require our subsidiaries to sign safety and environmental protection liability statements, strengthen the assessment of safety and environmental protection processes, and reinforce the implementation of safety production responsibilities.

**In 2024, the Company continued to strengthen its safety management practices**

Safety Hazard Management	Safety Risk Management	
Fully implemented a three-year action plan to address the root causes of safety production, systematically advanced the specialised treatment of urban gas pipelines operating with hidden defects. Established a positive incentive mechanism to guide and encourage employees to proactively identify and report accidents and hazards, increased overall safety awareness and employee participation, and engaged all employees in building a defence line against production safety risks	Strived to control risks before hazards arise, and eliminate hazards before accidents happen. At our headquarters and specialised companies, we regularly organised routine HSE activities on the topic of "risk identification and hazard inspection", identified risks in a targeted manner and provided timely warnings. We also issued "enterprise-specific" risk warnings, conducted risk identification at all levels, and implemented management and control measures	
Safety Production Emergency Management	Offshore Oil Safety	Contractor Safety
Adhering to the principle of "training for battle, practicing instead of training", we conducted comprehensive large-scale practical drills to enhance the emergency response capabilities of our emergency response units. We also conducted emergency drills for hazardous material transportation accidents, as well as leakage and fire control at production wells in gas storage facilities on an artificial island, participated in joint emergency response drills for oil and gas pipeline incidents, representing China alongside five Central Asian countries, and fire rescue emergency drills for state-owned enterprises. Our efforts were highly praised by the Ministry of Emergency Management, the State-owned Assets Supervision and Administration Commission, and participants from the five Central Asian countries	Emphasised the identification and warning of major offshore safety risks, conducted more specialised measures to address offshore oil safety risks, strengthened the management and control of high-risk operations at offshore oil sites, continuously enhanced our offshore emergency response capabilities, and improved the development of the offshore oil long-term supervision mechanism, effectively ensuring the smooth and steady operation of offshore oil and gas production	Emphasised the requirement for contractors to carry out full-process supervision, including pre-emptive, in-progress, and post-operation supervision. Stepped up our efforts on regulating sub-contractors, incorporated contractors into the safety production scoring system, and strictly enforced the "zero-tolerance for unqualified contractors" policy, striving to prevent accidents involving suppliers and contractors

### PetroChina's contractor safety management process



### Enhancing Security Capability >>

The Company strictly abides by the relevant laws, regulations and safety standards of China, revising and perfecting its risk prevention and control systems as well as its hazard inspection mechanism. We have further strengthened our emergency management for security incidents by regularly conducting emergency drills, and strengthening security publicity, education and training. We have improved our standardised training system for security knowledge and professional skills and established and improved a joint meeting mechanism that includes all regions, provinces and cities in China to adopt a better approach to security management, with joint prevention, coordinated response, and collaborative management. Furthermore, we have improved the security management system for our domestic operations by revising and implementing the Design Guidelines for the Security Management System Framework (Domestic Businesses Version 2.0) and continuing to incorporate security risk management and control measures into relevant production and business management processes in an organic manner. We also strengthened the monitoring of system operations, and, through the PDCA cycle, continuously enhanced the suitability, adequacy, and the effectiveness of the system, systematically improving our ability to prevent, control, and manage risks.

## PROMOTING EMPLOYEE DEVELOPMENT

We address the career development needs of our employees at different stages, paying close attention to their career planning. We continuously improve the system and mechanism for talent cultivation, optimise the environment for talent growth, prioritise the construction of a resource system to support talent cultivation, and provide a broad platform for employees to realise their self-worth.

### Strengthening the Company Through Talent

Talent is the most important resource for the Company's development. We vigorously implement strategic measures to strengthen the enterprise through talent, focusing on the nurturing, introduction, and utilisation of skilled individuals. This approach aims to stimulate the Company's creativity and vitality and enhance the overall value of talents.

In 2024, we fully launched activities under our "Year of Strengthening the Company Through Talent" project, intensifying efforts to attract and cultivate top-tier technological innovation talent. We actively recommended over 780 talented individuals to upper management, including 70 experts entitled to the Special Government Allowance and 25 Senior Experts. By also selecting and awarding 8 "Petroleum Masters", 100 technical experts from the Company, and 200 "Iron-willed" team leaders, we strengthened the cultivation of highly skilled individuals. We also strengthened the system for evaluating these talents, using diverse criteria, increasing the proportion of highly skilled individuals at the technician level and above in our core business to 13.4%.

#### 10 special projects to strengthen the company through talent

- Special project for organisation system upgrading and optimisation
- Special project for cadre building
- Special project for advanced technology research talent
- Special project for training and developing skilled talent
- Special project for talent team succession
- Special project for talent value enhancement
- Special project for leadership skills improvement
- Special project for converging wisdom of the science and technology innovation team
- Special project for gathering internationalised talent
- Special project for new energies, new materials and new businesses development

### Building an Industrial Workforce >>

The Company continually reinforced the position of industrial workers as masters of their own skills by increasing the representation of outstanding workers in trade unions, improving workplace democracy through the establishment of the Employees' Congress, and constantly improving our Employee Supervisor Systems. We have enhanced the skills development and training system for industrial workers by placing greater emphasis on cultivating skilled leaders, nurturing more "Master Craftsmen of the Nation" and "Petroleum Masters", and continuing to host various types and levels of technical skill competitions. We have created smooth career development pathways for industrial workers. We provide comprehensive career guidance and planning, and have established and refined the "dual career ladder", offering two tracks for career advancement: the technical track, based on job capabilities, and the contribution track, based on work performance. We have encouraged workers to gain valuable work experience. We engage workers in extensive and in-depth labour and skill competitions across various sectors over the long term, with a focus on major national energy strategies, the Company's key construction works, key projects, and important fields. Focusing on new forms of productivity, we encourage workers to actively participate in mass innovation and creative activities throughout the entire production lifecycle. We have strengthened the development of platforms such as model worker and craftsmen innovation studios, and encouraged the establishment of cross-regional, cross-industry, and cross-enterprise alliances among these studios. We have also continued to organise the "Model Workers Supporting Enterprises' Operation" special initiative. We have improved the service and support for industrial workers. We promoted the establishment of a remuneration system and a reasonable pay progression structure for skilled workers, based on factors such as job value, abilities and qualities, innovation and creativity, and performance. Acting as a bridge between employees and employers, we have continued to improve the "inclusive + specialised" service system for labour rights protection.

## Employee Training

The Company has always placed a high value on employee training, focusing on transforming mindsets, enhancing capabilities, creating value, and energising employees. To this end, we have actively conducted role-specific training and on-the-job skill enhancement training programmes, while also digitalising more training courses, to continuously improve employees' overall quality and professional skills, in order to drive both employee and business growth through positive interaction. To strengthen the top-level design of training programmes, the Company developed and implemented the Implementation Opinions on Further Strengthening Education and Training, in line with its development strategy. During the Year, a total of RMB 1.91 billion was invested in 88,800 training programmes across various types and levels, recording over 2.72 million participants and achieving a 100% employee training coverage, thus fully satisfying the development needs of our employees.

In 2024, the Company organised a variety of training programs tailored to the different development needs of our employees



## Unimpeded Career Development Paths

We attach great importance to the career planning of our employees and strive to expand their career paths to help them realise their full potential. We have developed a democratic, open, competitive and merit-based selection process, along with an improved talent development mechanism. Our goal is to create a positive environment where all kinds of talents can stand out, and every individual can fully utilise their abilities.

We continued to strengthen talent development and improve our talent development mechanism. We have established a three-tier, nine-level career pathway for operational staff, ranging from junior workers to corporate skill masters, as well as a three-tier, nine-level career progression system for technical staff to inspire innovation and creativity. In line with the organisation hierarchy, we also set up an eleven-level management position structure. Promotions are achieved through internal recommendations and selections, competitive recruitment, and open recruitment.

**As of the end of 2024, the Company has**

Academicians of the Chinese Academy of Sciences and the Chinese Academy of Engineering <b>15</b>	Experts entitled to the Special Government Allowance <b>249</b>	Newly nominated National Experts <b>4</b>	Newly appointed Chief Experts <b>11</b>
Senior Experts <b>169</b>	Newly nominated Senior Experts <b>25</b>	Skilled Expert Studios <b>95</b>	Including <b>26</b> National Skilled Expert Studios

## A Fair and People-Centred Transition

In the process of green and low-carbon transition, the Company actively recruits top external talents, while also placing a strong emphasis on training existing employees in new energy businesses. In doing so, the Company embarks on the path of green and low carbon development alongside the talents in green technology that it nurtures and develops, striving for a fair and people-centred transition.

We have established a customised training program. Under this program, we select outstanding talents for further training and studying at colleges and enterprises. We also facilitate the transfer of key professional employees from core fields such as exploration and development to emerging sectors such as wind, electricity, PV, hydrogen and AI. We are also training a pool of technical experts for key positions in clean alternative energy sectors such as electricity and hydrogen, while accelerating the nurturing of high-level talents capable of meeting the energy transition needs of the Company.

To address the challenges of energy transition, we continued to strengthen employee training in the new energy sector, helping them improve their expertise and skills to better adapt to energy transition trends. Senior management personnel were selected to engage in learning exchanges at leading domestic and international enterprises known for their advanced energy technology and green and low-carbon transitions. Mid-level and senior management, along with experts, were sent to renowned universities such as Tsinghua University, Beijing Institute of Technology, and China University of Petroleum-Beijing for further education. In addition, we launched key programs, such as academic training courses for mid-level and senior experts, as well as refresher courses for key technical personnel. These programs aim to enhance their research and innovation capabilities and scientific research quality to adapt to the development of new energies and new businesses. A total of 354 participants have been trained. Moreover, we arranged for key technical experts to participate in key technical training programmes, such as the Comprehensive Quality Improvement Training Course for Young Science and Technology Talents in Oil and Gas Exploration, the New Energy Development and Utilisation Training Course for Technicians, and the Synergistic Management Improvement Training Course for "Source, Grid, Load, and Storage" Coordination in New Energy, training 248 participants in total. Furthermore, we organised ten technical seminars on topics such as "Key Technological Progress and Application Challenges in Green Hydrogen Production" and "The Global Energy Transition Landscape and China's Energy Transition Trends", further improving their ability to solve technical problems in production.

# SOCIETY

## CUSTOMER SERVICE

The Company practices a “quality first” principle, with “zero accident and zero defect, leading domestically and globally” as our goals. We continuously improve our quality management system to provide consumers with clean, safe, and high-quality products and services. The Company strictly adheres to guidelines regarding consumer rights and privacy protection, constantly enhancing our customer service capabilities.



## PRODUCT QUALITY AND SAFETY

We provide consumers with products that meet legal requirements and standards in a responsible manner. The 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 laws and regulations. The Company has also formulated the Quality Management Manual, the Product Quality Management Measures, and the Management Measures for the Quality Supervision and Inspection of Purchased Materials, along with other management regulations and implementation rules covering all enterprises, all employees and the entire process. Through the establishment and certification of the quality management system, we gradually delegate the responsibility of quality control across all levels of employees, strengthen control over process quality, monitor end-product quality and adopt a quality management approach that takes "all employees, all factors, all processes, and all data" into consideration. The Company did not experience any major liability incidents related to the safety and quality of products and services in 2024.

### Major progress in quality management in 2024

All subsidiaries under the Company have established and implemented a quality management system in accordance with the ISO9001 standard. As of the end of 2024, the number of subsidiaries certified by the Quality Management System (ISO9001) reached

347

#### Product quality and safety

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

100%

Products recalled for safety and health reasons

0%

• 100%  
of our outgoing products passed inspections

#### Strengthening the construction of the quality management system

- Promoted the standardisation and refinement of quality management, continuously strengthened the construction of the quality management system, and continued to improve our capability to ensure quality

#### Strengthening quality management and control

- Implemented strict management and control over the quality of oil products throughout the entire process of procurement, transportation, storage, and sales, with special focus on oil depots, transportation, and refuelling stations
- Strictly implemented the monthly supervision and inspection mechanism, leveraging opportunities such as Quality Month and Measurement Day to effectively promote quality awareness

#### Strengthening the quality management of non-oil products

- Expanded the scope and intensity of our annual supervision, adjusting our management focus according to specific climate conditions. Paid close attention to critical periods such as the rainy season, extreme weather conditions, and holidays, and broadened the scale of quality supervision and random inspections on oil product quality

The Company strengthen product quality inspections that cover raw materials, intermediate products and finished products, ensuring the quality and safety of the products. We place high emphasis on communication with customers, providing detailed information about product performance and physical and chemical specifications. We have also established a strict set of procedures for recycling products, to prevent any adverse effects on the environment.

#### Product quality testing

- Establishing a laboratory management system in line with the quality management system in accordance with the requirements of the China Laboratory Accreditation Certificate, and conducting verifications and inspections in strict accordance with the standard test methods
- Verifying and calibrating all measuring instruments and devices, meters, and other equipment in strict accordance with the periodic calibration plan and calibration protocols (regulations)
- Implementing process quality control, and controlling quality fluctuations in the production process through the establishment of key quality control points and the application of management tools such as the process capability index (Cpk)
- Collecting quality data and information, conducting quality analyses, and improving our quality management system
- Strictly implementing the "Five Prohibitions" rule during pre-shipment inspections, which prohibits products from leaving the factory if they have any of the following issues: failure to meet requirements related to quality, category and specifications/grades; incomplete product quality checklist; lack of a product quality inspection certificate; non-compliant packaging or containers; failure to submit samples as required

### Recycling process of lubricant products



## CONSUMER RIGHTS PROTECTION

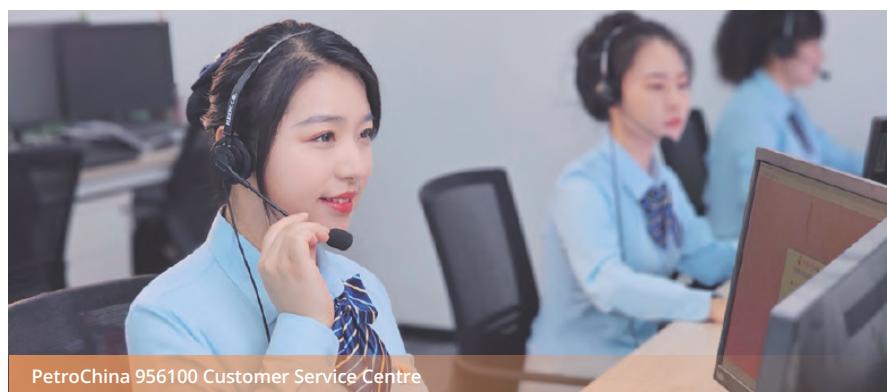


Satisfaction for 956100 customer service

We strictly comply with the Consumer Rights Protection Law of the People's Republic of China, the United Nations Guidelines for Consumer Protection, and other laws, regulations, and international standards, demonstrating our commitment to customers. We continuously strengthen our service awareness to protect consumers' legal rights and interests. The Company employs a "Five-in-One" on-site service evaluation system, which integrates five methods to regularly supervise and monitor operations from different perspectives, to improve our customer service. These methods include: the 956100 customer service centre, customer experience officers, mystery shopper visits, on-site inspections, and remote video inspections. We have also established a rapid response mechanism for complaints with standardised response procedures. Full-cycle operation reports are generated daily, weekly, monthly, quarterly, and annually. During holidays and special periods, we increase on-site services abilities. We organise, summarise, and analyse user feedback to better identify customer needs and concerns. In addition, we also conduct satisfaction surveys for targeted customers in 2024, with 99.5% of customer services and 99.3% of orders satisfied.

### Properly Handling Customer Complaints

The Company's 956100 customer service centre adopts an "integrated collaboration, hierarchical responsibility" customer service model, providing customers with consultation, inquiry, transaction handling, complaint handling, value-added services, and other services. The service centre is responsible for handling customer complaints and conducting follow-up visits. We have detailed procedures for handling complaints, coordinating and addressing them based on their impact and urgency. By focusing on customer needs, we drive improvements across the entire service process to enhance customer experience.



### Customer complaints resolution and service improvement



## DATA SECURITY AND CUSTOMER PRIVACY PROTECTION

The Company has established a strict information security management system that defines access permissions, usage regulations, and confidentiality protocols for different types of information. Any leakage of customer personal information is strictly prohibited. The Company has also adopted stringent privacy protection policies and information protection measures. Through platforms such as our uSmile app and the Company's website, we clearly inform customers about our methods of collecting, using, and sharing personal data, and obtain their explicit consent. Meanwhile, we protect customers' personal data through encryption, anonymisation, and other methods across all major production systems. We encourage and support customers in using strong passwords and regularly changing them. Moreover, we have strengthened employee training to ensure that they understand and comply with privacy policies and information protection measures, to effectively prevent the risk of information leakage. In 2024, no breach of customer privacy or information security violation occurred.

### Customer Data Security and Privacy Protection

<b>Data collection</b>	<b>Data storage</b>
<ul style="list-style-type: none"> <li>• Except for necessary personal information required to provide better services and improve customer experience, no other data is collected from customers</li> <li>• Clearly inform customers through platforms such as our uSmile app and the Company website about our methods of collecting, using, and sharing personal data, and obtain explicit consent from customers</li> </ul>	<ul style="list-style-type: none"> <li>• All information collected is encrypted through technical means and transmitted to a database located in a central data centre at the Company's headquarters for storage. The database uses security components to encrypt and store information</li> <li>• Information on the database is secured by an internal management system, and can only be accessed and managed by authenticated and authorised personnel; private personal information is redacted in the customer information query and display interface</li> </ul>

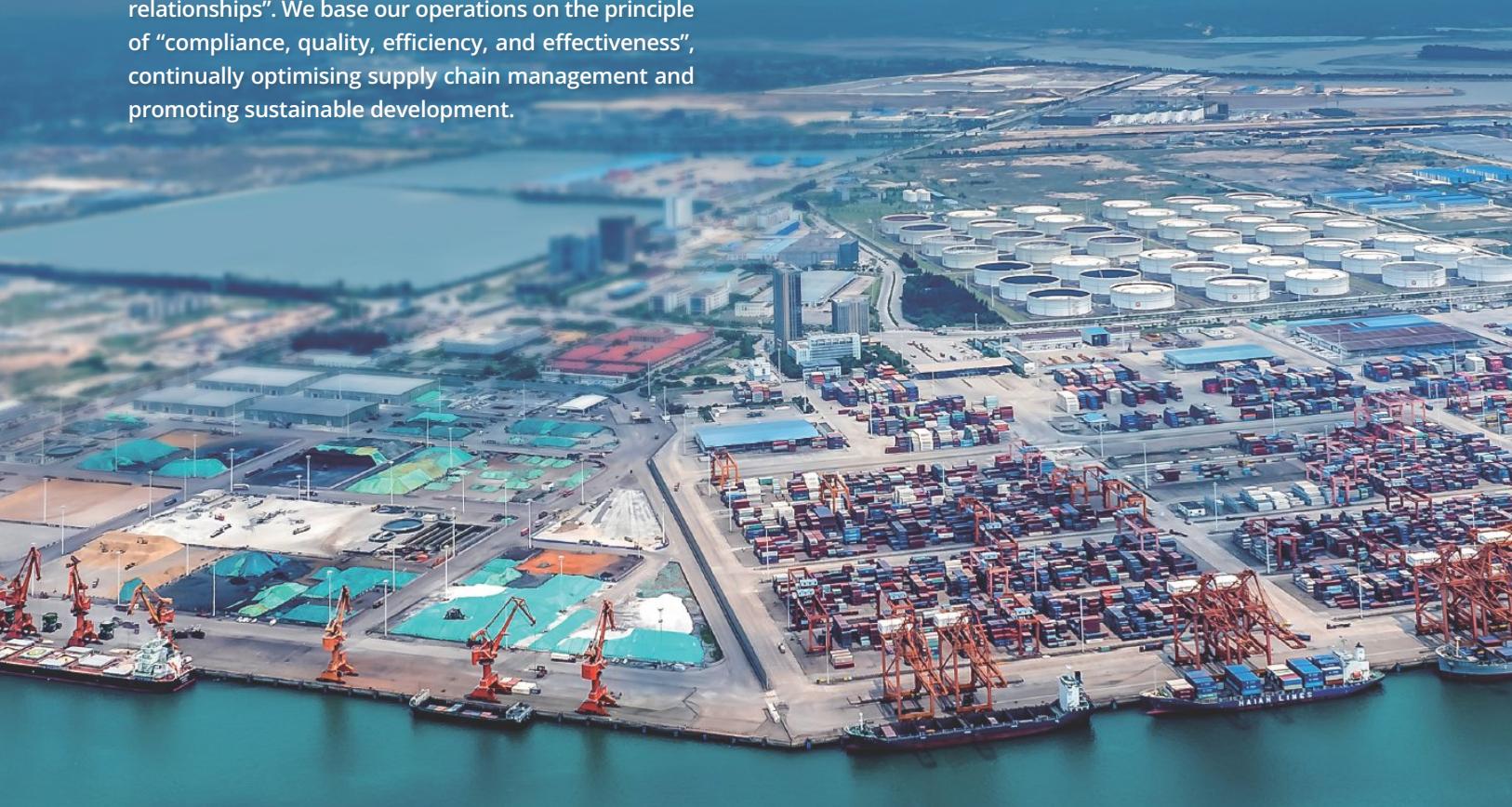
#### Raising data security awareness of data management personnel

- Formulated the Measures for the Administration of Cybersecurity of the Company
- Established a cybersecurity management system headed by senior management staff, managed by specialised personnel, and operated by a dedicated team on a regular basis. Customer information is therefore protected to the greatest extent by multiple layers of security
- Conducted regular training sessions for employees on information security awareness, information protection regulations, and information security operating procedures, in order to enhance their awareness on customer privacy protection

# SOCIETY

## SUSTAINABLE SUPPLY CHAIN

We attach great importance to supply chain management, adhering to the supplier management philosophy of "global sourcing, open cooperation, resource sharing, mutual benefit, and win-win relationships". We base our operations on the principle of "compliance, quality, efficiency, and effectiveness", continually optimising supply chain management and promoting sustainable development.



### The UN Sustainable Development Goals



## ENSURING SUPPLY CHAIN SECURITY

### Supply Chain Risk Management

We have developed measures to strengthen our management and control over supply chain risks, enhancing the resilience of supply chain management. By focusing on supply chain risks with the goal of ensuring the security of the goods supply, we actively carry out risk management, effectively stabilising, consolidating, and reinforcing the supply chain.

We closely monitor the prices of bulk commodities and actively adjust procurement costs based on the general principle of shared benefits and risks. We have also actively strengthened cooperation with domestic and international strategic suppliers, continuously building stronger relationships with them. In 2024, the overall operation of the supply chain remained secure and stable.

### Increasing Supply Chain Advantages

We enhanced technological innovation and capitalised on material procurement to establish a fast-track process for integrating first-set equipment, first-batch materials, and first-version software (collectively referred to as the "Three Firsts" products) into the supply chain. We issued the Guiding Opinions on the Procurement of "Three Firsts" Products to streamline the procurement process for these items. In addition, we introduced the first set of electricity-powered three-machine units to our key refining project, simplifying the materials and equipment procurement process for deep-earth exploration work, thus supporting the Company's technological self-sufficiency and strength.

## SUPPLIER MANAGEMENT

Adhering to the supplier management philosophy of "global sourcing, open cooperation, resource sharing, mutual benefit, and win-win relationships", and upholding the principle of "legal compliance and dynamic management", we focus on the development of a supplier management system. We have formulated and constantly improved policies such as the Regulations on the Management of Material Supply and the Regulations on the Management of Suppliers, along with supplementary enforcement plans and specifications, so as to strengthen the compliance management of suppliers. We practice responsible procurement, incorporating green and low-carbon development into all stages of material supply chain management. Enterprises along the supply chain are required to comply with the Company's requirements regarding healthy and safety, labour rights, environmental protection, and business ethics. We also carefully identify and manage potential environmental and social risks within the supply chain to continuously enhance supplier quality. We have formed a Supplier On-site Inspection Team, consisting of a group of professional tier-one material suppliers, to conduct due diligence on suppliers' ESG performance. This team focuses on assessing the suppliers' compliance with operational standards, business ethics, HSE performance, and social responsibility.

### Full-life-cycle supply chain management system

#### Supplier access

- We strengthen supplier access management by continuously optimising the supplier resource structure and constantly improving the access mechanism. We actively guide our suppliers to strengthen lawful and ethical business practices, observe business ethics, and fulfil corporate social responsibility. We require suppliers to comply with relevant anti-commercial bribery policies and regulations, conduct necessary due diligence on suppliers and include compliance performance as a prerequisite for supplier access

### Supplier access

- In 2024, we commissioned a professional team to conduct on-site inspections of the ESG performance of suppliers of over 80 product categories, and made this a prerequisite for supplier access
- We require suppliers to comply with PetroChina's unified quality, health and safety, and environmental standards. Suppliers must also protect labour and human rights
- We organised onboarding training for all new suppliers on topics including business ethics, integrity risks, prevention and control, and QHSE. We also promoted the Company's business and management philosophy. Suppliers are required to sign an entry commitment letter, with a 100% signing rate

In 2024, we conducted random quality inspections on 14,368 batches of procured materials and took strict action against non-compliant suppliers and products.

In 2024, we completed 251,027 orders with a 100% dynamic quantitative assessment rate.

### Supplier supervision

- Based on the principles of "compliance, quality, efficiency, and effectiveness", the Company supervises its suppliers through contractual agreements, supplier self-evaluations, on-site audits, and other methods. Through these efforts, we have established a daily management, supervision, and evaluation mechanism for suppliers, continuously strengthening the identification, prevention, and control of environmental and social risks, thereby enhancing supplier performance
- In 2024, we improved the material supplier system and continued to optimise the entire supplier management process

### Supplier exit management

- We developed and revised the Supplier Management Measures and the Management Measures for the "Three Types of Blacklisted Suppliers". Under these measures, suppliers found to engage in fraudulent, dishonest, or falsifying behaviours during the tendering, product supply, product quality, project services, and contract settlement processes will be blacklisted. Depending on the severity of the violation, the blacklist period may range from 3 years, 5 years, to a permanent ban
- For suppliers with issues related to quality, compliance, integrity, or corruption, we categorise the matter and adopt different disciplinary measures depending on its severity, including (from light to severe): suspension of product trading rights, suspension of supplier trading rights, revocation of product access qualifications, and revocation of supplier access qualifications. In 2024, a total of 119 suppliers were seriously dealt with

### Supplier communication

- We focused on strengthening communication and connectivity with suppliers, maintaining effective communication channels, and proactively understanding their concerns and needs through various channels
- In 2024, we continued to strengthen strategic procurement relationships with 18 domestic and international suppliers including China Baowu and Baosteel, enhancing multi-field and in-depth collaboration. We proactively engaged in discussions with suppliers on green and low-carbon initiatives, and sustainable development, and other areas, uncovering further potential collaboration
- We paid attention to the health, safety, environmental protection and compliance operations of suppliers, and maintained timely communication with them to enhance supply chain synergy and achieve mutual benefits

## Supplier Compliance Management

We have consistently advocated for a culture of integrity and legal compliance, considering compliance as a prerequisite for any partnership. We track, inspect and supervise suppliers' business ethics, regulatory compliance, and performance, incorporating relevant indicators into both the supplier evaluation and tender selection processes. We have established a blacklist system for suppliers, where offenders face various restrictions, and their information is disclosed on PetroChina's bidding and tender website, continuously strengthening the deterrent measures against illegal and non-compliant suppliers. Through various methods, including special inspections, signing integrity cooperation agreements, and commitment letters, we work to create an honest and law-abiding business environment. In 2024, 33 enterprises were added to the "Three Types of Blacklisted Suppliers" for corruption and illegal activities.

## Building a Green Supply Chain

Implementing the "green and low carbon" developmental concept, the Company is committed to building a green supply chain throughout the entire operation lifecycle, from supplier access, project design, procurement, storage and logistics, to material disposal, while also vigorously adopting a green procurement approach. In accordance with the Management Measures for Green Procurement, it is clearly stipulated that access priority is given to green enterprises, and energy-saving, environmentally friendly, and low-carbon materials are preferred during procurement. We actively encourage suppliers to improve their green manufacturing standards and use environmentally friendly packaging. The Company's current procurement plans fully comply with the Company's regulations, and preferential points are awarded for green procurement in our evaluation.

### Supply Chain Management

Number of suppliers

**22,327**

Number of tier 1 manufacturers

**2,317**

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

**98.71%**

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

**95.68%**

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

**94.95%**

Procurement expenditure

RMB **193** billion

Note: Data does not include suppliers involved in our international business.

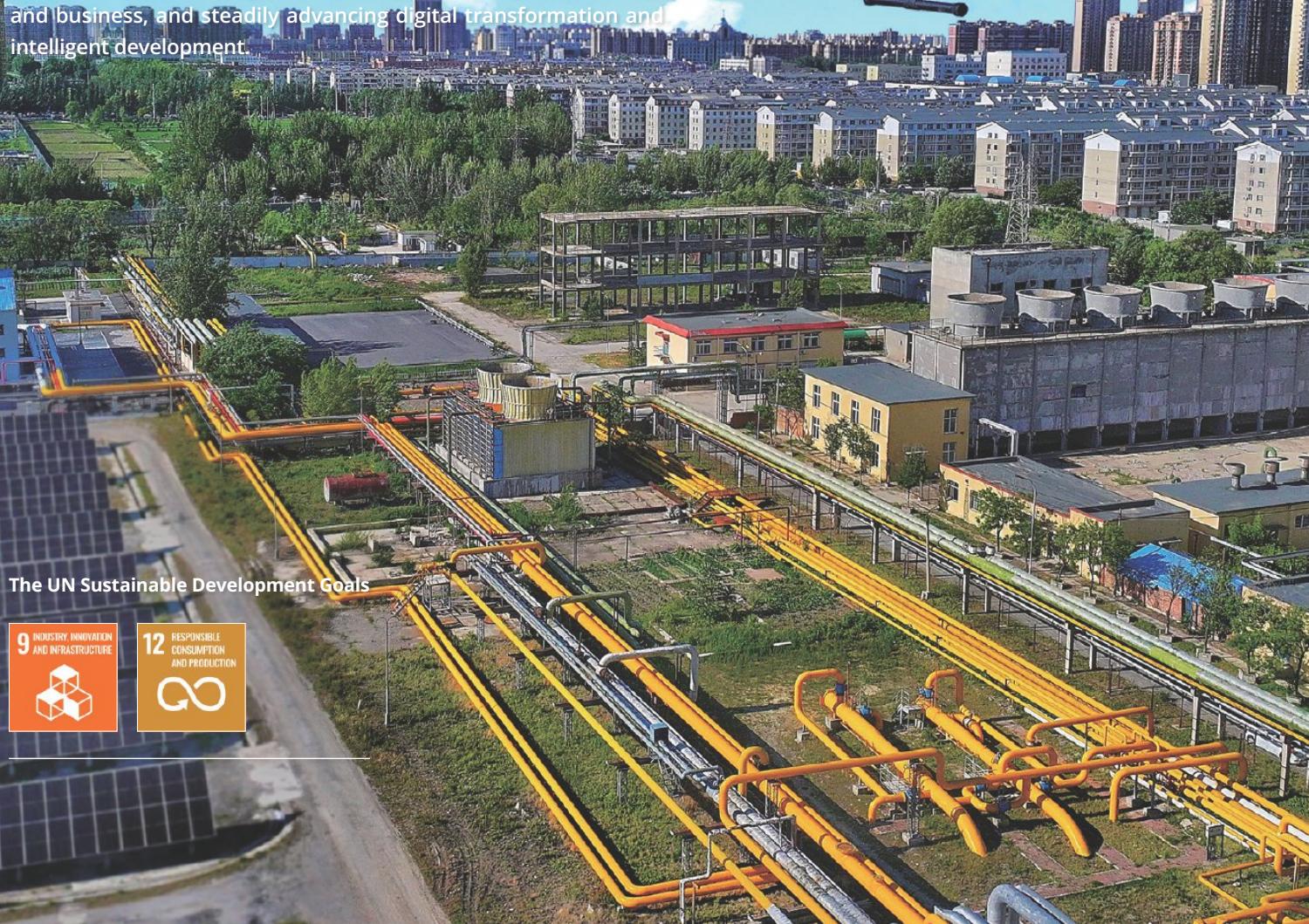
## EQUAL TREATMENT OF SMES

The Company actively creates favourable conditions for SME suppliers. In 2024, we facilitated the entry of suppliers across all categories, encouraging SMEs to supply materials to the Company. We have developed clear and transparent access criteria for suppliers. A fair tendering process is adopted to ensure that tender information is open, the process is transparent, and SMEs are provided with equal opportunities. We have also implemented fair and reasonable contract terms to clearly define the responsibilities and interests of all parties. We strengthen communication and collaboration with suppliers by establishing a regular communication system to provide technological, management, and other forms of assistance to SMEs. Upholding compliance and integrity in business operations, following normal commercial practices, and ensuring fair trade in the market, we conduct business with SMEs, respect their intellectual property rights, conduct payment timely, and safeguard their rights and interests. We encourage SMEs to adopt green production practices, comply with labour regulations, and promote the green transition of their supply chains. By forming long-term collaborative relationships with SMEs, we achieve mutual benefits.

# SOCIETY

## TECHNOLOGICAL INNOVATION AND DIGITAL EMPOWERMENT

"Innovation" is our primary strategy at the core of our overall development as we deepen efforts in advancing technological innovation and digital empowerment. Our work includes optimisation of allocation of innovation resources, development of a dynamic and open innovation ecosystem, enhancements to the overall efficiency of the innovation chain, and strengthening technological innovation in supporting and leading capabilities. We are promoting the high-quality development of "Digital PetroChina", accelerating the deep integration of digital technology and business, and steadily advancing digital transformation and intelligent development.



The UN Sustainable Development Goals

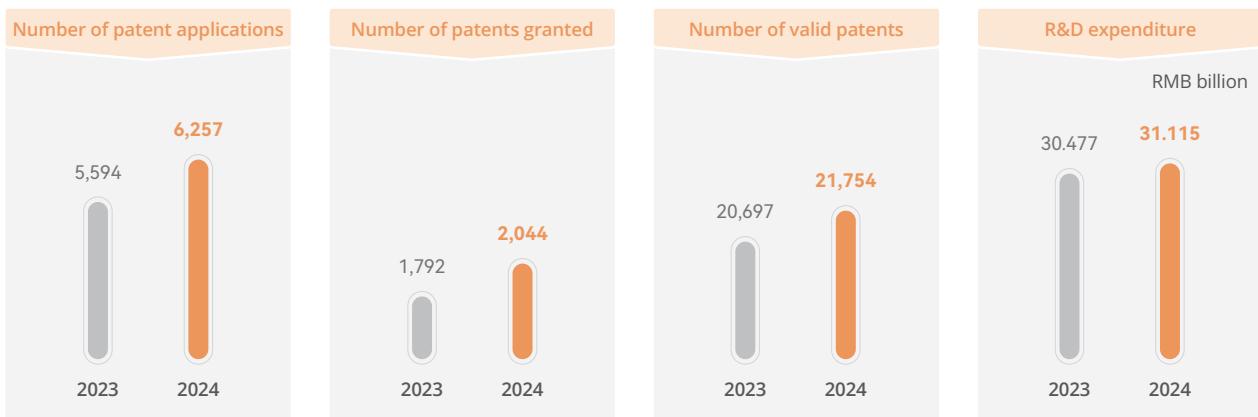


## TECHNOLOGICAL INNOVATION

The Company embraces a guiding principle of “supporting the present and leading the future” in technological innovation. We have strengthened our strategic approach and top-level design for technological advancement, while intensifying basic research and breakthrough efforts in key and core technologies. Through targeted technology initiatives, we illuminate pathways to innovation and launch significant scientific and technological endeavours. We continuously enhance our technological innovation framework, develop exceptional scientific and technological talent, foster deep integration between technological and industrial innovation, provide robust support for strategic emerging and future industries, and contribute to the development of new quality productive forces.

### Performance in technological innovation in 2024

	Indicator	2024 Statistics
R&D expenditure	Annual R&D expenditure	RMB 31.115 billion
	Year-on-year growth	2.1%
	Proportion of operating revenue	1.1%
R&D Personnel	Total R&D personnel	30,164
	Proportion of total employees	8.1%
Invention Patents	Number of invention patent applications	5,736
	Number of PCT applications	144
	Number of Chinese patents granted	2,016
International Standards	International standards formulated	4
	Advanced foreign standards formulated	4



## Research Platforms

**2** National Key Laboratories

- National Key Laboratory for Enhanced Oil and Gas Recovery
- Laboratory for Green Exploitation of Continental Shale Oil with Multi-Resource Collaboration

**16**

national engineering laboratories, R&D centres, engineering centres and other national platforms

**30**

PetroChina key laboratories, **13** pilot test bases, **15** R&D centres.

- Frequent achievements from newly established PetroChina Shanghai Advanced Materials Research Institute and PetroChina Shenzhen New Energy Research Institute
- Progress was made from Wisdom Pool Research Institute G.K. in Japan, and the institute in Germany was under preparation

## Collaborative Innovation

The Group takes the lead in industry-university-research joint innovation projects, building innovation consortia with Peking University, China University of Petroleum-Beijing, Beijing University of Chemical Technology and other universities to create an ecosystem for open cooperation and collaborative innovation.

## International Cooperation

- Conducting intergovernmental international scientific and technological innovation cooperation research and international scientific and technological exchange cooperation with Belt and Road countries.
- Carrying out 9 international scientific and technological cooperation research projects with overseas research institutions from 7 countries.
- Signing 11 international scientific and technological cooperation and exchange agreements with 6 countries. Participating in 15 international scientific and technological organisations, including the Society of Petroleum Engineers (SPE) and the World Petroleum Council (WPC Energy).
- Successfully hosting the 12th International Conference on Petroleum Geochemistry and Exploration in the Afro-Asian Region (AAPG).

## Scientific and Technological Talent

Scientific and technological leading talents: over

**100**

Scientific and technological innovation projects core members: over

**1,000**

Driving the growth of more than **10,000** young scientific and technological talents through youth scientific and technological special projects

In the field of exploration, we obtained support from **1** National Outstanding Youth Science Fund and **1** National Excellent Youth Science Fund

## Journal Development

The Company oversees 15 scientific and technological journals and has built a scientific journal publishing team with a complete disciplinary system, leading academic standards, and significant industry influence.

Petroleum Exploration and Development has an SCI impact factor of 7.2, ranking first in the world in petroleum engineering discipline for three consecutive years, twice winning the China Publishing Government Award Journal Nomination Award, and selected for Most Influential Academic Journals in China for 12 consecutive years.



## Scientific and Technological Achievements

Since 2000

The Company has received **100** National Science and Technology Progress Awards,  
including **14** special and first awards.



In 2024

The Company received **11** first science and technology awards at provincial and ministerial levels  
and **32** first awards from industrial associations

Received **4** Youth Science and Technology Awards in Sun Yueqi Energy Science and Technology Grand Prize

Received **1** first prize, **3** second prizes,  
and **1** excellence award at the 4th Central Enterprise Yixing Innovation and Creativity Competition.



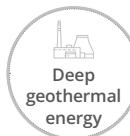
- Shendi Take-1 Well successfully completed drilling at a depth of 10,910 metres. With ten independently developed breakthrough technologies for ultra-deep drilling and an integrated 10,000-metre drilling process, it set a record for the shortest time to drill onshore 10,000-metre deep wells, and successfully obtained core samples from 500 million years ago at a depth of 10,000 metres.
- Discovered a new 1 billion-tonne intra-source reserve in the Junggar Fengcheng Formation. Developed a comprehensive oil and gas system geological theory, with significant implications for academic development and practical exploration.
- World's first 1-MW downhole high-power electric heating steam dryness enhancement technology was successfully tested in the Liao River Oilfield, boosting dryness by 36 percentage points. It was shortlisted for the international "Gulf Energy Information Excellence Award" for two consecutive years.
- World's first mobile wellsite "NMR-Laser-CT" integrated measurement equipment and multi-source data intelligent fusion analysis system, capable of rapidly generating digital twin core bodies to support efficient oil and gas exploration and development.
- The localization and industrialization of large-scale geology-engineering integrated fracturing software provide an efficient solution to life-cycle optimization and evaluation for fracturing treatment in unconventional oil and gas reservoirs.



- Thin silicon wafer (110 microns) perovskite and crystalline silicon tandem cell technology. World-leading standards achieved with industry-first photoelectric conversion efficiency exceeding 30%.
- Developed a 2,000 standard cubic metre alkaline electrolyser, demonstrating cutting-edge industry standards.
- Developed a 100 kW hydrogen unit powered by oilfield produced water, addressing key technical challenges in anode-cathode collaborative electrode development and production, anti-fouling electrolyser design and water treatment-hydrogen production system integration.



- Cumulative CO<sub>2</sub> injection reached 1.9 million tonnes in 2024, consistent leadership of CCUS-EOR development in China with the establishment of two national demonstration projects in Jilin and Changqing.
- N<sub>2</sub>O emission reduction technology has supported large-scale carbon reductions exceeding 20 million tonnes, achieving a cumulative CO<sub>2</sub> reduction of 21.49 million tonnes and generating over RMB 2 billion in economic benefits.
- 200tpa EMC/DEC pilot plant successfully started first test operation.



- Led the implementation of multiple geothermal utilisation pilot tests, conducted multiple deep geothermal drilling and surface engineering construction projects.



- Kunlun transformer oil and Kunlun rubber plasticiser cycloalkane mineral oil selected for the Manufacturing Champion Products Directory. Relevant products exported to Mexico, Pakistan and other countries, supporting China's "Belt and Road" initiative.
- Developed a series of high-grade commercial vehicle engine oils, leading China's independent engine oil specifications and technology development.



- Million-tonne scale ethane-to-ethylene technology package. Achieved a breakthrough in China's "ethane cracking to produce ethylene" technology, leading the high-value utilisation of domestic natural gas resources.
- Comprehensive technology package for benzene and methanol alkylation compound mixed aromatics. World-leading standards achieved with the technology enabling coupled utilisation of coal resources and petroleum and filling a technical gap in this field.



- Breakthrough in T700 high-strength 48K large-tow carbon fibre precursor technology development and industrial application with consistent and stable production in our hundred-tonne scale facility. Relevant products have a wide range of applications in new energy, civil aviation and other fields, with good market prospects and competitive advantages.
- Development of gas-phase polyolefin elastomer (POE) technology. First commercial implementation in a 120,000 tonne/year gas-phase industrial facility, with over 10,000 tonnes of new products produced and sold, ensuring independent control of key materials for new energy applications.
- Independent development of high-efficiency metallocene polyethylene catalysts, enabling ten thousand-tonne production scale of metallocene polyethylene products, promoting high-quality development of the polyolefin industry.
- Independent development of comprehensive nylon 66 technology using benzene as a single raw material, leveraging benzene resource advantages to create an independently controllable industrial chain, providing security for industrial development in key areas.
- Film-grade Type II liquid crystal polymer (LCP) products developed by the New Materials Institute in Shanghai has achieved performance levels of comparable foreign products.
- Wisdom Pool Research Institute G.K. has been exploring and developing aerogel frontier materials that can produce synergies with the refined chemicals sector.



- A process based on synthetic biology has been developed to produce 1,5-pentanediamine, with the "lysine fermentation + whole-cell catalysis" method achieving technical benchmarks for polymer-grade 1,5-pentanediamine at an internationally advanced level, essentially ready for industrial scale-up.

## INTELLECTUAL PROPERTY PROTECTION AND MANAGEMENT

Total valid patents

21,754

Total valid foreign patents

472

The Company has intensified its intellectual property strategy and planning, placing a strong emphasis on the creation, application, protection and management of intellectual property, while refining its “1+3+N” intellectual property management system to bolster operations. We have strengthened intellectual property navigation strategies in emerging strategic industries, future industries, and key core technology fields, focusing on cultivating high-value patents, innovating evaluation models for patent agencies, and building a professional intellectual property talent pool, thereby driving a comprehensive push toward high-quality intellectual property development. In 2024, both the quantity and quality of intellectual property surged, with a total of 21,754 valid patents and 472 valid foreign patents. Patent applications and grants increased by 11.85% and 14.06% year-on-year in 2024. We have achieved a significant level of high-value patents per employee, with notable gains from technology transfer and intellectual property utilisation.

- 10 affiliated companies obtained intellectual property standardisation certification
- 15 intellectual property navigation strategies have been established in the fields of emerging strategic industries, future industries, and key core technologies, with over 1,000 high-value patents secured
- In 2024, 103 employees passed the intellectual property specialist qualification examination. We now have a total of 143 intellectual property specialists
- In 2024, 160 personnel were newly qualified as national patent agents. We now have a total of 309 personnel who have passed the national patent agent qualification examination
- “Artificial Intelligence Seismic Processing and Reservoir Prediction Technology Research and Industrial Application” was selected as one of the 50 model cases in the “2024 Green Technology Innovation Model Cases”

Led the formulation and revision of a total of

49

international standards and advanced foreign standards

Undertook secretariat work for

3

international standards organisations

## Standardisation Management

The strategy of “steering upstream industries and participating in downstream industries” for implementing standardisation has been further consolidated.

- In the oil and gas sector, the Company ranks first in leading the formulation and revision of more than 1,400 national and industry standards, accounting for 60% of the total
- In the refining and chemical sector, the Company has led the formulation and revision of nearly 300 national and industry standards, accounting for 20% of the total

At the same time, by actively engaging in international standardisation efforts, the Company strives to make a strong push to export Chinese standards, paving the way for products, engineering, and services to go global, supporting the Company’s development strategy of “resource, market, internationalisation, innovation, green and low-carbon”.

## DIGITAL EMPOWERMENT

The Company established “Digital PetroChina” as the fifth strategic initiative, thoroughly implementing the “Guiding Opinions on Digital Transformation and Intelligent Development”, releasing the “Digital Transformation Guide (1.0) ” and other development policies, formulating and issuing the overall plan for a “Digital PetroChina”, establishing PetroChina (Beijing) Digital Research Institute Co., Ltd, coordinating the development of “three projects”: information technology, digital empowerment, and intelligent development, vigorously promoting the deep integration of digital technology with the oil and gas products, services, and processes. We have achieved landmark results in accelerating business model reconstruction, management model reform, and business model innovation, providing strong support for the Company’s high-quality development.

Based on the overall principle of “value orientation, strategic guidance, innovation-driven, and platform support”, we implement digital transformation in three areas: business development, management transformation, and technological empowerment. Through the construction of an industrial Internet system and an application ecosystem based on cloud platforms, we continue to work on transformation and upgrading from single field to the entire production and operation process.

### CASE STUDY

#### Yunmengze Smart Platform launched for trial operatoin

On 30 September 2024, PetroChina's first smart e-commerce service platform for the energy and chemical industry—the Yunmengze Smart Platform—was launched for trial operation. Based on the Internet e-commerce “agile + fall” implementation strategy and PetroChina's previous digital development projects, the platform provides unified transaction, logistics, financial, data, technical and other comprehensive ecological services to the energy and chemical industry chain through rapid system integration. By 31 December 2024, the first batch of 743 functions had been launched for pilot operation, covering three core business areas: chemical sales, logistics, and finance. The platform has already opened its unified enterprise portal and APP applications to internal and external users, serving as a demonstration and example for promoting the comprehensive online, standardised, and digital transformation of PetroChina's transaction business.

#### Digital transformation and intelligent development: goals and progress

Areas	Objectives	Annual Progress
Business Development	<p>Optimisation of oil and gas business chain synergies</p> <p>Conduct resource optimisation allocation, coordinated business performance management, and emergency response linkage with the aim of optimising overall performance of the upstream and downstream business chain and maximisation of shareholder value</p>	<ul style="list-style-type: none"><li>Specialised safety management scenarios for well sites, stations, oil depots, and refining and chemical plants have been incorporated into intelligent safety production control. Safety management interfaces now extend further into production sites, continuously strengthening capabilities to prevent disruptive risks</li><li>Successfully deployed gas station management system 3.0, pioneering the industry's first palm payment solution alongside innovative features such as e-convenience refuelling for members, and intelligent risk control—all contributing to substantially reduced customer service times</li><li>Continually improved the intelligent operation system's refined management capabilities by incorporating key data monitoring for natural gas loading, new energy power generation, and all drilling rig operations. This expansion of production monitoring scope enables daily tracking of execution across the Company's entire industry chain, enhances resource allocation effectiveness, and provides robust support for natural gas supply security</li><li>Fully launched the industrial video system, significantly enhancing production process monitoring and emergency management capabilities; implemented the centralised carbon asset management platform, effectively facilitating the transition of carbon emissions accounting down to the equipment and facility level</li></ul>

Areas	Objectives	Annual Progress
Business Development	<p><b>Transformation and upgrade of principal businesses</b></p> <p>Integrate technologies such as IoT, big data, and artificial intelligence with company businesses to assist industrial transformation and upgrade</p>	<ul style="list-style-type: none"> <li><b>Intelligent oil and gas fields:</b> For domestic operations, established a new transformation model featuring unmanned operations at key production stations, real-time equipment condition monitoring, and integrated exploration and development processes, and achieved intelligent coordination and automatic optimisation throughout the production process (wells, stations, plants, and equipment), while continuously optimising organisational structures and workforce composition. For overseas operations, implemented digital management systems for production, construction and surface engineering, rapidly deployed unmanned attendance pilot projects, and further enhanced wellbore production management efficiency. Notably, Changqing Oilfield achieved level 4 in the National Digital Transformation Maturity Assessment, while Tarim Oilfield was recognised on the State Council SASAC's "State-owned Enterprise Digital Transformation Pilot Enterprise List"</li> <li><b>Intelligent refining and chemicals:</b> Developed next-generation production operation models featuring comprehensive sensing capabilities, real-time monitoring, predictive alerts, intelligent response protocols, collaborative optimisation, and precision execution. Both Dushanzi Petrochemical and Guangdong Petrochemical achieved level 4 in the national intelligent manufacturing capability maturity assessment, while Lanzhou Petrochemical earned recognition on the State Council SASAC's "State-owned Enterprise Digital Transformation Pilot Enterprise List"</li> <li><b>Smart sales:</b> Accelerated platform-based and ecosystem-oriented development. The Gas Station Management System 3.0 and uSmile Mall now fully support sales operations; the integrated crude oil production and sales management system enables unified management of crude oil by-product sales; and the sales IoT network now provides complete coverage of nationally designated key oil storage facilities with enhanced oversight</li> <li><b>Smart natural gas sales:</b> Successfully implemented an integrated online-offline sales model with comprehensive intelligent customer service channels, established responsive service mechanisms, and deployed 24-hour monitoring across intelligent stations</li> </ul>
Management transformation	<p>Improve decision support, operation management, collaborative office, collaborative R&amp;D, and shared service levels through digitalisation and advance the modernisation of the Company's governance framework and governance capacity</p>	<ul style="list-style-type: none"> <li>Robust advancements made in key information technology reinforcement projects. Focusing on the four goals of four-flow integration<sup>5</sup>, business-finance integration<sup>6</sup>, production and operation coordination, and upstream-downstream coordination, and concentrating on the three core elements of data, process, and standardisation, we have completed high-quality blueprint scheme design, centralised system implementation and integrated testing. The first batch of units met expectations with overall success in end-to-end business chain validation</li> <li>A unified office platform has been completed and launched, establishing an efficient collaborative, personalised workbench following the "platform + application" model, achieving "one-click login, unified to-do lists", addressing the problem of users logging into multiple systems, and promoting the transformation of work modes from "people finding work" to "work finding people"</li> <li>Our global shared services maintained steady expansion along with the establishment of a robust quality management system for our financial shared services that controls risks, ensures compliance, maintains uniform standards, and satisfies customers. Meanwhile, our HR shared services have achieved visualised talent management to help unlock deeper human resource value</li> </ul>
Technology empowerment	<p>Build a first-class industrial Internet system in the energy and chemical fields to empower digital transformation</p>	<ul style="list-style-type: none"> <li>Leveraged PetroChina's four major data centres as the core to further optimise an integrated and complementary 3D network, reinforcing our abilities to protect our digital infrastructure</li> <li>Completed a three-year data governance special action, effectively improving data standards, consolidating the foundation for unified data resource control, and promoting compliant, efficient, and secure data circulation. Fully built the Company's data resource directory, achieving "map-guided" access to all-domain data, promoting public data standardisation, and significantly improving the quality of operational management data</li> </ul>

【5】Four goals of four-flow integration refer to logistics, capital flow, information flow, value flow.

【6】Business-finance integration refers to the integration of business development and finance management.

## KEY PERFORMANCE DATA

### 2024 Performance Data of the Company

Category	Indicators	2022	2023	2024
<b>Board Diversity</b>				
	Independent directors (%)	36.4	41.7	<b>41.7</b>
By gender				
	- Male(%)	90.9	91.7	<b>91.7</b>
	- Female(%)	9.1	8.3	<b>8.3</b>
By professional background				
<b>Governance</b>	- Legal(%)	9.1	0.0	<b>0.0</b>
	- Finance/accounting(%)	9.1	8.3	<b>8.3</b>
	- Economics(%)	18.2	25.0	<b>25.0</b>
	- Petrochemical(%)	63.6	66.7	<b>66.7</b>
<b>Integrity Risk Control and Management</b>				
	Coverage of integrity risk prevention training (including members of the Board and all employees)(%)	100	100	<b>100</b>
<b>Safety</b>	Fatality rate (persons/100 million working hours)	0.09	0.30	<b>0.13</b>
	- Employee (persons/100 million working hours)	0.06	0.33	<b>0.13</b>
	- Contractor/service provider (persons/100 million working hours)	0.16	0.25	<b>0.13</b>
	Total accident rate (case/million working hours)	0.0191	0.0222	<b>0.0291</b>
	- Employee (case/million working hours)	0.0237	0.0326	<b>0.0405</b>
	- Contractor/service provider (case/million working hours)	0.0079	0.0025	<b>0.0067</b>
Work-related fatalities (persons)				
	- Employee (persons)	2	7	<b>3</b>
	- Contractor/service provider (persons)	1	5	<b>2</b>

Category	Indicators	2022	2023	2024
Safety	Loss of working days due to work-related injury (days)	5,146	11,772	2,760
	- Employee (days)	2,574	2,767	2,559
	- Contractor/service provider (days)	2,572	9,005	201
	Number of subsidiaries certified by the HSE Management System (Q/SY08002.1)	116	109	104
GHG				
Climate Change	Total GHG emissions <sup>1</sup> (Scope 1, Scope 2) (million tCO <sub>2</sub> e)	160.56	171.18	170.46
	- Direct GHG emissions <sup>2</sup> (Scope 1) (million tCO <sub>2</sub> e)	119.68	124.66	122.76
	- Indirect GHG emissions <sup>3</sup> (Scope 2) (million tCO <sub>2</sub> e)	40.88	46.52	47.70
	- Oil and gas and new energy businesses (million tCO <sub>2</sub> e)	53.39	56.67	56.19
	- Refining, chemical and new materials businesses (million tCO <sub>2</sub> e)	98.81	107.21	106.36
	- Other businesses (million tCO <sub>2</sub> e)	8.36	7.30	7.91
	Domestic GHG emissions per unit of oil and gas production <sup>4</sup> (tCO <sub>2</sub> e/toe)	0.24	0.24	0.235
Transition to Low-Carbon Energy Sources				
	Investment in new energies and new businesses (RMB 100 million)	76.7	197.6	240.5

【 1-4 】 GHG emissions are direct emissions (Scope 1) and indirect emissions (Scope 2) arising within the 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) (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) (No. 2920 [2014] on Climate, NDRC), the Guide to Accounting Methods and Reporting of Greenhouse Gas Emissions by China's Chemical Production Enterprises (Trial) (No. 2526 [2016] on Climate, NDRC), the Carbon Emissions Accounting and Reporting Requirements Part 15: Petrochemical Enterprises (GB/T 32151.15), the Carbon Emissions Accounting and Reporting Requirements Part 16: Oil and Gas Production Enterprises (GB/T 32151.16), and other relevant industry guidelines and national accounting standards; while for overseas projects, local accounting standards and requirements of the countries where the operations are located take precedence over the PRC laws on the basis of the local indicators. Since 2024, in accordance with the Requirements of the Carbon Emission Accounting and Reporting - Part 16: Oil and Gas Production Enterprises (GB/T 32151.16-2023), the Global Warming Potential (GWP) of methane was adjusted to 28, which will affect the Company's total GHG emissions by approximately 2 million tonnes.

【 5 】 Methane emissions intensity is the percentage of methane emissions generated by the Company's upstream oil and gas assets relative to the total volume of the Company's natural gas products. Its calculation method aligns with the standards set by the Oil and Gas Climate Initiative.

Category	Indicators	2022	2023	2024
Environment	<b>Water Resources</b>			
	Fresh water consumption (10,000 m <sup>3</sup> )	74,688	77,123	<b>74,801</b>
	Year-on-year change in freshwater consumption (%)	-0.42	3.26	<b>-3.01</b>
	Water withdrawal per tonne of crude oil processed (m <sup>3</sup> )	0.481	0.473	<b>0.453</b>
	Water saved (10,000 m <sup>3</sup> )	871	814	<b>783</b>
	<b>Land Resources</b>			
	New construction land saved (hectares)	1,280	1,400	<b>1,200</b>
	<b>Energy Consumption</b>			
	Total energy consumption <sup>6</sup> (10,000 tonnes of standard coal)	6,245	6,548	<b>6,498</b>
	Total raw coal consumption <sup>7</sup> (10,000 tonnes)	1,232	1,108	<b>1,044</b>
	Total crude oil consumption <sup>8</sup> (10,000 tonnes)	159	156	<b>142</b>
	Total natural gas consumption <sup>9</sup> (100 million m <sup>3</sup> )	177	181	<b>179</b>
	Total electricity consumption <sup>10</sup> (100 million kWh)	564	623	<b>646</b>
	Energy saved (10,000 tonnes of standard coal)	71	83	<b>74</b>
	Comprehensive energy consumption per unit of oil and gas equivalent production (kg of standard coal/tonne)	109	106	<b>101</b>
	Energy consumption per unit energy factor (kg of standard oil/ [tonne · energy factor])	7.89	7.77	<b>7.77</b>
	Comprehensive energy consumption per unit product of ethylene <sup>11</sup> (kg of standard oil/tonne)	604	595	<b>574</b>

【 6-10 】 Total energy consumption is calculated by converting the actual physical energy consumed in the production and daily operations of the enterprise according to the calculation methods and conversion factors stipulated in the PetroChina's Corporate Standards (Q/SY09061-2023), using the following formula: total energy consumption (tonnes of standard coal) =  $\sum$  actual physical energy consumed in the production process of the enterprise  $\times$  conversion factor. For example, the conversion factors are 0.7143 tonnes of standard coal per tonne for raw coal, 1.4286 tonnes of standard coal per tonne for crude oil, 13.3 tonnes of standard coal per 10,000 cubic metres for natural gas, and 1.229 tonnes of standard coal/10,000 kWh for electricity. The total energy consumption is calculated by multiplying the actual physical energy consumption of the enterprise by the conversion factors.

【 11 】 Starting from 2025, we have renamed the "Unit Ethylene Energy Consumption" indicator to "Comprehensive Energy Consumption per Unit Product of Ethylene," in the "Norm of Energy Consumption per Unit Product for Petroleum Refining" (GB 30251-2024), with consistent calculation methods for both.

Category	Indicators	2022	2023	2024
Environment	<b>Pollutant Management and Control<sup>12</sup></b>			
	Amount of general solid waste <sup>13</sup> (10,000 tonnes)	248.5	355.5	<b>246.8</b>
	Amount of hazardous waste <sup>14</sup> (10,000 tonnes)	94.3	130.0	<b>125.7</b>
	Compliant disposal rate of general solid waste (%)	100	100	<b>100</b>
	Compliant disposal rate of hazardous waste (%)	100	100	<b>100</b>
	Chemical oxygen demand (COD) emissions <sup>15</sup> (10,000 tonnes)	0.50	0.49	<b>0.42</b>
	Nitrogen oxides (NOx) emissions <sup>16</sup> (10,000 tonnes)	5.01	4.85	<b>4.48</b>
	Volatile organic compounds (VOCs) emissions (from refining operations) <sup>17</sup> (10,000 tonnes)	6.82	6.39	<b>5.82</b>
	<b>Environmental Protection</b>			
	Environmental protection expenditures (RMB 100 million)	38.9	31.4	<b>29.9</b>
Employee	Number of subsidiaries certified by the Environmental Management System (ISO14001)	105	117	<b>114</b>
	Number of employees <sup>18</sup> (10,000)	39.84	37.58	<b>37.08</b>
	<b>Employee Diversity</b>			
	Percentage of female managers <sup>19</sup> (%)	7.17	7.17	<b>7.22</b>
	Percentage of ethnic minority employees (%)	6.70	6.82	<b>6.81</b>
	Percentage of foreign employees in overseas projects (%)	96.69	96.71	<b>96.89</b>
	By employment type			
	- Full-time employees (%)	100	100	<b>100</b>
	- Part-time employees (%)	0	0	<b>0</b>

【 12 】 As a result of continuous upgrades to exhaust gas pollution control measures in recent years, sulphur dioxide emissions have been significantly reduced and are no longer a primary pollutant subject to the Company's total emission control. Therefore, information related to this indicator will no longer be disclosed in this Report.

【 13-14 】 The amount of solid waste disposed of by third-party organisations with relevant qualifications, as commissioned by the Company.

【 15-17 】 The Company has been implementing national requirements to win the strategic fight against pollution. We have vigorously upgraded our wastewater treatment standards, implemented ultra-low emission modifications for exhaust gases, applied clean production methods, alternative cleaner fuels, and carried out other engineering and structural projects to reduce emissions, resulting in a significant decrease in pollutant emissions. At the same time, in accordance with the results of the Second National Census on Pollution Sources and the specific pollutant emissions accounting standards outlined in the Technical Specifications for the Application and Issuance of Pollutant Permits for industries related to the Company's operations, the Company has adopted the preferred accounting method using online monitoring pollution statistics. The exhaust emission statistics include flaring emissions.

【 18 】 Excluding various types of outsourced, temporary, and seasonal workers.

【 19 】 Female managers include mid and senior-level female managers in the Company.

Category	Indicators	2022	2023	2024
Employee	By gender			
	- Male employees (%)	75.46	76.90	<b>78.20</b>
	- Female employees (%)	24.54	23.10	<b>21.80</b>
	By age			
	- 25 years old and below (%)	1.99	2.31	<b>2.69</b>
	- 26-35 years old (%)	10.32	9.62	<b>8.97</b>
	- 36-45 years old (%)	23.88	23.50	<b>23.08</b>
	- 46-55 years old (%)	50.89	51.63	<b>50.65</b>
	- 56 years old and above (%)	12.92	12.94	<b>14.61</b>
	By position			
	- Administrative staff (%)	29.06	29.09	<b>29.12</b>
	- Professional and technical staff (%)	15.41	16.37	<b>17.11</b>
	- Operating staff (%)	55.53	54.54	<b>53.77</b>
	By education			
	- Master's degree and above (%)	4.99	5.50	<b>6.11</b>
	- Bachelor's degree (%)	37.39	39.05	<b>40.10</b>
	- College degree (%)	22.31	22.00	<b>21.64</b>
	- Technical secondary school and below (%)	35.31	33.45	<b>32.15</b>
	By country and region			
	- China (%)	99.7	99.6	<b>99.6</b>
	- Other (%)	0.3	0.4	<b>0.4</b>
<b>Employee Health</b>				
Number of subsidiaries certified by the Occupational Health and Safety Management System (ISO45001)	107	120	<b>112</b>	
Creation of occupational health records for employees (%)	100.00	100.00	<b>100.00</b>	
Detection rate of occupational health hazards in the workplace (%)	100.00	100.00	<b>100.00</b>	
Employees exposed to occupational health hazards receiving health checks (%)	99.15	99.66	<b>100.00</b>	

Category	Indicators	2022	2023	2024
Employee	<b>Employee Training</b>			
	Average training time per person <sup>20</sup> (hour)	37.9	59.0	<b>68.4</b>
	- Average training time per administrative staff (hour)	37.5	63.2	<b>67.0</b>
	- Average training time per professional and technical staff (hour)	11.2	23.1	<b>77.2</b>
	- Average training time per operating staff (hour)	45.5	67.8	<b>67.1</b>
	- Average training time per male employee (hour)	38.9	63.5	<b>74.3</b>
	- Average training time per female employee (hour)	34.8	44.7	<b>54.7</b>
	Training rate of employees (%)	100	100	<b>100</b>
	- Training rate of administrative staff (%)	100	100	<b>100</b>
	- Training rate of professional and technical staff (%)	100	100	<b>100</b>
Staff Turnover Rate	- Training rate of operating staff (%)	100	100	<b>100</b>
	- Training rate of male employees (%)	100	100	<b>100</b>
	- Training rate of female employees (%)	100	100	<b>100</b>
	<b>Staff Turnover Rate</b>			
	Staff turnover rate (%)	0.14	0.15	<b>0.10</b>
	- Turnover rate of male employees (%)	0.14	0.14	<b>0.09</b>
	- Turnover rate of female employees (%)	0.16	0.16	<b>0.14</b>
	- Turnover rate of employees aged 25 and below (%)	1.34	1.77	<b>0.68</b>
	- Turnover rate of employees aged 26-35 (%)	0.49	0.49	<b>0.33</b>
	- Turnover rate of employees aged 36-45 (%)	0.15	0.18	<b>0.13</b>
Employees who returned to work and retained their positions after maternity/paternity leave (%)	- Turnover rate of employees aged 46-55 (%)	0.05	0.03	<b>0.03</b>
	- Turnover rate of employees aged 56 and above (%)	0.06	0.03	<b>0.03</b>
Employees who returned to work and retained their positions after maternity/paternity leave (%)	Employees who returned to work and retained their positions after maternity/paternity leave (%)	100	100	<b>100</b>

【 20 】 Average training time per person = Total training time/Total number of employees.

Category	Indicators	2022	2023	2024
<b>Society</b>				
<b>Tax Payment in Accordance with the Law</b>				
Taxes and fees (RMB 100 million)		4,618	4,639	4,416
- Overseas taxes (RMB 100 million)		574	518	495
<b>Supply Chain</b>				
Number of material suppliers <sup>21</sup>		21,890	22,845	22,327
Tier 1 manufacturers certified by the Quality Management System (ISO9001) <sup>22</sup> (%)		98.03	98.44	98.71
Tier 1 manufacturers certified by the Environmental Management System (ISO14001) <sup>23</sup> (%)		94.14	94.98	95.68
Tier 1 manufacturers certified by the Occupational Health and Safety Management System (ISO45001) <sup>24</sup> (%)		93.14	94.13	94.95
Procurement expenditures (RMB 100 million)		2,015	2,103	1,930
<b>Products and Services</b>				
Pass rate of third-party certification of quality management system (%)		100	100	100
Number of subsidiaries certified by the Quality Management System (ISO9001)		296	296	347
Number of customer complaints		2,075	678	361
Customers complaint response rate (%)		100	100	100
Products recalled for safety and health reasons (%)		0	0	0
<b>Public Welfare</b>				
Total investments to public welfare (RMB 10,000)		58,272	54,444	56,671
- Rural revitalization (RMB 10,000)		30,274	26,881	24,465
- Educational donations (RMB 10,000)		4,530	6,216	7,291
- Donations to disaster relief (RMB 10,000)		5,133	4,723	1,429
- Environmental protection (RMB 10,000)		781	349	4,836
- Other <sup>25</sup> (RMB 10,000)		17,554	16,275	18,650

[ 21-24 ] Excluding data from suppliers involved in our international business.

[ 25 ] Including public welfare investments such as medical and healthcare, culture and sports, construction of public welfare facilities, donations to support people with disabilities, other public welfare relief, and donations to public welfare causes.

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

## Independent Practitioner's Limited Assurance Report

毕马威华振通字第 2500106 号

To the Board of Directors of PetroChina Company Limited :

**Report on selected information in PetroChina Company Limited's Environmental Social and Governance Report as of and for the year ended 31 December 2024**

### **Conclusion**

We have performed a limited assurance engagement on the following information in PetroChina Company Limited ("the Company")'s Environmental, Social and Governance ("ESG") Report as of and for the year ended 31 December 2024 (hereafter referred to as "the assured sustainability information"):

The Assured Information	The Point in Time or Period of Time
Fatality rate (persons/100 million working hours)	For the period from January 1, 2024 to December 31, 2024
Total accident rate (incidents/million working hours)	For the period from January 1, 2024 to December 31, 2024
Work-related fatalities (persons)	For the period from January 1, 2024 to December 31, 2024
Percentage of employees exposed to occupational health hazards receiving health checks (%)	For the period from January 1, 2024 to December 31, 2024
Total GHG emissions (Scope 1 and Scope 2) (million tCO <sub>2</sub> e)	For the period from January 1, 2024 to December 31, 2024
Direct GHG emissions (Scope 1) (million tCO <sub>2</sub> e)	For the period from January 1, 2024 to December 31, 2024
Indirect GHG emissions (Scope 2) (million tCO <sub>2</sub> e)	For the period from January 1, 2024 to December 31, 2024
Chemical oxygen demand (COD) emissions (10,000 tons)	For the period from January 1, 2024 to December 31, 2024
Nitrogen oxides (NOx) emissions (10,000 tons)	For the period from January 1, 2024 to December 31, 2024
Total energy consumption (10,000 tons of standard coal)	For the period from January 1, 2024 to December 31, 2024
Energy saved (10,000 tons of standard coal)	For the period from January 1, 2024 to December 31, 2024
Freshwater consumption (10,000 m <sup>3</sup> )	For the period from January 1, 2024 to December 31, 2024
Water saved (10,000 m <sup>3</sup> )	For the period from January 1, 2024 to December 31, 2024
Number of employees (10,000)	As of December 31, 2024
Percentage of female administrative staff (%)	As of December 31, 2024
Percentage of female employees (%)	As of December 31, 2024

## Independent Practitioner's Limited Assurance Report

毕马威华振通字第 2500106 号

### Conclusion (Continued)

Based on the procedures performed and evidence obtained, nothing has come to our attention to cause us to believe that the Company's assured sustainability information as of and for the year ended 31 December 2024 is not prepared, in all material respects, in accordance with the Criteria set out in the appendix to this report.

Our conclusion on the assured sustainability information does not extend to any other information that accompanies or contains the assured sustainability information and our assurance report.(hereafter referred to as "other information"). We have not performed any procedures as part of this engagement with respect to the other information.

### Basis for conclusion

We conducted our engagement in accordance with International Standard on Assurance Engagements (ISAE) 3000 (Revised), Assurance Engagements Other Than Audits or Reviews of Historical Financial Information issued by the International Auditing and Assurance Standards Board (IAASB). Our responsibilities under those standards are further described in the "Our responsibilities" section of our report.

We have complied with the independence and other ethical requirements of the International Code of Ethics for Professional Accountants (including International Independence Standards) issued by the International Ethics Standards Board for Accountants (IESBA), 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 (ISQM) 1, Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements, issued by the IAASB. This standard 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.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

### Other matter

Another professional firm has performed a review engagement, providing limited assurance, on the subject information as of December 31, 2023, and for the year ended December 31, 2023, and reached a conclusion of limited assurance on such information in the review report issued on March 25, 2024. Our conclusion is not modified in respect of the above matters.

### Restriction on use

This report is made solely to you, and for no other purpose. We do not assume responsibility towards or accept liability to any other person for the contents of this report. Our conclusion is not modified in respect of this matter.

### Responsibilities for the Board of Directors

The directors of the Company are responsible for:

- Designing, implementing and maintaining internal control relevant to the preparation of the assured sustainability information that is free from material misstatement, whether due to fraud or error;
- Selecting or developing suitable criteria for preparing the assured sustainability information and appropriately referring to or describing the criteria used; and
- Preparing the assured sustainability information in accordance with the Criteria.

## Independent Practitioner's Limited Assurance Report

毕马威华振通字第 2500106 号

### Inherent limitations

We remind users that there is no recognized evaluation and measurement standard system for non-financial data, so there are inconsistent measurement methods, which may affect the comparability of data between companies.

### Our responsibilities

We are responsible for:

- Planning and performing the engagement to obtain limited assurance about whether the assured sustainability information is free from material misstatement, whether due to fraud or error;
- Forming an independent conclusion, based on the procedures we have performed and the evidence we have obtained; and
- Reporting our conclusion to the Board of Directors of the Company.

Summary of the work we performed as the basis for our conclusion.

We exercised professional judgment and maintained professional skepticism throughout the engagement. We designed and performed our procedures to obtain evidence about the assured sustainability information that is sufficient and appropriate to provide a basis for our conclusion. Our procedures selected depended on our understanding of the assured sustainability information and other engagement circumstances, and our consideration of areas where material misstatements are likely to arise. In carrying out our engagement, we:

- Interview the employees of relevant departments of your company who participated in providing sustainability information for authentication;
- Implement analysis procedures for the sustainability information verified;
- Conduct sampling inspection on the sustainability information verified;
- Recalculate the sustainability information verified;
- Other procedures we deem necessary

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.

The Independent Practitioner's Limited Assurance Report is written in Chinese without an official English version. Therefore, the English translation above is for reference only. In case of inconsistency, the Chinese version shall prevail.

KPMG Huazhen LLP

Beijing China

03/28/2025

## Criteria

### 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 2024.

### 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 2024.

### 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 2024.

### Percentage of employees exposed to occupational health hazards receiving health checks (%):

Percentage of 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 2024.

### Total GHG emissions (Scope 1 and Scope 2) (million tCO<sub>2</sub>e):

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 2024.

### Direct GHG emissions (Scope 1) (million tCO<sub>2</sub>e):

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 2024.

### Indirect GHG emissions (Scope 2) (million tCO<sub>2</sub>e):

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 2024.

### 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 2024.

### Nitrogen oxides (NOx) emissions (10,000 tons):

Nitrogen oxides (NOx) emissions disclosed herein refers to the total amount of NOx emissions discharged during the production process by subsidiaries of PetroChina Company Limited in 2024.

### 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 2024, 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 2024, 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.

### Freshwater consumption (10,000 m<sup>3</sup>):

Freshwater consumption disclosed herein refers to the amount of water used for the first time by subsidiaries of PetroChina Company Limited in 2024, 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 m<sup>3</sup>):

Water saved disclosed herein refers to the sum of the amount of fresh water saved by subsidiaries of PetroChina Company Limited in 2024, 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 2024 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 2024.

### Percentage of female employees (%):

Percentage of female employees disclosed herein refers to the ratio of the number of female employees hired by PetroChina Company Limited in 2024 to the total number of employees.

## GLOBAL COMPACT AND US

The Global Compact is a global initiative launched and advocated by the United Nations, aiming to establish a global framework that promotes sustainable development and enhances social well-being collectively through responsible and innovative corporate leadership. As a member of the UN Global Compact, we are committed to observing and supporting its Ten Principles in the four areas of human rights, labour rights, environmental protection, and anti-corruption, through concrete actions. We will incorporate these Ten Principles into our practices for fulfilling social responsibilities and consistently disclose our progress in adhering to them in our annual report.

	Ten Principles of the Global Compact	Corresponding Sections in this Report
Human Rights	1. Businesses should respect and uphold internationally proclaimed human rights	Social Contribution Employee Rights and Interests and Development
	2. Businesses should not take part in any activities that disregard or abuse human rights	
	3. Businesses should uphold the freedom of association and recognise the right to collective bargaining between employers and employees	
Labour Standards	4. Businesses should eliminate all forms of forced labour	Employee Rights and Interests and Development
	5. Businesses should support the abolition of child labour	
	6. Businesses should eliminate all discriminatory behaviours in relation to employment and occupation	
Environment	7. Businesses should be prepared to confront environmental challenges	Climate Change and Energy Transition Environmental Protection Sustainable Use of Natural Resources
	8. Businesses should take the initiative to fulfil their environmental responsibility	
	9. Businesses should encourage the development and diffusion of environmentally friendly technologies	
Anti-Corruption	10. Businesses should oppose all forms of corruption, including extortion and bribery	Corporate Governance Sustainable Supply Chain

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The UN SDGs	GRI Global Sustainability Standards	IPIECA/API/IOGP Sustainability Reporting Guidance
	2-2, 2-3, 2-4	-
-	2-11, 2-22, 203-1, 203-2, 305-5	GOV-1, CCE-1, ENV-3, SOC-13
-	2-1, 2-6	-
-	2-11, 2-12, 2-13, 2-14, 2-22, 2-23, 2-24	GOV-1
-	302-3, 302-4, 303-3, 305-1, 305-2, 305-4	CCE-4, CCE-5, CCE-6
 	2-9, 2-10, 2-11, 2-12, 2-13, 2-14	GOV-1, GOV-2
-	2-18, 2-19	-
-	3-1, 3-2, 3-3	-
	-	-
	2-16, 2-26, 2-29	SOC-10
	2-9, 2-10, 2-11, 2-12, 2-13, 2-16, 2-17, 2-18, 2-19, 405-1	GOV-1, GOV-2
	2-27	GOV-1, GOV-2
	-	GOV-1, GOV-2
	2-26, 205-2, 205-3, 206-1	GOV-3, SOC-8
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	Environmental Risk Prevention	Chapter 3: Section 33	Part C ("Comply or Explain" Provisions): Aspect A3
	Environmental Governance	Chapter 3: Sections 30-31	Part C ("Comply or Explain" Provisions): Aspect A1
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	Water Conservation	Chapter 3: Section 36	Part C ("Comply or Explain" Provisions): Aspect A2
	Improving Energy Efficiency	Chapter 3: Section 35	Part C ("Comply or Explain" Provisions): Aspect A2
	Clean Energy Substitution in Production	Chapter 3: Section 35	-
	Developing a Circular Economy	Chapter 4: Section 37	-
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	Rural Revitalisation and Social Welfare	Chapter 4: Sections 39-40	Part C ("Comply or Explain" Provisions): Aspect B8
	Overseas Community Development	Chapter 4: Section 38 Chapter 4: Section 40	

## The UN SDGs

## GRI Global Sustainability Standards

IPIECA/API/IOGP  
Sustainability Reporting  
Guidance

	-	CCE-1
	-	-
	-	-
	303-1, 303-2, 303-4, 305-7, 306-1, 306-2, 306-5	ENV-2, ENV-5, ENV-7
	304-3	ENV-3, ENV-4, ENV-8
	-	-
	303-3, 303-5	ENV-1
	302-1, 302-3, 302-4	CCE-6
	-	CCE-6
	410-1, 413-1	SOC-1, SOC-3, SOC-9, SOC-10, SOC-11, SOC-12, SOC-13
	201-1, 203-1, 203-2, 413-1	SHS-2, SOC-9, SOC-13, SOC-15
	203-1, 203-2, 204-1, 207-1, 410-1, 413-1	GOV-4, ENV-8, SHS-1, SHS-2, SOC-1, SOC-3, SOC-4, SOC-5, SOC-7, SOC-9, SOC-10, SOC-11, SOC-12, SOC-13, SOC-14, SOC-15

	Contents	Guideline No. 14 on Self-Regulation for Listed Companies - Sustainability Report (Trial) of the Shanghai Stock Exchange	Environmental, Social and Governance Reporting Code of the Stock Exchange of Hong Kong Limited
Employee Rights and Interests and Development	Employee Rights Protection	Chapter 4: Section 50	Part C ("Comply or Explain" Provisions): Aspects B1, B4
	Health and Safety	Chapter 4: Section 50	Part C ("Comply or Explain" Provisions): Aspect B2
	Promoting Employee Development	Chapter 4: Section 50	Part C ("Comply or Explain" Provisions): Aspect B3
Customer Service	Product Quality and Safety	Chapter 4: Section 47	Part C ("Comply or Explain" Provisions): Aspect B6
	Consumer Rights Protection	Chapter 4: Section 47	Part C ("Comply or Explain" Provisions): Aspect B6
	Data Security and Customer Privacy Protection	Chapter 4: Section 48	Part C ("Comply or Explain" Provisions): Aspect B6
Sustainable Supply Chain	Ensuring Supply Chain Security	Chapter 4: Section 45	Part C ("Comply or Explain" Provisions): Aspect B5
	Supplier Management	Chapter 4: Section 45	Part C ("Comply or Explain" Provisions): Aspect B5
	Equal Treatment of SMEs	Chapter 4: Section 46	
Technological Innovation and Digital Empowerment	Technological Innovation	Chapter 5: Section 42	
	Intellectual Property Protection and Management	Chapter 5: Section 54	Part C ("Comply or Explain" Provisions): Aspect B6
	Digital Empowerment	Chapter 4: Section 42	
Key Performance Data		Chapter 3: Sections 24, 28, 30, 31, 35, 36 Chapter 4: Sections 39, 40, 42, 47, 50	Part C ("Comply or Explain" Provisions): Aspects A1, A2 Part D (Climate-related Disclosures): Section 28
	Independent Practitioner's Limited Assurance Report	Chapter 6: Section 58	Part A (Introduction): Section 9

In accordance with the "Comply or Explain" provisions of the ESG Reporting Code of the HKEX, we provide the following explanations for the non-disclosure of Indicator A2.5 and the partial disclosure of Indicator B1.2:

1. Clause A2.5 is not applicable to the Company's products due to their nature.

2. The proportion of the Company's employees working outside China is minimal. Based on the materiality principle, the employee turnover rate by region is no longer disclosed in this Report.

The UN SDGs	GRI Global Sustainability Standards	IPIECA/API/IOGP Sustainability Reporting Guidance
	401-2, 401-3, 405-1, 408-1, 409-1, 2-7, 2-8	SOC-1, SOC-3, SOC-4, SOC-5, SOC-6, SOC-8, SOC-15
	403-1, 403-3, 403-5, 403-6, 403-7, 403-8, 403-9	SHS-1, SHS-2, SHS-3, SHS-6, SHS-7, SOC-3, SOC-4
	404-1, 404-2	SOC-7
	416-1, 416-2, 417-1	SHS-5, SHS-6
	416-1, 416-2, 417-1	
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	308-1, 414-1	SOC-2
	308-1, 414-1	SOC-2
		CCE-3
	302-1, 302-3, 302-4, 303-3, 303-5, 305-1, 305-2, 305-4, 305-5, 305-7, 306-5	GOV-1, GOV-4, CCE-4, CCE-5, CCE-6, CCE-7, ENV-1, ENV-2, ENV-5, ENV-7
-		
-		

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