



2017

**SUSTAINABILITY REPORT**

ENERGIZE • HARMONIZE • REALIZE

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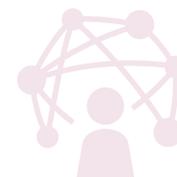
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## ABOUT US

PetroChina Company Limited (hereinafter referred to as “the Company”, “we” or “us”) was established on 5 November, 1999, upon the restructuring of China National Petroleum Corporation (CNPC). PetroChina was listed on the NYSE (ADS code: PTR) and the HKEX (stock code: 857) in April 2000, and on the Shanghai Stock Exchange (stock code: 601857) in November 2007.

PetroChina is one of the major oil and gas producers and distributors in China, ranking among the leading international oil companies. It engages in a wide range of activities related to oil and natural gas and provides sustainable energy for economic and social development. We pursue harmonious relationships between energy, the environment and the society.

Our Mission	Energize, Harmonize, Realize
Our Vision	To be a world first-class international energy company
Business Strategy	* Resources, Markets, Internationalization, Innovation
Guidelines of Development	Steady Development
Our Values	Honesty, Innovation, Safety and Distinction

FORTUNE China Top 500: Ranked 2<sup>nd</sup> in “FORTUNE China Top 500” in 2017

2<sup>nd</sup>

BrandZ TOP 100: Ranked 15<sup>th</sup> in “BrandZ TOP 100 Most Valuable Chinese Brands 2017”

15<sup>th</sup>

Shanghai Stock Exchange “The Information Disclosure Appraisal for Listed Companies 2017”: PetroChina received “A” Rating

A

Second Golden Hong Kong Stock Awards for Listed Companies 2017  
 Named the “**Best Listed Company for Investor Relations Management**” and “**Most Valuable Energy and Resources Company**”

China Securities “Golden Bauhinia Award 2017”  
 PetroChina was named the “**Listed Company with the Best Investor Relations Management**”, and Secretary to the Board of Directors of PetroChina was named the “**Best Board Secretary of the Listed Company**”



## BUSINESS STRUCTURE

### Upstream Business

Exploration, development and production of crude oil and natural gas.



### Oil and Gas Exploration, Development and Production

PetroChina is at the forefront in domestic oil and gas exploration and development. We operate in a number of major oil and gas producing regions such as Daqing, Changqing, Xinjiang, Liaohe, Tarim and Sichuan. In 2017, we produced 743.1 million barrels of crude oil, 3,153 billion cubic feet of saleable natural gas, and 1,268.8 million barrels of oil and gas equivalent domestically.

### Mid-Downstream Business

Refining, transportation, storage and sales of crude oil and oil products, as well as production and marketing of basic, derivative and other chemical products; and transportation and marketing of natural gas.

### Refining and Sales of Crude Oil and Oil Products

We own nine ten-million-ton-level refining bases. In 2017 we processed 1,016.9 million barrels of crude oil and produced 92.715 million tons of refined oil. We are operating more than 20,000 service (gas) stations, covering 31 provinces (municipalities and autonomous regions) and the Hong Kong SAR of China, and undertook the supply of about 37.2% of China's oil products.

### Production, Transportation and Sales of Petrochemical Products

The Company is engaged in producing six categories of chemical products—synthetic resin, synthetic fiber and raw materials of synthetic fiber, synthetic rubber, urea, organic and inorganic compounds with thousands of trademarked products. Our production capabilities of products such as ethylene, synthetic resin and synthetic rubber ranked among the best in China. In 2017, we produced 24 million tons of chemical products and 5.764 million tons of ethylene.

### Transportation of Natural Gas, Crude Oil and Refined Oil, and Distribution of Natural Gas

PetroChina is mainly responsible for transportation and marketing of natural gas, and storage and transportation of crude oil and refined oil. The Company operated nearly 82,374 km of pipelines in China, covering 30 provinces (municipalities and autonomous regions) and the HongKong SAR of China.



### International Business

We are engaged in oil and gas exploration and production in more than 20 countries and have trade relations with more than 80 countries.



### International Business

Currently, we have established five international oil and gas cooperation zones in Central Asia, Middle East, Africa, the Americas and the Asia-Pacific, and three oil and gas operation centers in Asia, Europe and the Americas. The expansion and growth of our international oil and gas cooperation has been substantial in terms of size and scope, with operational quality improving greatly. In 2017, our overseas oil and gas equivalent production reached 189 million barrels.



## MESSAGE FROM THE CHAIRMAN

“ We will better fulfill our economic, environmental and social responsibilities, keep delivering green, low-carbon energy, and make greater contributions to the promotion of social and economic development. ”

Thank you for reading this report and for your continued support of and concern for PetroChina.

As China's largest oil and gas producer and supplier, and an important player in global oil and gas cooperation, PetroChina is devoted to providing sustainable energy support for global economic development and contributing its wisdom to address common human challenges such as climate change.

Over the past year, we maintained our strategic focus, and promoted steady development by consistently adhering to our strategy for resources, markets, internationalization and innovation. We made targeted measures to carry out internal reform and adjust our structure, worked hard to strengthen innovation-driven development and enhance quality and efficiency, and positively responded to market changes. Thanks to these efforts, the Company achieved steady and sound development. In 2017, we reported RMB 2,015.9 billion in turnover, RMB 22.8 billion in net profit, RMB 329.6 billion in taxes, and RMB 23.79 billion in dividends to shareholders. Through healthy and sustainable development, our efforts help to build a much better world.

**We spared no effort to enhance quality and efficiency, to make our development more sustainable.** We made full use of domestic and foreign resources and markets, promoted supply-side structural reform, strived to obtain cost-effective and low-carbon green energy resources, and kept improving our quality and efficiency in the supply of oil and gas products. Through focusing on both the oil value chain and the gas value chain, we maintained peak growth in oil and gas reserves and scored a new high in oil and gas equivalent production. We continuously optimized the refinery layout and structure, and improved our refined oil sales network. Several strategic pipelines including the Second Russia-China Crude Pipeline were completed and put into operation. This year also witnessed renewed double-digit growth in natural gas sales volume, a steady rise in international trade, and further enhanced competitiveness throughout the industrial chain of the Company. We accelerated the development of our natural gas business, with the production of shale gas and coal-bed methane increasing by 6.1% and 6.8% respectively year-on-year. PetroChina provided more clean energy to the country as the share of natural gas output in PetroChina's domestic oil and gas production (in equivalent terms) increased by 8.7% compared to 2011.

**We are devoted to deepening international cooperation and serving the global oil and gas market.** We held the Belt and Road Roundtable for Oil & Gas Cooperation to discuss a broad range of topics with our partners, including how to jointly respond to major changes

in the energy industry and how to build a community of shared interests in oil and gas cooperation featuring openness and mutual benefits. At the roundtable, I proposed the initiative of “building a community of shared interests in oil and gas cooperation and an important fulcrum of the Belt and Road Initiative”, which was widely recognized by our domestic and foreign counterparts. At the Belt and Road Forum for International Cooperation, the World Petroleum Congress, the BRICS Summit and on some other occasions, PetroChina also sent the same message: to work hand-in-hand with our counterparts in the petroleum industry worldwide to build a glorious future for global energy. In 2017, we also made achievements in international cooperation. We completed the delivery of some projects including onshore oilfields in Abu Dhabi, significantly enhancing our ability to allocate resources globally.

**We worked hard to strengthen reform and innovation to build twin engines to drive development.**

In order to improve the modern enterprise system and promote a corporate governance structure and capacity-control of modern, international standards, we promoted the separation of pipeline marketing from gas marketing, and deepened reform in our overseas oil and gas business system and mechanism, and labor and HR allocation system. As a result, we effectively stimulated the vitality of the Company. We gave a leading role to scientific and technological innovation, and intensified our efforts in technical research in the stable production growth of oilfields, and exploration and development of deep and unconventional resources, and the upgrading of refining and chemical products. Therefore, a great number of advanced technologies with independent intellectual property rights were developed, and we won four Second-class National Science and Technology Progress Awards and one Second-class National Technical Invention Award.

**We strengthened legal compliance to promote safe, green and harmonious development.**

We comprehensively promoted corporate governance according to the law, strengthened Company-wide legal education and compliance training, improved rules and systems, and ensured business integrity. Bearing in mind that “we should never seek development at the expense of safety”, we deepened the HSE system audit, intensified the identification and rectification of major hazards, and avoided major or worse HSE accidents. As “Clear Waters and Lush Mountains are Invaluable Assets”, we formulated the *Roadmap for Low-carbon Development*, *Ecological Protection Program*, and the *Plan for the Upgrading of Pollutant Discharge Standards*. We phased out coal-fired boilers and used no coal in oil and gas fields and refining enterprises in the Beijing-Tianjin-Hebei region. We completed the quality upgrading of refined oil to the national VI standard in “2+26” cities in Beijing-Tianjin-Hebei on schedule, and fully promoted oil and gas recycling in gas stations and VOCs treatment in refining and chemical enterprises. As a result, our emissions of nitrogen oxides dropped by 9.6% last year, making a positive contribution to the building of

a beautiful China. We actively participated in various actions of the Oil and Gas Climate Initiative (OGCI), established the low-emission roadmap for 2040, surveyed methane emissions in the oil and gas industry, and actively addressed climate change.

**We contributed to people’s livelihood and fulfilled our responsibility as an excellent corporate citizen.**

We remained committed to a people-first philosophy in treating our employees with respect and equality while protecting their legal rights. We created platforms for their development, and ensured value is aligned to benefit both employees and the Company. It is our ultimate goal to promote socio-economic development. To this end, we broadened joint ventures and cooperation, gave donations to impoverished students, and provided community services. These efforts were fully recognized by the public and the community. We took additional targeted measures in poverty alleviation. To improve the local capacity for self-development, we carried out 45 poverty-alleviation projects in fields such as infrastructure reform, education and training, health care and industrial cooperation in seven Chinese provinces or cities including Xinjiang, Tibet, Qinghai and Henan.

Looking forward, China will play a more important role in the world economy, and will remain an important engine for global economic growth. Its demand for energy, especially for oil and gas, will continue to grow steadily. China has proposed a number of initiatives, including the building of a modern economic system and a clean, low-carbon, safe and efficient energy system. These initiatives promote China’s high-quality economic development, and push energy enterprises to take a solid step forward in their transition and development.

While putting forward new requirements for the transition and development of energy enterprises, this also provides us with a much broader space for accelerating energy transition and sustainable development. With an innovative, harmonized, green, open and mutual development concept, we will remain committed to the underlying principle of making progress while keeping performance stable, the policy of steady development, to build a world-class integrated international energy company. We will make every effort to promote transition and upgrading, continuously deepen reform, and work hard for better quality, higher efficiency, and more robust drivers through reform, to strive towards steady development. We will better fulfill our economic, environmental and social responsibilities, keep delivering green, low-carbon energy, and make greater contributions to the promotion of social and economic development.

Wang Yilin

Chairman of the Board



## INTERVIEW WITH THE PRESIDENT

“ We will continue to deepen our cooperation with relevant parties, to contribute towards promoting energy transition and improving the ecological environment. ”

### Entering a new starting point in the new era, how does PetroChina achieve steady development and strategic objectives?

First, we are committed to the realization of the Two Centenary Goals and strive to formulate a more scientific and sound strategic plan. Second, through the establishment of a modern economic system and industrial system, we are working to improve PetroChina. Third, focusing on deepening supply-side structural reform and state-owned enterprise reform, we are working to build a more efficient PetroChina. Fourth, following the concept of building an innovative nation and an innovative enterprise, we are working to build a more dynamic PetroChina. Fifth, by implementing the people-oriented development concept, we work to shape a more harmonious and beautiful PetroChina.

### How did PetroChina manage to achieve a better operating performance than expected in the general context of low global oil prices?

In response to the challenges from the macroeconomic environment at home and abroad and the impact of low oil prices, we maintained our strategic focus in a manner highly responsible to our investors, and intensified our efforts in resources and markets. While strictly controlling capital expenditure, we further consolidated our resources base, with the proportion of investment in oil and gas exploration and production reaching 75%. Leveraging China's implementation of the Belt and Road Initiative, we constantly strengthened our foundation for overseas cooperation and by working hard to address our areas of weakness in marketing, we developed new terminal networks for oil and gas marketing, and further enhanced our ability to respond to the market and to create benefits. We adhered to a market-oriented and efficiency-centered approach and improved the balance among upstream, mid-stream and downstream operations and give top priority to effective oil stimulation and accelerated gas stimulation and capacity building. We took the initiative to allocate processing resources to profitable refining and chemical enterprises, reduce the diesel-gasoline ratio, and optimize the allocation of domestic gas and imported gas. As a result, our overall profitability was maximized. We also controlled costs and reduced expenses on all fronts, cutting our major production costs. Great emphasis was placed on safety, environmental protection and anti-terrorism, and our domestic and international business environment was stable and orderly. We made great efforts to promote management, technology and system innovation, adjusted and rationalized the operating mechanism, improved the assessment policy for expanding marketing and increasing efficiency, stepped up performance-based incentives, deepened and expanded the pilot

scheme for the operational autonomy to enterprises and reformed the natural gas sales management mechanism. By doing so, we effectively mobilized the initiative of all sides to increase reserves, expand sales and enhance efficiency.

 **The Chinese government promulgated the *Opinions on Deepening the Reform of the Oil and Gas System*. How will this impact on the Company?**

The *Opinions on Deepening the Reform of the Oil and Gas System* ("Opinions") has provided a roadmap for reform in terms of oil and gas exploration and exploitation, pipe network operation, and the reform of state-owned oil and gas enterprises. It can therefore help improve the regulation of China's oil and gas market, promote technological innovation in oil and gas production, and ensure China's energy security and stable supply. After the promulgation of the Opinions, we organized our staff to study it, implemented relevant programs and measures, and actively promoted the reform of the oil and gas system. First, based on in-depth analysis and research, we will pertinently develop and implement programs and initiatives for the system reform of oil and gas exploration and exploitation, oil and gas import and export management, oil and gas pipe network operation, oil and gas product processing, product pricing, and deepening the reform of state-owned oil and gas enterprises. Second, we will closely follow, analyze and study key tasks for oil and gas system reform. Third, we will take the initiative to strengthen exchanges and communication with relevant ministries and commissions, propose comments and suggestions on the documents in support of the Opinions, and reflect the reasonable demand of the Company.

 **Since the introduction of the Belt and Road Initiative, PetroChina has been working hard to deepen oil and gas cooperation and promote connectivity by following the principle of achieving shared growth through discussion and collaboration. What progress has been made in this respect?**

At present, PetroChina is implementing dozens of oil and gas projects in partnership with more than 10 countries along the Belt and Road, promoting oil and gas supply and economic and social development in the relevant countries. At the same time, through actively promoting infrastructure construction, we have gradually established four major oil and gas transportation routes in the northwest, northeast, southwest and east, and initially put in place an oil and gas supply and marketing network connecting China and other countries, and benefiting many countries.

During oil and gas cooperation under the Belt and Road Initiative, PetroChina fully considers the reasonable concerns of the

government of the host country, partners and local communities, and endeavors to build a community of shared future for all. In Kazakhstan, AktobeMunaiGas, a company controlled by PetroChina, has contributed 70% of the local tax revenue and provided more than 30,000 local jobs.

PetroChina also actively fulfills its social responsibilities by promoting employment, participating in public welfare, improving people's livelihood and strengthening environmental protection to foster the bond with local communities, which has directly benefited more than 2 million people. In Indonesia, PetroChina provided economic development programs to local people in the surrounding communities, and assisted farmers in coffee plantation and processing and aquaculture. In 2017, we invested USD 1.44 million to support community service projects. In Iraq, we provide assistance in public welfare to local residents, and supervise the implementation of such welfare projects.

 **What progress has PetroChina made in unconventional energy and new energy? And what's your plan for the future?**

In terms of unconventional energy, we strive for the basic strategy of further development of tight gas, outstanding development of shale gas, and steady development of coalbed methane, in order to promote our unconventional business in an active and orderly manner. In terms of new energy, we plan to "actively explore the development of associated resources in petroliferous basins such as terrestrial heat and natural gas hydrates", and work hard to ensure strategic layout and technical reserves. At present, we have carried out research in new energy sources, such as terrestrial heat and natural gas hydrates. At the same time, we develop new energy such as hydrogen energy and biomass energy, as well as new business such as distributed energy and electricity distribution and marketing. In the future, we will continue to deepen our cooperation with relevant parties, to contribute towards promoting energy transition and improving the ecological environment.



**Wang Dongjin**

Vice Chairman of the Board and President



# INTEGRITY AND COMPLIANCE-BASED CORPORATE GOVERNANCE

Integrity and compliance are the foundation of an enterprise's sustainable development. At PetroChina, we always advocate the rule of law, which calls for the supremacy of the law, responsibility commensurate with authority, procedural compliance, honesty and trustworthiness, and justice and impartiality. We regularize our corporate and employee behavior through compliance management. We are guided by the rule of law and improve our capability of corporate management by the law. We strive to achieve, mainly through institutional constraints, the modernization and internationalization of the corporate governance system and control system. We will make unremitting efforts to explore strengthening the scientific nature and operability of our corporate governance and we will optimize the long-term mechanism for operating the company in compliance with all legal requirements.

## SDGs

**8** Decent work and economic growth



Promote inclusive and sustainable economic growth, employment and decent work for all

**10** Reduced inequalities



Reduce inequality within and among countries

**12** Responsible consumption and production



Ensure sustainable consumption and production patterns

**16** Peace, justice and strong institutions



Promote just, peaceful and inclusive societies

**17** Partnerships for the goals



Revitalize the global partnership for sustainable development



### Promoting modern management through corporate governance according to the law

- Improving the corporate governance system and management systems and mechanisms through system building, in order to put in place a systematic, scientific and effective organization.
- Promoting scientific and standardized corporate management through standardized quality and metering measurement, and fully improving the quality of products, projects and services.
- Giving full play to the role of applying information technology in management innovation and business model innovation, enhancing operational efficiency, and thereby promoting modern management.



### SUSTAINING STEADY DEVELOPMENT

We develop and implement an innovative, harmonized, green, open and mutual development concept, adhering to the policy of steady and sound development. We also give top priority to capacity building in core businesses, reform and innovation, safety and environmental protection, and image reshaping. We make unremitting efforts to adjust our structure, strengthen weak areas, increase efficiency, and take integrated measures to guard against risks. Thanks to all these efforts, the Company has maintained promising stable operating results, kept various risks under control, reinforced a stable and harmonious environment for development, and steadily improved its corporate image.

The top management pays attention to major issues in the Company's development through careful planning. It engages in in-depth investigations and research, and widely absorbs suggestions from all the related parties. In doing so, it establishes the strategic goal of building a world-class international energy company, and sets out the growth strategy of resources, market, internationalization and innovation. In addition, the Company has set up a committee tasked with compiling the sustainable growth report. This committee is made up of the main persons in charge of relevant departments, and matters concerning sustainable development are verified and externally disclosed by it.

**24.7%**

In 2017, we generated RMB 2,015.9 billion in turnover, a year-on-year increase of 24.7%

**190.2%**

RMB 22.8 billion in net profit, a year-on-year increase of 190.2%

**3.9%**

RMB 329.6 billion in tax revenue, a year-on-year increase of 3.9%



Focusing on growth quality and efficiency, the Company emphasizes sustainable development, and includes environmental and safety performance in the assessment of the persons-in-charge, meanwhile linking it with the employees' total compensation. An assessment of enterprises, entities and individuals that are advanced in terms of production safety are carried out annually. The advanced enterprises and individuals are commended and receive an award. In 2017, we rigorously conducted performance assessments followed by reward and punishment, and set clear assessment indicators. For subsidiaries with HSE accidents and quality measurement problems, we punished them by deducting performance assessment scores.

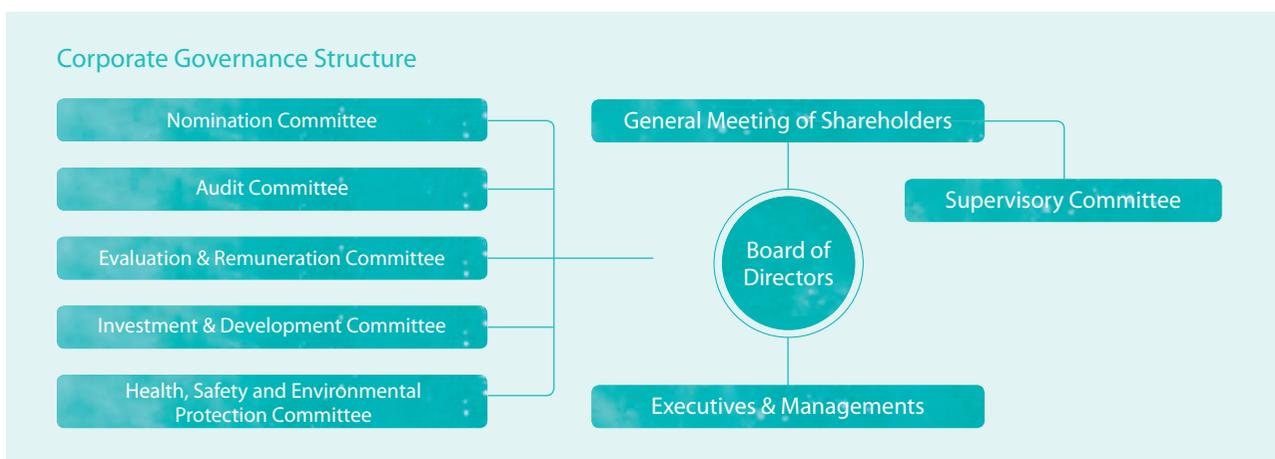
In 2017, we maintained a smooth and steady production and operation. We achieved steady year-on-year growth in our domestic crude oil and gas production, crude oil processing, sales of refined oil and natural gas, and international trade volume. Our reforms were carried out in a stable and accurate manner. New breakthroughs and progress were made in improving our corporate governance structure, regulating the operation of the board of directors, and promoting professional restructuring and the reform of mixed ownership. We deepened the pilot reform to provide enterprises with greater business autonomy.



## IMPROVING GOVERNANCE FRAMEWORK

Ever since its establishment, PetroChina has used a corporate governance framework in compliance with regulatory requirements and international rules, clearly outlining the authority and responsibilities of the annual general meetings of shareholders, of the board of directors and its expert committees, of the supervisory committee, and of management answerable to the president. Such management structures provide checks and balances to one another, cooperate closely and are highly effective. The Company's internal management and operations are further standardized and the management level keeps improving.

PetroChina keeps on optimizing the legal final decision-making mechanism, strengthening the evaluation for decision making, and maintaining a system that tracks the responsibility for decisions made and holds decision-makers accountable for life. The Company keeps improving the supervision and restriction mechanism for the exercising of power, and following the principle that responsibility is commensurate with authority, it clearly delineates the limits of each authority at different managerial levels with detailed requirements on their authority and responsibility. Moreover, by planning as a whole, all resources for internal supervision such as legal affairs, internal control, auditing and supervision and inspection, PetroChina reinforces self-supervision, by dedicated departments, and supervision between superior and subordinate departments, and accepts public supervision, in order to achieve well-grounded decision making, appropriate authorization, controlled exercise of power, and accountability for abuses of power.





Environmentally friendly construction is conducted in the C section of the Central Asia-China Gas Pipeline to protect local ecological environment



On October 26, 2017, the *Proposal on Revision of Articles of Association and Related Rules of Procedure of PetroChina* was adopted at the first extraordinary general meeting. The revised *Articles of Association* further defines the legal status of the Party organization in the governance structure of the listed company, and incorporates Party leadership into all aspects of corporate governance. This will enable the Party organization to play a more organized, institutionalized and specific role in the listed company, achieving a major breakthrough in the governance structure of modern enterprises with Chinese characteristics and winning the recognition of investors home and abroad.

## Shareholders and Annual General Meeting

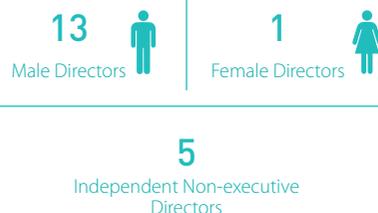
The general meeting of shareholders is the top authority in the Company and it exercises its functions and powers in accordance with the law. PetroChina's general shareholders meetings are held annually and the Company ensures that all shareholders enjoy equal privileges to exercise their rights. In order to ensure fairness, as the controlling shareholder of PetroChina, CNPC will abstain from voting when a connected transaction is presented to the general meeting for consideration.

## Directors, Board of Directors and Affiliated Board Committees

The directors are elected by the general meeting of shareholders, and they are accountable to the general meeting. Under the board are several committees: the Nomination Committee, the Audit Committee, Evaluation & Remuneration Committee, Investment & Development Committee, the Health, Safety and Environmental Protection (HSE) Committee, all of which advise the board on its decisions. We never cease formulating, improving and effectively implementing the work systems and work procedures of the Board of Directors and affiliated board committees. We have formulated the *Board Diversity Policy*, so that members of the board are considered based on the actual situation of the Company, its own operational model and the specific work requirements, while taking into account the candidate's age, educational background and professional experience. In 2017, the Company promoted the diversification of board of directors. Among the newly elected Board members, there are five independent non-executive directors (including one female director). These independent directors are experts and talents from different countries and technical backgrounds, including energy policy, finance and accounting, law, finance, international investment and financing management.

In 2017, the Company organized on-site investigations and research by independent directors. We informed independent directors of important production and operational decisions in a timely and regular manner, and put their recommendations into practice, achieving a positive result for the Company.

### Board Diversity



In 2017, we further supplemented and improved the basic systems of corporate governance. In the *Rules of Procedure of the Board of Directors*, the main duties, regular meetings and working systems of the Nomination Committee were specified. In addition, the *Rules of Procedure of the Nomination Committee* was formulated, and was implemented after being approved by the Board of Directors.

## Supervisors and Supervisory Committee

The Supervisory Committee is accountable to the Shareholders Meeting. In accordance with the *Company Law of the People's Republic of China* and the *Articles of Association*, the Supervisors present at the Supervisory Committee meetings attend Board Meetings as observers, report back to the Shareholders Meeting and submit the Supervisory Committee reports and related matters. The Supervisory Committee formulated the *Organization and Rules of Procedures for the Supervisory Committee* and the *Regulations on Supervisors' Performance of Duties*, laying down the methods and contents of performing the duties of the Company's Supervisors, and the requirements and evaluation criteria for performing such duties. All Supervisors are urged to supervise the Company's finances and monitor the legality and compliance of the manner in which directors and senior management of the Company perform their duties, in line with their responsibility to all shareholders. By the end of 2017, the Company's Supervisory Committee had nine members, four of which were employees of the Company.

## Executive Body

The Company's executive management body consists of a Vice President and a CFO presided over by the President. They are appointed by and accountable to the Board of Directors. They carry out the Board's resolutions and organize the day-to-day production and business operations of the Company in accordance with the *Company Law of the People's Republic of China* and the *Articles of Association* and as authorized by the Board of Directors. The Company is mainly engaged in exploration and development, refining and chemicals, oil and gas marketing, pipeline transportation, and international trade, which are run by PetroChina Exploration & Production Company, PetroChina Refining & Chemicals Company, PetroChina Marketing Company, PetroChina Natural Gas & Pipeline Company, PetroChina Pipeline Company, and PetroChina International Co., Ltd. (International Trade Branch) respectively.

## OPTIMIZING MANAGEMENT SYSTEM

The Company stresses intensification, specialization and integration and has established a management system where responsibility is commensurate with authority, and it is scientifically sound, lean, efficient, and vibrant, to strengthen the restrictions on and the supervision of the exercise of power. The Company aims to have clear control objectives, effective integration of resources and optimal efficiency and effectiveness, to improve corporate social responsibility performance and achieve sustainable growth. We actively boosted the integration and innovation of the management system, and promoted pilot programs for system construction and integration. We consolidated management systems on quality, HSE, measurement, energy, internal control, legal risk prevention and control with other management documents, to promote management system reform and optimize resource configuration.

### Compliance Management System

The Company regards legal compliance as a basic requirement for boosting reform and achieving sustainable development. We adhere to the concept of putting legal compliance above economic interests, and we constantly strengthen compliance management requirements. Our headquarters and regional enterprises strengthen the compliance demonstration and review of major issues and major decisions, particularly the reform initiatives, to ensure management and operation is in compliance with rules and regulations according to the law. We strictly implement national laws and regulations and government regulatory requirements, and we continue strengthening compliance management in key areas. As a result, we have gradually strengthened our mechanism which attaches equal importance to business management and compliance management. We further define responsibilities for compliance management, assign duties to relevant departments, and constantly improve a management pattern featuring joint management and coordination. Therefore, an increasingly intense atmosphere in which all the staff of the Company values, stresses and supervises compliance is being created.

In 2017, the Company continued to improve its management innovation. We accelerated the building of the management innovation system, established management innovation systems, procedures and standards, and built IT platforms for management innovation. Additionally, we carried out key work for management innovation, continued to implement basic management construction projects, promoted the integration of management systems in an orderly manner, and exercised delicacy management of the whole production and operation process. In order to enhance the quality of steady business development, we built the benchmarking and indicator system in a scientific manner, and deepened the evaluation of business development capability.

## PetroChina's key actions in compliance management in 2017

Ensured responsibility fulfillment	Included compliance in the assessment indicators of leadership competency
Improved policies and regulations	Organized development and revision of rules and regulations Formulated and released guidelines on mandatory and prohibitive rules of the Company's main scope of operation and management, and organized employees to learn the guidelines
Prevented and controlled relevant risks	Carried out risk identification, assessment and early warning in compliance management Identified risks and hazards, and rectified non-compliance problems Performed targeted and various forms of training Compiled new staff compliance training courseware, which serves as an essential part of the training

### Internal Control and Risk Management System

We continued to improve our internal control system and ensured its continual effectiveness. To ensure effective risk control, we strengthened the evaluation, reporting and control of major risks, improved risk event management, and intensified special risk control. We kept optimizing and simplifying our business processes, and developed scientific standards for process management. We focused on the testing of managerial personnel with a comprehensive increase of the test's framework to identify management weaknesses, and systemic and institutional problems. We endeavored to identify and prevent major risks, in order to further enhance the overall quality and effectiveness of the management testing, and ensure the effective operation of our systems. We intensified internal control and rectification, improved the coordination mechanism between the lower and higher levels, announced within the Company recurring events and exceptions which were not rectified within the prescribed period, reinforced warnings and assessment efforts, supervised implementation and rectification activities, and improved the management and control skills. In 2017, the Company's internal control and risk management system successfully passed an external audit for the 12<sup>th</sup> consecutive year.

### Anti-corruption Risk Prevention and Control System

We treat our business partners, customers, suppliers, contractors and counterparts with integrity, respect and equality. Our employees are not allowed to abuse their position in signing business contracts for one's own personal gain, or for the benefit of friends or family or to obtain personal benefits. We abide by the relevant national laws and regulations such as the *Company Law of the People's Republic of China* and the *United Nations Convention against Corruption*, and developed the *Punishment Regulations for Managements Violations and Non-compliance*, *Compliance Management Measures*, *Material Supplier Management Measures*, etc., to regulate the behavior of employees and the Company.

We verified all complaint letters and punished all corrupt officials, and we always make unremitting efforts to combat corruption. The Company identified hazards and strengthened the building of the anti-corruption system, and gradually improved its corruption risk prevention mechanism. We sought to prevent corruption from small matters forming at the early stage through measures targeted at different levels, and conducted early warnings, monitoring and inspection on a regular basis. We promoted online real-time supervision of major business areas, and urged the departments to fulfill their regulatory responsibilities. In 2017, we organized testing and acceptance of construction projects upon completion, exercised special management of bidding and tendering, and strengthened the building of the anti-corruption risk prevention and control system. These efforts significantly improved our compliance management. We worked to build a system that ensures our officials dare not, cannot and do not want to be corrupt. As a result, the goal of creating a deterrent against corruption has been initially attained; the system that prevents corruption has been strengthened and improved; and moral defenses against corruption are in the making.

We have set up a telephone hotline and an email address to receive reports of irregularities. Employees can report cases of irregularities using their real names or anonymously. We will seriously investigate and give feedback to the one who reports, and keep the identity of informants confidential.

Hotline: 86-10-62094741  
Email: jcbjb@petrochina.com.cn

## UPHOLDING BUSINESS ETHICS

We abide by business ethics and adhere to the principle of honesty and credibility, in order to promote transparent trading and maintain fair and impartial competition. We strictly complied with the *Anti-monopoly Law of the People's Republic of China*, the *UN Guiding Principles on Business and Human Rights* and other applicable laws and regulations on commercial bribery, extortion and fraud. For this, we established specific management regulations and implementation rules covering all production units, staff and processes relevant to the Company. We oppose monopolies and do not abuse our dominant market position. We fight against unfair competition in any form and comply with trade restrictions. We never conduct, participate in or support any forms of money laundering. We conduct faithful, honest and legal external transactions.



### Continuing Connected Transactions

The continuing connected transactions between the Company and its related parties 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 the related parties or affect the Company's independence.

In 2017, the update to the upper limit of a new round of continuing connected transactions was approved by the independent shareholders by an overwhelming vote.

## COMMUNICATING WITH STAKEHOLDERS

Gaining our stakeholders' trust and support is fundamental to the building of a sustainable business. We worked hard to enhance quality and efficiency of our development to maximize returns to our shareholders and value for our stakeholders, and to achieve our common goal of harmonious development and mutually beneficial maximization.



### PetroChina Won China Securities "Golden Bauhinia Award" 2017

On November 30, 2017, PetroChina won the China Securities "Golden Bauhinia Award". PetroChina was named the "Listed Company with the Best Investor Relations Management", and the Secretary to the Board of Directors of PetroChina was named the "Best Board Secretary of the Listed Company".

The China Securities "Golden Bauhinia Award" is considered by the industry as the largest, most prestigious and the most credible assessment of mainland and Hong Kong listed companies and executives. Attaching great importance to investor relations, PetroChina has won wide recognition from the capital market, and the award is a high commendation for our work on investor relations.

We actively performed our obligation to disclose information. In accordance with the laws, regulations and regulatory requirements of the place where the Company is listed and in accordance with the *Articles of Association*, we built a multi-level and multi-form mechanism to communicate with stakeholders, through periodic reports, interim reports, media communications, interviews and visits, and interactive communication. We amplified and perfected the management and related systems for the disclosure of major events in order to report the Company's situation in full and on time to the public. We also organized non-deal roadshows, reverse roadshows, and site inspections for investors, met visiting investors, and frequently attended high-level conferences and forums and delivered speeches, in order to improve mutual trust between stakeholders and the Company. The Company kept improving its website and developing new media communication channels such as teleconferences, emails and fax to understand and respond to investors' questions in a timely fashion. It collected and organized every opinion and suggestion, and channeled them to relevant departments, so that the Company was aware of the needs of the stakeholders.

To address investors' concerns, we comprehensively communicated with investors and listened to their views on the development of the Company. Through the Open to Public Day, Gas Station Open Day, news conferences, customer meetings, customer visits, questionnaires, advice boxes and other means, we solicited criticism and opinions from a wide range of people, followed the implementation of the opinions, and took the initiative to accept supervision from all parties. By doing so, we further enhanced the understanding by the media and public of the Company.

**Case Study: PetroChina Held "Company Demonstration Day"**

From April 6 to April 7, 2017, the Company held the "Company Demonstration Day" for the first time. The campaign was designed to enable more investors to gain a better understanding of the Company's production and operation and development strategies, bring the Company much closer to the capital market, and further enhance the transparency of PetroChina in the capital market.

During the campaign, we fully explained the major issues investors are concerned with, and answered questions from the investors on the current and future business performance of PetroChina.

**Case Study: The Company Held Reverse Roadshows**

In recent years, the Company constantly strengthened its communication with the capital market. We organized a total of more than 30 reverse roadshows with over 400 participants, which were well received by the capital market.

The Company kept abreast of the latest developments of the capital market, and innovatively organized reverse roadshows. In response to the "shale gas fever" in the capital market, the Company successively organized 14 institutions and 15 domestic and overseas financial media to visit the Weiyuan shale gas demonstration area in Sichuan Province, increasing public understanding of shale gas development and foreign cooperation of the Company. As the investors pay close attention to the oil and gas pipeline business, the Company organized a number of organizations to visit PetroChina West-East Gas Pipeline Company to follow pipeline operation and maintenance as well as market development, which was applauded by the investors. In response to investors' concerns over upstream business liberalization, competitiveness of petrochemical products, etc., the Company organized visits to Xinjiang Oilfield and Dushanzi Petrochemical, dispelling their concerns over the cost-efficient development of ultra-heavy oil.



Stakeholder	Expectations	Communication Approach
 <p><b>Governments</b></p>	<ul style="list-style-type: none"> <li>• Stable energy supply</li> <li>• Harmonious economic and social development</li> <li>• Leading role of brand and technology</li> <li>• Tax payment according to law</li> </ul>	<ul style="list-style-type: none"> <li>• Offer company expertise</li> <li>• Attend to public concerns and improve corporate behavior</li> <li>• Launch strategic cooperation with relevant departments</li> <li>• Attend seminars and forums</li> </ul>
 <p><b>Shareholders</b></p>	<ul style="list-style-type: none"> <li>• Standardized corporate governance</li> <li>• Stable business growth</li> <li>• Sustainable development</li> </ul>	<ul style="list-style-type: none"> <li>• Fulfill requirements on statutory information disclosure</li> <li>• Organize roadshow and reverse roadshow activities, such as field visits</li> <li>• Issue reports and announce results performance on a regular basis</li> <li>• Launched an Investor F&amp;Qs mailbox to receive public opinions</li> <li>• Reverse roadshows and site inspections</li> </ul>
 <p><b>Employees</b></p>	<ul style="list-style-type: none"> <li>• Basic rights guaranteed</li> <li>• Professional development</li> <li>• Growth in wages and benefits</li> </ul>	<ul style="list-style-type: none"> <li>• Elect employee representatives to join the Supervisory Committee</li> <li>• Establishment of trade unions at all levels</li> <li>• Convene employee representatives meetings and make reports</li> <li>• Organize employee training programs</li> <li>• Set up a complaints and feedback system</li> </ul>
 <p><b>Consumers</b></p>	<ul style="list-style-type: none"> <li>• Provide safe, environmentally friendly, high-quality products and services</li> <li>• Constantly improve the quality and variety of services</li> <li>• Operate with integrity</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out activities to protect consumers' interests</li> <li>• Publicize commitment to quality services</li> <li>• Provide hotline services</li> <li>• Conduct customer satisfaction surveys</li> </ul>
 <p><b>Business partners</b></p>	<ul style="list-style-type: none"> <li>• Fair and transparent procurement</li> <li>• Win-win cooperation</li> </ul>	<ul style="list-style-type: none"> <li>• Hold tendering meetings</li> <li>• Hold large cross-border business negotiations and technical exchange meetings</li> <li>• Use the electronic trading platform</li> <li>• Engage in sharing managerial practices and technical standards</li> <li>• Conduct contract negotiations and routine meetings</li> <li>• Hold training for business partners</li> <li>• Conduct daily operation meetings</li> </ul>
 <p><b>NGOs</b></p>	<ul style="list-style-type: none"> <li>• Improve sustainable management</li> <li>• Perform social responsibilities such as poverty alleviation and environmental protection</li> </ul>	<ul style="list-style-type: none"> <li>• Share the Company's experiences</li> <li>• Participate in NGO activities</li> <li>• Promote international communication</li> </ul>
 <p><b>Communities</b></p>	<ul style="list-style-type: none"> <li>• Promote employment growth</li> <li>• Protect community environment</li> <li>• Promote economic development in the community</li> <li>• Respect cultural traditions of the community</li> </ul>	<ul style="list-style-type: none"> <li>• Hold dialogues with local communities</li> <li>• Organize community visits</li> <li>• Conduct social and environmental impact assessments of projects</li> <li>• Promotion of education</li> <li>• Increase information disclosure</li> </ul>

## Key Actions

- Behave legally and ethically, and abide by the applicable laws and regulations in the jurisdictions where we operate
- Stabilize oil and gas supplies
- Participate in discussions organized by the government on climate change, energy conservation and emission reduction
- Promote local employment and cultivate local talents
- Pay taxes according to law

- Operate in a responsible manner to maintain a good reputation
- Convene annual general meetings
- Equal treatment of shareholders, and value opinions of both small and medium-sized shareholders
- Hold dialogues with investors and shareholders in various ways

- Enhance employee training and skills development
- Organize vocational skill competitions
- Conduct occupational health checks
- Promote local employment in overseas operations
- Provide a career development platform for employees
- Protect employee safety in overseas operations

- Enhance quality management
- Improve service quality at refueling stations
- Increase the supply of clean fuel, such as natural gas, high-standard gasoline and diesel
- Secure oil supplies for disaster relief and agricultural production
- Organize Refueling Station Open Day activity

- Strengthen centralized procurement management to provide suppliers with equal opportunities
- Enhance communication and coordination with contractors and strengthen the HSE management of contractors by creating a safe and healthy working environment
- Improve security measures and the emergency response network
- Open the investment field
- Organize PetroChina-Siemens Strategic Cooperation Summit

- Submit a progress report to the UN Global Compact
- Attend to external concerns through various forms of communication
- Play an active role in participating in and supporting international environment and standardization initiatives
- Participate in a wide range of forums and conferences

- Participate in disaster relief and reconstruction, and provide financial support for education and poverty alleviation
- Support and drive local economic growth through large projects
- Supply clean energy, e.g. natural gas, to remote regions
- Hold volunteering activities among employees
- Procure locally, where the business is carried out
- Provide job opportunities and training for the local community



# SUSTAINED ENERGY SUPPLY

Energy is essential to socio-economic development. Our mission is to develop a safe, stable, diversified and clean energy supply system, thereby promoting sustainable economic growth and social progress.

## SDGs

<b>7</b> Affordable and clean energy  Ensure access to affordable, reliable, sustainable and modern energy for all	<b>8</b> Decent work and economic growth  Promote inclusive and sustainable economic growth, employment and decent work for all	<b>9</b> Industry, innovation and infrastructure  Build resilient infrastructure, promote sustainable industrialization and foster innovation	<b>12</b> Responsible consumption and production  Ensure sustainable consumption and production patterns	<b>17</b> Partnerships for the goals  Revitalize the global partnership for sustainable development
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At PetroChina, we proactively change the ways to produce energy, in order to constantly adapt to energy reform. With an innovative, harmonized, green, open and mutual development concept, we make sustained efforts to build a safe, stable, diversified and clean energy supply system. We never cease consolidating our resource base through technological and managerial innovations. With an eye on sustainable energy supply in the future, we are accelerating natural gas development, exploring unconventional energy, deploying new energies, and supplying more clean energy. In addition, we are expanding international cooperation and optimizing our global businesses in order to play a leading role in supplying cleaner and greener energy and to provide sustained momentum to socio-economic development.

## CONSOLIDATING OUR RESOURCE BASE

Oil and gas resources are the foundation of our development and the basis for securing stable oil and gas supply. In recent years, it has become more difficult and expensive to explore and develop the remaining oil and gas resources, and oil prices have continued to decline. Under such unfavorable circumstances, we have achieved exploration breakthroughs, made new oil and gas discoveries, and consolidated our resource base through management innovation and technological progress, enhancing our capacity to provide society with economical, stable and sustainable energy.

### Fine Potential Tapping and Obtaining Reserves with Economics of Scale

In 2017, we gave top priority to the discovery of high-quality reserves with economics of scale, continued to optimize exploration deployment, concentrated our efforts and investment in high-efficiency exploration, resulting in a great number of important discoveries. In the Junggar Basin, we obtained industrial gas flow, providing a new strategic replacement area for oil stimulation in Xinjiang Oilfield; in the Tarim Basin, we obtained high-yield oil and gas flow, opening up a new field of piedmont exploration in North Kuche; in the Sichuan Basin, important discoveries were made, marking a new breakthrough in lithologic gas reservoir exploration; a great number of high-quality reserves with economics of scale suitable for capacity building were made available in areas such as Ordos, Songliao, and Bohai Bay.

### Steady and Moderate Rise in Oil and Gas Production, with Increased Efficiency and Production

In 2017, the Company saw a steady and moderate rise in production indicators and improving operating efficiency. We constantly optimized the development program and production structure of mature oilfields, and steadily implemented the construction of major capacity-building projects, including Mahu in Xinjiang and Halahatang in Tarim. The Company sought benefits through delicacy management, and promoted cluster well platforms to save land, carried out fine reservoir characterization to increase recoverable reserves, and stratified water-flooding to enhance recovery efficiency. By doing so, we maximized the benefits of each well and each ton of oil.

In 2017, we produced 1,457.8 million barrels of oil equivalent, while oil and gas operation costs dropped 1.2% from 2016.

**7,481** million barrels

Proved oil reserves: 7,481 million barrels

**76,888** bcf

Proved gas reserves: 76,888 bcf

**3,423.4**<sub>bcf</sub>

Marketable natural gas production: 3,423.4 bcf

**1.2**%

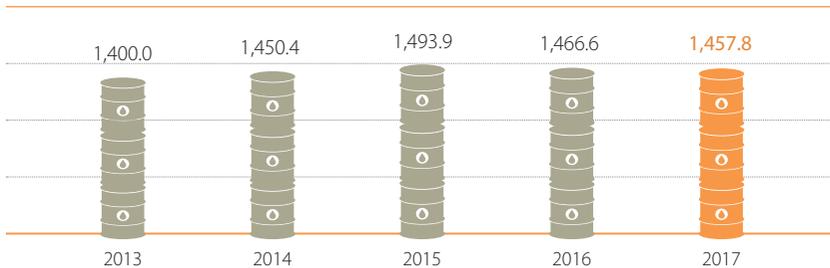
Oil and gas operation costs dropped 1.2% from 2016



**PetroChina's Innovative Technologies Winning National Awards in 2017**

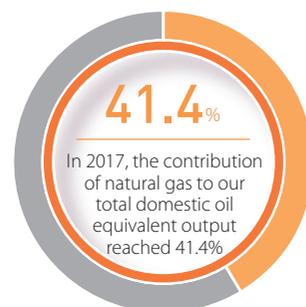
Technology	Award
ASP flooding technology for EOR and industrial application	Second-class National Science and Technology Progress Award
Industrial application of catalytic cracking catalysts with high oil and gas recovery and low carbon emissions	
Key technology for lightweight design and manufacturing of heavy pressure vessels and industrial application	
Key technology and exploration equipment for geological dynamic assessment of CBM reservoir development	Second-class National Technical Invention Award
Technology for high-diversion, multi-fracture stimulation of temporary targeting plugging of deep reservoirs and application	
Seven technologies including parallel processing technique of prestack Kirchhoff time migration without speedup ratio bottlenecks	Outstanding Medal of China Patent Award

**Oil Equivalent Production of PetroChina 2013-2017 (10<sup>6</sup> barrels)**

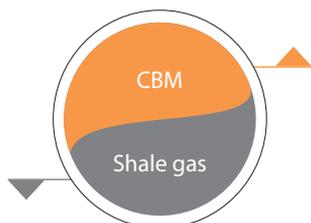


**DEVELOPING CLEAN ENERGY**

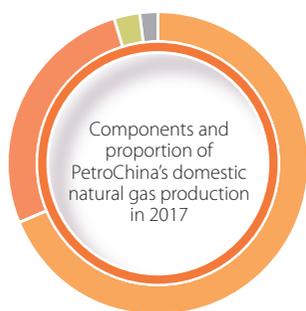
Fossil fuel will remain the driving force of global economic development in the near future, whereas clean and low-carbon energy will chart the course for future energy development. As a practical and effective low-carbon energy currently, natural gas plays an important role in meeting the needs of socio-economic development and protecting the environment. PetroChina focuses on the sustainable supply of clean energy, and will continue to regard natural gas as a strategic and growing business. The Company is increasing investment in natural gas exploration and development, accelerating the construction of cross-border gas pipelines and domestic gas pipeline backbone network facilities, advancing development of unconventional gases such as tight gas, coal bed methane and shale gas. It is also pushing forward the development and use of natural gas, studying and promoting the development and use of new energy, in order to meet the demand for clean energy.



Steady progress in production capacity building in new blocks such as Mabidong, Daning-Jixian and Jiernalangtu; comprehensive adjustment and control in mature blocks in Fanzhuang, Zhengzhuang and Hancheng



Steady progress in the building of shale gas demonstration zones at Changning-Weiyuan and Zhaotong; 156.5 billion cubic meters of proven geological reserves of shale gas added



Conventional gas	68.8%
Tight gas	26.6%
Shale gas	2.9%
CBM	1.7%

## Increasing Natural Gas Exploration and Development

The Company continued to intensify its efforts in natural gas exploration and development, and maintained peak growth in domestic proven gas geological reserves. We actively promoted capacity building in four gas provinces in Changqing, Tarim, Southwest, and Qinghai, with 13.44 bcm new supporting capacity added in 2017. The contribution of natural gas to our total domestic oil equivalent output reached 41.4%, and our domestic production of marketable natural gas was 3,153 billion cubic feet.

## Promoting the Effective Connection between Resources and Demand and Stable Supply in the Market

While consolidating our resource base, we actively promoted the connection of multiple gas sources. As a result, we have put in place a configuration of gas transportation and allocation in which long-distance natural gas pipeline networks play a leading role, and LNG and gas storage play a supplementary role, in order to meet the needs for gas supply in different periods (for details, refer to "Pushing Forward Pipeline Network Construction").

## Promoting the Development of Unconventional Gas

In 2017, the Company steadily promoted the exploration and development of tight gas, shale gas, coal-bed methane and other unconventional natural gas resources.

## Facilitating the Utilization of Natural Gas and Alternative Fuels

We actively promote the comprehensive utilization of natural gas in city gas, industrial fuels, natural gas power generation, chemical materials and vehicle fuels. In 2017, we implemented 10 projects including Changxing Island City Gas and two natural gas power generation projects including Zengcheng Power Plant.

## New Energy

With an eye on the future, we promoted the development of renewable energy including geothermal energy and solar energy, and researched the exploitation and utilization of natural gas hydrate resources, to play a positive role in implementing the nation's new energy strategy and improving China's energy structure.

### Geothermal energy



PetroChina entered into a memorandum of understanding with Indonesia for joint geothermal development.

### Biofuels



Significant progress was made in new technologies for aviation biofuel production.



Boost low carbon development in Hong Kong

Special Report

Contributing Petrochina’s Solutions to a Low-Carbon Future

The world energy pattern is going through profound adjustment, and the energy transition to efficient, clean and diversified energy is accelerating. As the world’s largest emerging economy, China has become the largest energy consumer in the world. Optimizing China’s energy mix and promoting China’s revolution in energy production and consumption would significantly contribute to addressing global energy challenges.

In order to promote the low-carbon transition of China’s energy mix and deliver modern and efficient energy for all, PetroChina has accelerated the development and utilization of natural gas as a strategic and growing business. In the ever-bright city of Hong Kong, remote regions in Tibet, smog-hit Beijing-Tianjin-Hebei, and the “Oriental Pearl” city of Shanghai, we accelerated the construction of natural gas pipe networks, and successively implemented natural gas green projects. By the end of 2017, PetroChina had completed a trunk pipeline network crisscrossing the country. The pipeline network covers 30 provinces (municipalities and autonomous regions) and the Hong Kong Special Administrative Region, and is marked by the West-East Gas Pipeline, Shaanxi-Beijing Gas Pipeline and Northeast Pipeline.

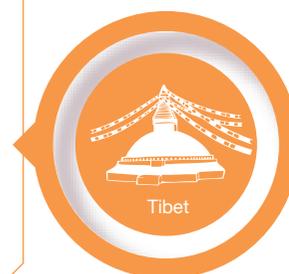
**[ Hong Kong ]** Hong Kong is a prosperous city with a large population. In 2012, the Hong Kong Branch of the second West-East Gas Pipeline was completed and put into operation, and natural gas was delivered to the west coast of the Pacific Ocean from the right bank of Amu Darya River in Central Asia. Castle Peak Power Station, the largest power station in Hong Kong, achieved replacement of coal with gas. It can replace 3.4 million tons of standard coal and reduce 6.3 million tons of carbon dioxide emissions and 40,000 tons of sulfur dioxide emissions on a yearly basis. By the end of 2017, a total of 5.2 billion cubic meters of natural gas had been delivered to Hong Kong through the second West-East Gas Pipeline. According to the report of Hong Kong’s Environmental Protection Department (EPD), the past decade saw a decline in the concentration of PM2.5 in Hong Kong.





Boost low carbon development in Shanghai

**【 Tibet 】** Tibet is located in the Alpine area and ecologically sensitive area. However, gasoline, diesel, coal and liquefied petroleum gas were mainly used for industrial production and residential life, and fuel wood, coal and cow dung were used by some farmers and herdsmen as fuel, which was not environmentally friendly. Since 2010, PetroChina has started to build the Lhasa LNG gasification station in Tibet, to process liquefied natural gas delivered from Qinghai Oilfield, meeting the local industrial and domestic gas demand. As of late 2017, PetroChina had completed one liquefaction plant with a daily processing capacity of 350,000 cubic meters of gas and the Lhasa LNG gasification station with a daily processing capacity of 150,000 cubic meters of gas. In addition, five LNG filling stations were completed in Golmud, Chaerhan, Dachaidan, Huatugou and Delingha in Qinghai Province, and two LNG filling stations in the Lhasa Economic and Technological Development Zone.



**【 Beijing-Tianjin-Hebei region 】** Air pollution has become a major problem in the development of urban agglomeration in the Beijing-Tianjin-Hebei region. In cooperation with the government and industrial companies, PetroChina makes great efforts to promote the construction of natural gas pipeline networks and the development of “coal-to-gas” projects in the Beijing-Tianjin-Hebei region. Since the first Shaanxi-Beijing Gas Pipeline became operational in 1998, the second, third and fourth pipelines have been successively completed. Since their operation, the first, second and third Shaanxi-Beijing Gas Pipelines have delivered 275.1 billion cubic meters of natural gas to Beijing and North China. On average, the proportion of days with good or excellent air quality in November in 13 cities in the region was up 31.6% year-on-year, while PM2.5 concentration was down 41.2%, as shown in the air quality report for November released by the Ministry of Environmental Protection of the People’s Republic of China.

**【 Shanghai 】** Since April 1999, natural gas has been used in Shanghai, the most densely populated city in China with rapid economic development. However, the source of gas supply has always been a bottleneck. In January 2004, natural gas was officially delivered to Shanghai from West-East Gas Pipeline. Since then, the proportion of natural gas has been on a constant rise in Shanghai’s energy consumption mix, directly changing the coal-dominated energy consumption structure. In 2017, 3.82 billion cubic meters of natural gas from West-East Gas Pipeline was consumed in Shanghai. According to statistics, for each additional 1 billion cubic meters of natural gas consumed, GDP unit energy consumption will drop by 0.4%.



## PUSHING FORWARD PIPELINE NETWORK CONSTRUCTION

We continuously expanded the building of the oil and gas pipeline network, boosted our transportation and allocation capacity, and optimized the market distribution of resources. By the end of 2017, our oil and gas pipelines in service reached a total length of 82,374 kilometers and passed through 30 provinces (municipalities and autonomous regions) and the Hong Kong Special Administrative Region, forming an oil and gas network crisscrossing the country and internationally connected.

### Improving Domestic Pipeline Backbone Network

The fourth Shaanxi-Beijing Gas Pipeline and the Zhongwei-Jingbian Pipeline have been completed and put into operation, effectively enhancing resource allocation efficiency and market supply capacity in North China and playing an important role in significantly improving air pollution control in Beijing-Tianjin-Hebei; the updating and improvement project of Anshan-Dalian Pipeline and the Northeast China crude oil pipe network was completed, making the Northeast China crude oil pipe network more secure, flexible and reliable.

### Expanding Transnational Oil and Gas Transportation Channels

In 2017, PetroChina continued to expand its transnational oil and gas pipelines and promoted the effective integration of resources and the market. The Second Russia-China Crude Pipeline was put into operation, and the construction of the east route of the Russia-China Gas Pipeline was accelerated, further enhancing the capacity to introduce resources through the Northeast and Southwest strategic channels.

### Progress in Transnational Natural Gas Pipeline Construction

Project	Main Progress
Eastern Route of Russia-China Gas Pipeline	In accelerated pace
Central Asia-China Gas Pipeline	Line A/B/C put into operation



The Third West-East Gas Pipeline runs through Maowusu desert

## ENSURING STABLE SUPPLY

Ensuring stable supply is an important social responsibility to PetroChina. To this end, we are strengthening coordination and organizational efforts to establish a sustainable mechanism and give back to society. During peak agricultural periods in the spring, summer and autumn (at the time of spring plowing, summer planting, summer harvesting, summer field management, fall harvesting, fall plowing and fall sowing), during critical moments when natural disasters strike such as earthquakes, heavy rainfall and snowfall, important periods when events are held, and during winter months when gas consumption peaks, we actively mobilize our resources, optimize transport capacity, strengthen on-site services, and ensure a continuous oil and gas supply at our service stations at critical moments and in key areas. In 2017, our refined oil and natural gas supply accounted for about 37.2% and 66.2% of the national market share respectively.



**Question:** In the context of robust gas demand in 2017, what measures has PetroChina taken to secure gas supply when gas consumption for heating peaked in winter?

**Answer:** Driven by environmental policies, the commissioning of coal-to-gas heating facilities and other factors, demand for residential heating gas grew rapidly in this winter. In response to the situation, we ensured maximum gas production at our oil and gas fields, maximum unloading capacity for gas imports at the LNG terminals, and maximum volume at the gas storages, so as to ensure stable market gas supply.

### PetroChina's measures to ensure market supply during special periods in 2017

#### Agricultural production



During spring plowing, summer planting, summer harvesting and summer field management, we

- Surveyed oil demand, developed plans to secure supply, and opened green channels;
- Scheduled resources availability, and coordinated distribution of fuel in advance

#### Natural disasters



In response to the mountain collapse in Maoxian County in Sichuan Province, the earthquake in Jiuzhaigou, Aba Prefecture, Sichuan Province, and the landslide in Zhangjiawan Town, Nayong County, Bijie Prefecture, Guizhou Province, we

- Started an emergency plan to secure oil supply
- Opened green channels to secure oil supply for disaster relief
- Fully supported earthquake relief efforts

#### Major national events



During major events such as the Belt and Road Forum for International Cooperation, the ninth BRICS Summit, the Dialogue of Emerging Market and Developing Countries and the 19<sup>th</sup> National Congress of the Communist Party of China (CPC), we

- Strengthened security of regional resources supply
- Optimized secondary distribution management
- Guaranteed stable supply of resources during the events

#### Stable gas supply in winter



Since the start of the winter, driven by coal-to-gas projects, gas demand has grown rapidly in six northern provinces and municipalities. In response to the grim situation of gas supply security, we

- Started Level III and Level II emergency plans for gas sales in winter, and Level I (CNPC Level) special emergency plan for gas sales
- Ensured gas production at full capacity and gas storage at the maximum capacity
- Increased LNG imports, and ensured production of LNG terminals at full capacity
- Accelerated the implementation of relevant cooperation projects with CNOOC and Sinopec
- Ensured steady market supply and kept pipeline network operation under control

Special Report

## PetroChina in the Era of Intelligent Energy

PetroChina integrates the new generation of network information technology into the traditional oil and gas industry, and applies new technologies such as cloud computing, big data and Internet of Things (IoT) to the whole process of production and operation. While reducing costs and enhancing efficiency, it provides consumers with much cleaner, safer, more low-carbon and efficient energy.



### Intelligent Oilfield

The widespread use of IoT technology makes it possible to build digital oilfields. PetroChina widely uses IoT technology in the building of oilfields such as Daqing, Changqing and Tarim, realizing cross-regional cooperation and information sharing among the oilfields. Dagang Oilfield worked hard to build digital oilfields using IoT technology, and integrates the thinking of IoT in all processes including technology, production and management. As a result, it has realized unattended operation at medium and small stations and few-man operation at large stations, significantly reducing costs of manpower and vehicle operation.

### Intelligent Pipeline Network

Based on a unified standard and digital-based pipelines, PetroChina is dedicated to the comprehensive construction of an intelligent pipe network featuring comprehensive and unified data, visual and perceptive interaction, system integration and interconnection, accurately matched supply, intelligent and efficient operation and controllable forecast and warning to achieve an “all-digital handover, full life-cycle management and fully intelligent operation”. Through system building including IoT, intelligent sites, intelligent equipment management and global pipeline network operation, it significantly enhances the intrinsic safety of pipelines and promotes outstanding business operation.



### Intelligent Gas Station

In the field of sales, based on the traditional gas station sales system and the internet, while using big data, cloud computing, Internet of Vehicles, IoT, mobile payment and other internet technologies, we provide consumers with more convenient and considerate experiences. Based on mobile payment and refueling card services and focusing on “People, Car and Life”, PetroChina e-station APP provides consumers with an efficient, convenient and intelligent automotive service platform. Its core functions include gas station navigation, mobile refueling payment, online refueling card recharge, and refueling card inquiries. In particular, the mobile refueling payment function allows consumers to complete refueling without getting out of their vehicles.

### Intelligent Environmental Management

PetroChina applies “Internet +” to its environmental management. Our HSE information system (Version 2.0) became operational, forming a globally integrated HSE working platform and a risk control platform, which fully cover HSE management business both at home and abroad. These platforms serve for the Company’s HSE decision-making and early-warning, management work, real-time monitoring, and problem handling and follow-up measures.

## ENHANCING INTERNATIONAL COOPERATION

We are actively committed to international oil and gas cooperation, adhering to the international cooperation principles of “mutual benefit and joint development”, and complying with the laws, regulations and energy policies of the host countries. Due to our advantages in funding, technology and management, we contributed to the global oil and gas market.

### Overseas Energy Development

Fully leveraging China’s implementation of the Belt and Road Initiative, the Company entered into a number of cooperation agreements with enterprises in countries such as Russia, Uzbekistan and Azerbaijan, including agreements for natural gas purchase and sale, pipeline transportation and gas storage construction. We achieved a net overseas oil and gas equivalent output of 189 million barrels in 2017.



### Special Report

## Serving the Belt and Road Initiative, a New Chapter in China-Kazakhstan Oil and Gas Cooperation

PetroChina is dedicated to advocating and practicing the Belt and Road Initiative. Our energy projects in Kazakhstan have laid a solid foundation for the building of the Silk Road Economic Belt in the country, providing great support and driving force. The leaders from China and Kazakhstan spoke highly of the project, referring to it as “a model of cooperation between China and Kazakhstan”.

**Promoting economic development through project development.** China-Kazakh oil and gas cooperation started from the Aktobe Project. Currently, a complete business chain covering the upstream, midstream and downstream sectors and integrating oil and gas exploration and development, oil refining and sales has been formed, achieving favorable economic and social benefits. Using advanced exploration theories and techniques, we discovered the North Troyes Oilfield, the largest onshore oilfield since Kazakhstan gained independence, adding tens of millions of tons of recoverable reserves of crude oil to the South Turgai Basin which has a high degree of exploration; through integrating advanced and applicable technologies in an innovative manner, we successfully addressed drilling challenges in Kenkiyak sub-salt oil reservoir, and realized efficient development of 100 million tons reserves; we jointly invested in and completed the Central Asia-China Gas Pipeline with an annual gas transmission capacity of 55 billion cubic meters, which has delivered an accumulative total of over 190 billion cubic meters of gas; we completed Kazakhstan-China Oil Pipeline with an annual oil

Long range view of Shymkent Refinery in Kazakhstan



## Promoting Oil and Gas Cooperation with International Partners

We continue to make steady progress in cooperation with international partners in developing oil and gas resources in China. The Luojiashai High-Sulfur Gas Field of Chuandongbei Gas Project jointly developed by PetroChina and Chevron delivered 1.8 billion cubic meters of natural gas to areas such as Sichuan and Chongqing. The Changbei Project in Changqing Oilfield in cooperation with Shell continued to maintain stable production. Our domestic oil and gas production equivalent in cooperation with international partners amounted to 5.5 million tons in 2017.

## Vigorously Expanding International Trade

Supported by our overseas operation centers and trade networks in Asia, Europe and the Americas, we conducted international trading through cooperation and joint ventures in more than 80 countries and regions around the world, further improved our resource deployment capability. In 2017, we reported 319.5 million tons of international marketing volume, and witnessed improvements in both the scale of our trading and quality of operations.

transmission capacity of 20 million tons, and the pipeline has accumulatively delivered over 100 million tons of oil; we also completed the Beineu-Bozoi-Shymkent Gas Pipeline.

**Committed to environmentally-friendly and clean production.** PetroChina actively promote new environmentally friendly technologies, and take practical measures to protect the environment, such as energy efficiency improvement, recycling of resources, ecological restoration and of emission reduction. We are also committed to clean development and strive to build an environment-friendly enterprise. We invested a total of USD 1.2 billion in building Zhanazhol Oil and Gas Processing Plant, Kenkiyak Power Station, PKKR facilities for comprehensive utilization of natural gas and other facilities. Thus, we were granted the Golden Prometheus Award, the highest award of the oil industry in Kazakhstan.

**Promoting local personnel education and training.** Every year, we provide local training or assign Kazakh employees to China or a third country for training, to improve their technical operation capability. By the end of 2017, we had provided training opportunities to Kazakh managerial and technical personnel tens of thousands of times. In 2017, the Company carried out on-the-job training and off-the-job training, providing a platform for improving the business skills and overall quality of local employees. In 2017, a total of more than 9,100 person-times of employees and more than 2,200 person-times of management officials received training in the Aktobe Project.

**Actively participating in public welfare undertakings.** By such means as paying taxes and fees and promoting industrial development, PetroChina actively participates in local economic and social development. The Company earmarked funds for public welfare programs, benefiting more than 2 million people, and donated the construction of the National Dance Academy of Kazakhstan and other influential social welfare facilities. As a result, we won the “Best Social Responsibility Award” and “Best Social Contribution Award” from the Government of Kazakhstan for several times, achieved business development in harmony with local community development, and was widely recognized and highly praised by the government of the host country and all sectors of society.





# SAFE AND CLEAN PRODUCTION AND OPERATION

The destiny of humankind and nature is intertwined, and harm done to nature by humankind will ultimately harm humankind itself, thus only by observing the law of nature can we avoid pitfalls in the exploitation of nature. We incorporate care for people's lives and environmental protection into our corporate mission. Upholding the principles of people-centered, prevention-driven, full staff participation and continuous improvements, we endeavor to build ourselves as a resource-conserving, environmentally friendly and safely producing business with the goals of zero injuries, no pollution and zero accidents.

## SDGs

<b>6</b> Clean water and sanitation  Ensure access to water and sanitation for all	<b>7</b> Affordable and clean energy  Ensure access to affordable, reliable, sustainable and modern energy for all	<b>9</b> Industry, innovation and infrastructure  Build resilient infrastructure, promote sustainable industrialization and foster innovation	<b>11</b> Sustainable cities and communities  Make cities inclusive, safe, resilient and sustainable
<b>12</b> Responsible consumption and production  Ensure sustainable consumption and production patterns	<b>13</b> Climate action  Take urgent action to combat climate change and its impacts	<b>14</b> Life below water  Conserve and sustainably use the oceans, seas and marine resources	<b>15</b> Life on land  Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss



## IMPROVING HSE MANAGEMENT

Work safety and environmental protection is a prerequisite which secures our steady development. The Company attaches great importance to health, safety and the environment (HSE), and gives top priority to safety and environment in our operations. In 2017, we improved HSE management system, implemented stricter inspection of responsibility fulfillment and supervision, strengthened safety trainings, and endeavored to enhance HSE management performance. As a result, our overall HSE performance was stable and improved.

### Improving HSE Management System

Improving HSE management system is a must for the Company to elevate its capability for hazard control. In 2017, we continued to reinforce HSE management system by strengthening systematic auditing and consolidating HSE standardization at grassroots level. The Company carried out two rounds of systematic auditing covering all units in 2017, during which new methods were created, the auditing scope was expanded, and the auditing quality was improved. Based on problems discovered and by taking into consideration the current situations of corporate reform and adjustment and outflow of workers, we conducted technological diagnosis and management assessment in multiple subsidiaries, and major risks and hazards were promptly handled with follow-up measures.



On-site inspection of facilities



Reinforce safe production in refinery and chemical companies

### Constantly Reinforcing HSE Standardization at Grassroots Level

In 2017, the Company carried out an appraisal of HSE standardization and assessment of the capabilities to perform safety and environmental protection duties at grassroots level. With regard to problems detected in the process, we urged companies concerned to further improve mechanisms to make sure all operations at grassroots level are regulated and guided by standards, including HSE management, post operation and field management, in order to bring all risks under control. We continued to improve the standardization of the HSE system, and organized and completed the formulation and revision of 16 corporate HSE standards and the review of 36 items of standards.

<p>Promoting HSE training</p>	<ul style="list-style-type: none"> <li>Promoted the grassroots level HSE training matrix, revised eight HSE training curricula, completed the compilation of handbook on the designing and application of HSE training matrix for key business segments</li> </ul>	
<p>Enhancing supervision</p>	<ul style="list-style-type: none"> <li>The Company's safety supervision work covered three major areas: the inspection and repair location of refining and chemical enterprises under overhaul, major warehouses for hazardous chemicals, and key time periods</li> <li>Organized and conducted special safety inspections on key areas, and strengthened safety supervision and field inspection on key links in the offshore operation of the national key project of test drilling of combustible ice in the South China Sea, to guarantee safe and smooth offshore operation</li> <li>Formed 38 inspection groups to carry out thorough inspection on safe production in winter</li> </ul>	
<p>Strengthening fulfillment of duties</p>	<ul style="list-style-type: none"> <li>Jilin Oilfield was incorporated into the pilot project of the national safe production dual prevention mechanism by National State Administration of Work Safety, aiming to elevate the hazard control capability in key areas</li> <li>Promoted and applied 11 professional templates for hazard prevention and control, and conducted research on and on-site guidance for three professional hazard prevention and control templates for downhole operation, gas station and city gas, to comprehensively strengthen hazard management and control for high-risk operations and sensitive time periods</li> </ul>	

## ENHANCING OPERATIONAL SAFETY

PetroChina takes production safety as a core value and implements this concept in all sectors and all production and operation processes. We actively promote the building of a long-acting work safety system to raise the safety management level holistically. We took further steps of supervision to better implement safety accountability, and by doing so, we consolidated basic work at grassroots level, and kept up a stable and controllable situation of operational safety.

### Death rate caused by accidents (person/100 million working hours)



### Building Risk Prevention and Control Mechanism

We strive to build a dual-prevention mechanism covering risk prevention and potential hazard control, while improving classified risk control and close-loop hazard management, in order to prevent the evolution of risks and escalation of hazards. We emphasize management of key links and areas including high-risk operations. Safety and environmental protection technology diagnosis and management assessment are carried out on key subsidiaries, key projects and high-risk areas to ensure that major risks are under control.

### Strengthening Safety Management

**Pipeline Hazard Control.** We attach great importance to hazard prevention and control to effectively improve the intrinsic safety of the Company. In 2017, we continuously carried out special investigation and rectification activities on pipeline hazard control and accomplished the target of rectifying potential hazards on long-distance pipelines, and on top of that, we moved on to complete the rectification of risks and hazards in the gathering lines of oil and gas fields.

**Hazardous Chemicals Management.** The Company released the *Implementation Program on Comprehensive Safety Management of Hazardous Chemicals* and monitored its implementation in a timely manner. We carried out special training sessions for general managers from 31 refining and chemical companies and 36 sales companies. We performed a census of the basic information on hazardous chemicals, and held three discipline-specific seminars on the census technology for hazardous chemicals. We built and launched as scheduled an online information platform for comprehensive supervision of hazardous chemicals. Treatment of potential hazards was sped up at chemical tank farms, with the rectification rate of potential hazards detected reaching 100%.

**Offshore Oil Production Safety Supervision.** We carried out special inspections on project commencement in spring, typhoon prevention, offshore operations in winter, and wharf workplace safety. We implemented follow-up measures for major potential hazards. Additionally, emergency response drills were carried out for fire and explosions at offshore oil and gas production facilities, oil spill and pollution, and man overboard. In 2017, we realized stable and orderly operation at our offshore oil production facilities.

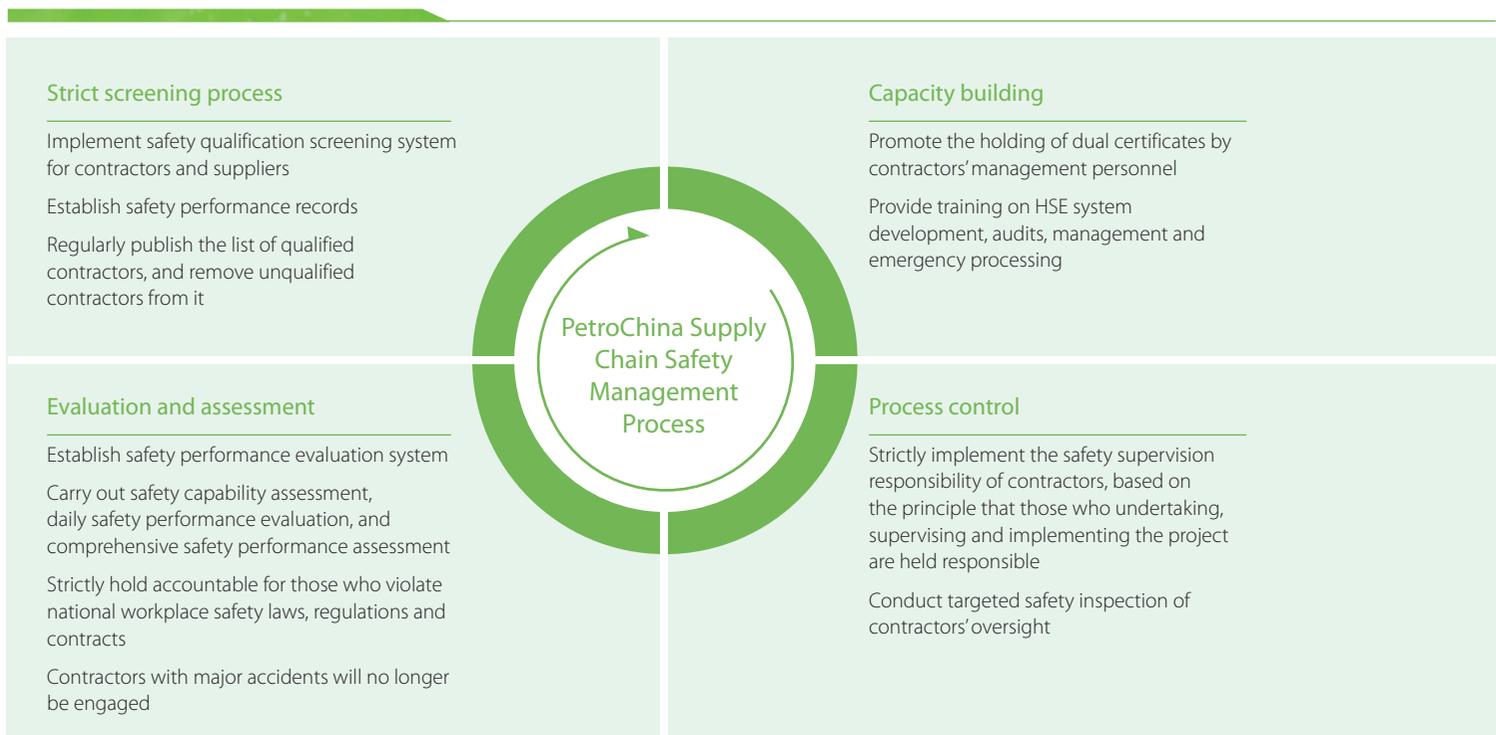


## Emergency Management

We continuously strengthen the building of emergency management system and steadily elevate the Company's overall capability to handle emergencies. In 2017, we advanced the revision of our emergency plans, and carried on the program of "one card for each plan" (emergency handling work card and on-site emergency handling plan) at all subsidiaries. We intensified our efforts in emergency drills and simulated through "table scenario construction" an accident and disaster emergency in the Myanmar-China Oil and Gas Pipelines (Chinese section). We also pushed on with the building of a national rescue and training base for hazardous chemicals emergency, a sub center for emergency rescue response, and emergency materials allocation centers for oil spills, with the aim to strengthen emergency response and rescue capability.

## Supply Chain Safety

We include suppliers and contractors in PetroChina's safety management. In 2017, the Company promoted the implementation of the workplace safety access system for contractors. Specifically, we released the *Proposal for Further Strengthening the Management of Workplace Safety Access of Contractors*, and conducted a pilot program for the pre-operation access assessment of contractors. We built a joint safety committee mechanism for contractor projects to establish a constructor-led joint safety committee participated by the building and supervision entities, in order to strengthen the responsibility fulfillment of relevant parties on the construction site. We also held report-back meetings on the implementation of workplace safety access for contractors, and promoted and strengthened a dual prevention and guarantee system in which the contractors assume primary responsibilities for workplace safety supervision and management.





Uphold green development to build beautiful oilfield

## ECOLOGICAL PROTECTION

PetroChina is committed to the idea of ecological civilization, and upholds the development concept of “Clear Water and Lush Mountains Are Invaluable Assets”. We actively respond to the development goal of “protect, restore and promote sustainable use of terrestrial ecosystems, and halt and reverse land degradation and halt biodiversity loss” set in the *UN’s 2030 Agenda for Sustainable Development*, and strictly observe applicable international and Chinese laws and regulations. We properly handle the relations between economic development and environmental protection, and take the initiative to evaluate the environmental impact of our decisions and activities. By doing so, we endeavor to grow in harmony with the environment.

### Reinforcing Institution Building

**Improving Ecological Conservation Mechanism.** In 2017, we formulated *the Action Plan for Ecological Conservation*, and devised and implemented six major ecological conservation projects. Under the development concept which prioritizes conservation and emphasizes scientific coordination, green development, cooperation and sharing, we strived to coordinate business growth with the sustainable development in countries and regions where we operate, and to build a green and harmonious relationship with the local community.

**Improving Environmental Management Mechanism.** We assess and identify environment risks, implementing a risk prevention and control management model focusing on environmental forecasting, early warning and monitoring. We began the environmental risk management at an early stage, and established a sound risk management mechanism featuring “management in tiers, prevention and control by level”. We set up a safe, timely and effective pollution prevention and control system, conducted environmental risk assessment, and adopted necessary prevention and control measures to effectively curb water pollution risks and prevent oil spill accidents. We drafted corresponding control plans for “six major environmental risks”, and organized major production subsidiaries to identify potential risks at enterprise-level so that risk management measures can be implemented at every level.



### Case Study: Sichuan Petrochemical Promotes Green Development

PetroChina Sichuan Petrochemical Co., Ltd (“Sichuan Petrochemical” for short) strictly complies with regulations on environmental protection. Internally, it raises strict requirements and continues to improve its hardware and software concerning safety and environmental protection; externally, it intensifies publicity and informs the public of its measures concerning safety and environmental protection, and engages the public to oversee the implementation of these measures.

**Strengthen control at the source.** Sichuan Petrochemical has prioritized environmental protection since the very beginning of its projects, and has put over 10% of its investment into environmental efforts. It has curbed the production of pollutants at the source by substituting traditional coking method for environmental-friendly full hydrogenation technique, by using natural gas and other clean energy as power source, and by adopting circulating filtration and recycling system and other effective waste gas treatment measures.

**Prevent water pollution.** Sichuan Petrochemical has set up a four-level pollution prevention and control system to prevent water pollution. The company has realized full coverage of ground pipeline materials to prevent leaking from contaminating underground water. It has set up the collection system for leaking pollutants, and installed 193 well pumps on the periphery of the plant and around peripheral drainage pipelines to conduct real-time leakage monitoring. Intricate underground water defense line was constructed around the boundary of the plant by giving consideration to the characteristics and changes of the seepage field as well as the relationship between ground water and surface water. It has also built a refined drainage system and wastewater treatment system, with the recycling rate of wastewater reaching 73%.

**Strengthen information disclosure.** Sichuan Petrochemical is committed to doing business in an open manner. The company invited the public to visit its production equipment and learn about its measures and achievement regarding safety and environmental protection. It worked with local governments to launch “the most beautiful rural eco-tourism project”, which gives the public an in-depth look into the green production process of petrochemical companies. Additionally, the company has provided real-time LED display and online inquiry of air quality in the factory compound, released data on discharge of waste gas, wastewater, and industrial residue on a daily basis, and launched the company’s online portal and official WeChat account as well as an APP for TouTiao.com, providing the public with diverse channels for information on environmental protection.



## Reinforcing Environmental Management

**Constantly Boost Environmental Monitoring Capabilities.** The Company completed the installation and data networking of online monitoring equipment for wastewater and waste gas, and performed real-time monitoring and early warning of discharges from major pollution sources. To strengthen the supervision and evaluation of subsidiaries, we set up the environmental monitoring network featuring “three-level environmental monitoring, environmental emergency monitoring and online monitoring of pollutants”, which ensured treatment at the source, and control over the production process.

**Strengthen Water Management.** We strictly complied with applicable laws and regulations on the protection of water and other resources, such as the *Environmental Protection Law of the People’s Republic of China*, the *Law of the People’s Republic of China on the Prevention and Control of Environment Pollution Caused by Solid Waste*, and the *United Nations Framework Convention on Climate Change*. PetroChina endeavors to improve water utilization efficiency throughout its production and operation activities. Through measures including strengthening water conservation management and water-saving technological transformation, we have reduced fresh water consumption and enhanced water efficiency. In 2017, the Company’s fresh water consumption for processing 1 ton of crude oil stood at 0.51 cubic meters, down 1.9% year-on-year.

**11.01** million m<sup>3</sup>

Saved water of 11.01 million cubic meters in 2017



# 1,180

hectares

Saved land of 1,180 hectares in 2017

**Strictly Protect Land Resources.** PetroChina follows the principles of scientific siting, effective utilization, proper protection and timely restoration. We increase the land utilization rate by innovating the land-saving technology and management model. Specifically, we make careful and intensive use of land during production, strictly controlling land use growth, and optimize use of land through various ways such as active reclamation and carrying out environmental treatment and recovery in mining areas.

### The Company's sustainable utilization of land resource in 2017

	Measures	Achievement in 2017
Careful and intensive use of land	<ul style="list-style-type: none"> <li>Optimized project design through technological innovation</li> <li>Made intensive use of existing land</li> </ul>	Saved land of 1,180 hectares
Land reclamation	<ul style="list-style-type: none"> <li>Guaranteed funding for reclamation</li> <li>Fulfilled reclamation responsibility through various means including initiative reclamation</li> </ul>	Reclaimed land of about 15,000 hectares
Phaseout of low-efficiency or ineffective land	<ul style="list-style-type: none"> <li>Returned land with zero or low utilization rate to the government</li> </ul>	Phased out land of 20,500 hectares

### Conservation of Biodiversity

We are devoted to reducing the potential influence on ecological environment and biodiversity during production and operation, and take full precautions to avoid environmental impact and work hard to restore the environment to its original state in case of any adverse impact. Environmental management is implemented in full life cycle throughout the industry chain. In 2017, we comprehensively checked and rectified environmental pollution and ecological damages, and reduced the impact on the ecological environment through noise reduction, emission reduction and other means. We endeavored to reduce the occupation of arable land, and put a lot of efforts in the conservation of soil and water and in restoring the vegetation, working hard to restore the ecological environment and protect the biodiversity of our operation areas.

### Waste and Pollutant Management

The Company strictly complies with national and regional laws and regulations on environmental protection, vigorously monitors the discharge of waste and pollutant, and strengthens management of waste to reduce the discharge of air, soil and water pollutant. In 2017, we formulated *Plan on the Upgrading of Pollutant Discharge Compliance*, and proposed 12 major directions for the management of environmental protection, covering all elements of water, air, noise, and solid waste, as well as the whole process of exploration, production, refining and petrochemical, natural gas and pipeline.



The Company has been focusing on energy efficiency and recycling, actively conducts comprehensive utilization of solid waste, boosts comprehensive utilization efficiency so as to reduce the discharge of pollutant. We have deepened systematic control of the discharge, collection, storage, utilization, transportation, disposal and other phases in order to ensure the management of solid waste complies with laws and regulations.

#### Case Study: Comprehensive Treatment of Volatile Organic Compounds (VOCs)

We continuously expand the application of internet technology in environmental protection, and promote the establishment of big data for environmental protection. In 2017, we developed a VOCs management and control platform to control VOCs emission at all refining companies under 12 categories, kept track of the progress made in comprehensive treatment of VOCs, and incorporated the VOC emission data of every subsidiary into big data.



Hydrogenation equipment for National VI diesel in Jinzhou Petrochemical

## PROMOTING ENERGY CONSERVATION

Energy conservation is the most effective method to protect the environment. The Company resolutely controls overall energy consumption, and effectively implements the principle that “energy conservation comes first”, upholding energy conservation throughout our production and operation activities in order to support economic and social development with minimum energy consumption.

### Actively Promoting Energy Management and Control

In 2017, we actively conducted exchanges and promotion of energy-conserving technologies, and held seminars on the exchange of energy-conserving technology concerning oil and gas production, refining and petrochemical business with relevant companies and research institutes both at home and abroad. We carried out demonstration projects for energy management in Changqing Oilfield and Jinzhou Petrochemical, and organized major energy consuming subsidiaries to formulate and implement action plan for energy management to lower energy consumption and increase energy efficiency.

### Emission Reduction During Production

While providing society with clean oil products, we attach greater importance to optimizing the energy utilization structure within the Company. The Company strictly observes the *Law of the People’s Republic of China on the Prevention and Control of Atmospheric Pollution*, *Integrated Emission Standard of Air Pollutants* and other laws and regulations to curb the discharge of pollutants in the production process. In 2017, we continued to promote practices including “replacing oil with electricity and replacing oil with gas” in the production process, and accelerated the comprehensive treatment of VOCs.



**820,000** TCE

In 2017, the Company saved energy equivalent of 820,000 tons of standard coal

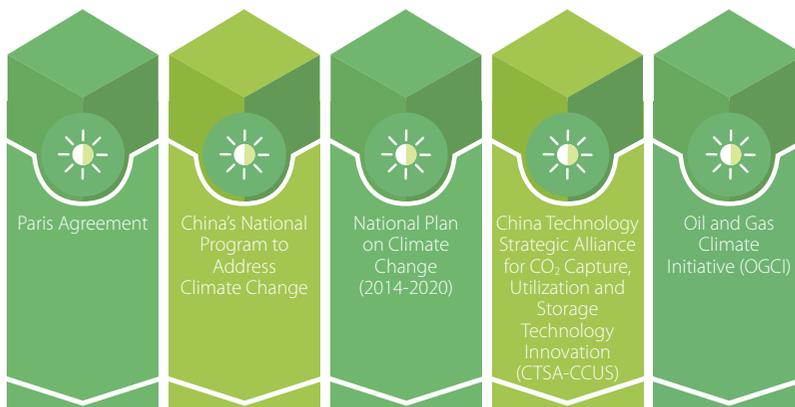
## RESPONSE TO CLIMATE CHANGE

Climate change is a common challenge for humankind. At PetroChina, we support the goal of limiting global warming to less than 2°C by the end of this century. To this end, we actively respond to climate change, devote ourselves to low-carbon development, actively participate in global cooperation, and share the practice of greenhouse gas control with industry peers and all segments of society.

### Curbing Greenhouse Gas Emission

In 2017, the Company clarified goals, major tasks and safeguard measures. We launched a survey on the measures and potential for carbon emission reduction in all business segments, and set three major tasks including supply-side structural reform, demand-side transformation and low-carbon driven development. We established a greenhouse gas accounting and reporting information system to perform accounting on greenhouse gas emission in 2016 among subsidiaries, covering fuel combustion, methane emission, emission in refining and petrochemical process, waste treatment, power consumption, staff community service and other emission sources. In addition, our subsidiaries designed the greenhouse gas emission list; and key carbon-cutting companies completed accounting and reporting of greenhouse gas emission as scheduled, and properly executed preparatory work for certification of initial emission right and quota management technology. In accordance with national guidebook and technical standard for the accounting and reporting of greenhouse gas emission, the Company conducts accounting of greenhouse gas emission. To ensure the relevancy, integrity and consistency of emission data, we are proceeding with the verification of relevant data.

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



In 2017, the Company took active part in mother company's endeavor to cooperate with the Oil and Gas Climate Initiative (OGCI). We coordinated and carried out cooperation with BP, Total, Shell and other OGCI members as well as the whole society on stance and measures in the fight against climate change. The Company participated in the drafting of *OGCI-2040 Low Emissions Roadmap*, conducted survey on methane emission in oil and gas industry, and jointly formulated with other companies the assessment standard for CO<sub>2</sub> storage capacity of the oil and gas industry.

We

- Support the goal of limiting global warming to less than 2°C
- Devote ourselves to low-carbon development
- Actively share the practice of greenhouse gas control with all segments of society

Strategies

- Conduct supply-side structural reform to provide society with low-carbon and clean energy.
- Accelerate demand-side structural adjustment to curb greenhouse gas emission in the production process.
- Strive to develop low-carbon energy and boost the capacity for clean production.

Strategic goals

- By 2020, reduce CO<sub>2</sub> emission per unit industrial value-added by 25% compared with 2015, and strive to stop greenhouse gas emission from increasing in refining industries.
- By 2030, continue to increase the supply of natural gas and other clean energy, make sure that domestic natural gas production accounts for 55% of the Company's domestic primary energy, and effectively control the growth in greenhouse gas emission by expanding natural gas production capacity; greenhouse gas emission volume will reach its peak earlier than expected.
- By 2050, uphold the principle of low-carbon development and reach international advanced level in low carbon development, thus making significant contribution to China's efforts to honor international accords on climate change and to curtail greenhouse gas emission.

Low-carbon development roadmap

- Infuse low-carbon development into corporate strategy. Improve funding mechanisms to ensure investment in major targets of the roadmap. Improve the phasing-out mechanism, and introduce a gradual phasing-out policy for oilfields with high energy consumption and high water cut, and for refining equipment with high carbon emission per unit product and low market demand. Phase in the carbon cost assessment mechanism at proper time to guide investment towards businesses with low carbon emissions.
- Infuse low-carbon development into corporate management. In accordance with the principle of responsibility fulfillment, measures implementation and work execution, build an indicator system for the assessment of greenhouse gas emission control and green development. Conduct management of carbon assets and reduce the energy cost per unit production capacity to boost the Company's competitiveness. Organize stress test for relevant assets of the Company and strengthen managements of assets that have been impacted to counter climate change risk.
- Infuse low-carbon development into technological innovation. Reinforce the synergy of enterprises, colleges and universities, research institutes and users to accelerate the translation and popularization of cutting-edge technology and research findings and meet the urgent demand for energy and environmental conservation in business growth. Build a first-class green technology support platform and enhance indigenous technological innovation capacity in terms of energy conservation, emission reduction and environmental protection. Take active part in the work of OGCI and other international organizations and conduct cooperation in various fields.
- Infuse low-carbon development into social responsibility. Promote the low-carbon concept and advocate ecological civilization, take an active part in the south-south cooperation on climate change, construct corresponding demonstration low-carbon projects in accordance with the general arrangements of the Belt and Road Initiative, and build the image of a responsible energy company.

Safeguard measures

Putting efforts in developing the natural gas business  
 Developing the new energy and renewable energy business



Strengthening carbon emission control for energy consumption

Curbing greenhouse gas emission in the production process

Actively developing carbon capture and sequestration

Carrying out pilot projects to develop other emerging industries

## Development of Low-Carbon Energy

We actively develop natural gas, coal-bed methane, shale gas, biomass energy and other low-carbon energies, constantly promote the exploitation of geothermal energy, solar energy and other renewable energies, and studied the exploitation of natural gas hydrate and other resources, in order to play a positive role in improving China's energy structure. The company attaches great importance to producing and supplying clean products, and works hard to achieve clean production of the products and clean consumption process (see Chapter 2: Sustained Energy Supply for details).

## Special Report

## Curbing Methane Emissions

PetroChina takes active measures to curb the discharge of characteristic pollutants such as VOCs and heavy metal in the chemical industry, and strengthens treatment of sulfur dioxide and nitrogen oxide in petrochemical companies. Multiple subsidiaries in several regions have become pilot units for inspections of VOCs.

The measures for controlling methane emission during oil and gas production include: adopting sealing solutions for oil and gas transportation, recycling the oil well casing gas, and adopting measures such as crude oil stabilization or recovering hydrocarbon vapors of oil storage tanks during crude oil processing. Light hydrocarbons generated by crude oil stabilizer are stored and transported hermetically or treated, and the non-condensable gas generated is recovered and utilized by the recycling system. Tank truck loading of crude oil is by using either the “bottom loading” or “immersed the surface” method.

The measures for controlling methane emission in tanks include: some tanks are pressure tanks, and floating roof tanks are used for the storage of some stable light hydrocarbons under normal pressure with highly effective seals being adopted between floating roofs and tank walls. Floating roof tanks are used for storing part of the stable oil and purified oil.

PetroChina Ningxia Petrochemical Company (Ningxia Petrochemical) was designated as a pilot company for inspection of VOCs pollution source in May, 2017 by the Department of Environmental Protection of the Ningxia Hui Autonomous Region. Ningxia Petrochemical uses VOCs comprehensive platform to manage and control technical route, and has established and applied a program for leak detection and repair (LDAR technology). The company relies on sophisticated and reliable VOCs management and control technology as well as test apparatuses and equipment to conduct on-site inspection, accounting, leak detection and repair review of the following sources of VOCs discharge: the production process system, the organized process system, the storage and transportation system, the collection, transportation and treatment system for wastewater and the abnormal process system. By so doing, Ningxia Petrochemical has built an information platform for comprehensive management and control of production equipment VOCs and has realized remote management through an online platform.





## CUSTOMER-FIRST MARKET SERVICE

At PetroChina, quality is our core principal and the foundation of our corporate value, brand and image. It integrates technological innovation, resource allocation and human resources, and wholly reflects our systems, culture and integrity. As a leading producer and supplier of petrochemical products in China, PetroChina continues to optimize its product structure, while attaching paramount importance to the environment, safety and quality, and people. We endeavor to enhance quality management by focusing on the development and revision of standards, supervision and inspection, and nurturing a culture of quality, in order to provide customers with clean, high-quality and diversified products as well as excellent services.



### SDGs

7 Affordable and clean energy



Ensure access to affordable, reliable, sustainable and modern energy for all

8 Decent work and economic growth



Promote inclusive and sustainable economic growth, employment and decent work for all

9 Industry, innovation and infrastructure



Build resilient infrastructure, promote sustainable industrialization and foster innovation

12 Responsible consumption and production



Ensure sustainable consumption and production patterns

17 Partnerships for the goals



Revitalize the global partnership for sustainable development

## ENHANCING QUALITY MANAGEMENT SYSTEM

China's economy is currently shifting towards high-quality development, which requires us to boost the value of economic quality, especially the quality of products and services. We have to reinforce and raise the standard for product and service quality in order to advance the upgrading of product and service quality and to meet people's ever-increasing demand for high-quality products and service. We strictly complied with applicable laws and regulations on quality management. For this, we established specific management regulations and implementation rules covering all production units, staff and processes relevant to the Company. Giving top priority to quality, we intensified quality management and control, and put into practice the *State Council's Quality Development Program 2011-2020*. We continually improved our quality management system, enhancing quality measurements and standardizing quality management, and honoring our quality commitments. This is to ensure the safety and environmental quality of our products, and to achieve high-efficiency and stable development. In 2017, we strengthened overall quality management, and promoted the application of state-of-the-art quality management methods to boost the quality control capacity covering all staff, the whole process and all dimensions. As a result, we saw remarkable improvements in the quality of our products, projects and services.



### Major progress in quality management in 2017

Main Work	Content
Quality culture	<ul style="list-style-type: none"> <li>Conducted quality promotion, supervision and popularization of relevant knowledge</li> <li>Organized open house day in our labs, and 140,000 employees took part in a knowledge competition on overall quality management</li> <li>40 groups won the national award on excellent quality management, 27 teams won the national award on trustworthy quality, and four subsidiaries won the title of excellent enterprises in quality management in a team activity</li> </ul>
Quality supervision and inspection	<ul style="list-style-type: none"> <li>Supervised and conducted spot-checks on the quality of supplier's products for key projects</li> <li>Conducted targeted spot-checks during key time periods in quality upgrading of Beijing VI and National IV general diesel, and National VI Standard oil products in "2+26" cities</li> <li>Conducted group spot-checks on key projects such as the Second Russia-China Crude Pipeline and the Fourth Shaanxi-Beijing Gas Pipeline</li> <li>Conducted spot-checks on 1,347 batches of purchased products</li> </ul>
Metering verification	<ul style="list-style-type: none"> <li>Medium and low-pressure primary standard device of Chengdu branch of the National Oil and Gas Large Flow Metering Station passed construction standard test</li> <li>Urumqi branch of the National Oil and Gas Large Flow Metering Station completed its construction and passed state test</li> </ul>

## PROVIDING HIGH-QUALITY PRODUCTS

Socioeconomic development has increased customer demand for quality products. Improving people's livelihood and meeting customer demand for quality have always been the motivation and ultimate goal of the Company's efforts to improve quality. The Company has set up standards for using its brand identity. We comply with the *Advertisement Law of the People's*

Republic of China and other laws and regulations in the advertising campaigns for the company's products and services. The Company established customer data management provisions, and acted in strict accordance with the provisions in the management and use of customer data.

### Focusing on Product Innovation

Innovation is the fundamental way to boost product quality. The Company focuses on innovation to achieve this goal. And by actively upgrading corporate standards, optimizing product structure, enhancing scientific management proficiency, and further extending scientific and technological exchanges and cooperation, we strive to diversify our product lines and improve quality. To meet market demand, we researched, developed and applied new technologies, new equipment and new techniques, and spared no effort in implementing major technical projects at PetroChina and at national levels, and by ensuring sufficient research funding, we provided consumers with diverse and high-quality products. In 2017, we developed 1.14 million tons of petrochemical products for 70 new trademarks.



1.14 million tons

1.14 million tons of petrochemical products for 70 new trademarks

### Providing High-quality and Environmentally-friendly Chemical Products

We actively develop high-quality products, and provide consumers with environmentally friendly and diversified product solutions. In 2017, we successfully developed 20 new trademarks for polyolefin products used in lithium battering and other areas; made breakthroughs in the development of new polyolefin products used in gas pipes, medical practices and extra high voltage electric cables; and realized mass production of nine new brands of synthetic rubber such as NdBR.

### Continuous Upgrading of Oil Product Quality

In addition to supporting China's economic development, promoting progress in relevant industries and providing people with an energy guarantee and quality service, we took the initiative to commit ourselves to the cause of ecological conservation. Guided by the principle of green development, we have accelerated our program to upgrade oil quality and made a huge contribution to the advancement of clean production and ecological conservation for society.

In 2017, we made solid progress in upgrading our oil quality by taking two steps: first, the plan was based on existing processing procedure and equipment structure; and second, we relied on technological innovation and applied our indigenous technology of alkylation in new projects. Meanwhile, considering city location, oil demand, and the condition of refining plants, oil depots, pipelines and transportation, and under the principle of proximity, centralized production, rational distribution, and proper advancement, we formulated upgrading plans and determined key supplier companies to guarantee supply of oil products. We completed the National VI Standard quality upgrade among "2+26" cities in the Beijing-Tianjin-Hebei and other regions together with the shift to National V Standard diesel production on a national level, realizing a steady supply at the same time.





Service Station in Gansu Province

## DELIVERING CONSIDERATE SERVICES

Adhering to the principle of “customer satisfaction”, we strive to improve our service networks and their functions and promote our brand value, in order to meet customers’ demands for high quality. We strictly abide by such applicable laws and regulations as the *Law of the People’s Republic of China on Protection of Consumers’ Rights and Interests* and the *United Nations Guidelines for Consumer Protection* relating to advertisements, labels, and privacy on products and services. In light of this, we formulated specific management provisions and implementation rules covering all production units, staff and processes relevant to the Company. In 2017, the Company continued to deepen reforms, strengthen online and offline integration to provide consumers with higher quality services.

**Expand Service Network.** With the accelerated pace of urbanization and the constant improvement of the transport network, we expanded the coverage of our service network under the principle of “relying mainly on self-construction, complemented by cooperation and supplemented by rental”. We also explored the feasibility of and promoted the cooperation model of “oil (gas) station construction+ targeted poverty alleviation” in some provinces and cities to help local residents alleviate poverty and achieve prosperity. In 2017, the newly built oil (gas) stations totaled 550, with 2.97 million tons of supply capacity added. The total number of operating stations reached 21,399, and the sales capacity of gas pumps reached 75 million tons.



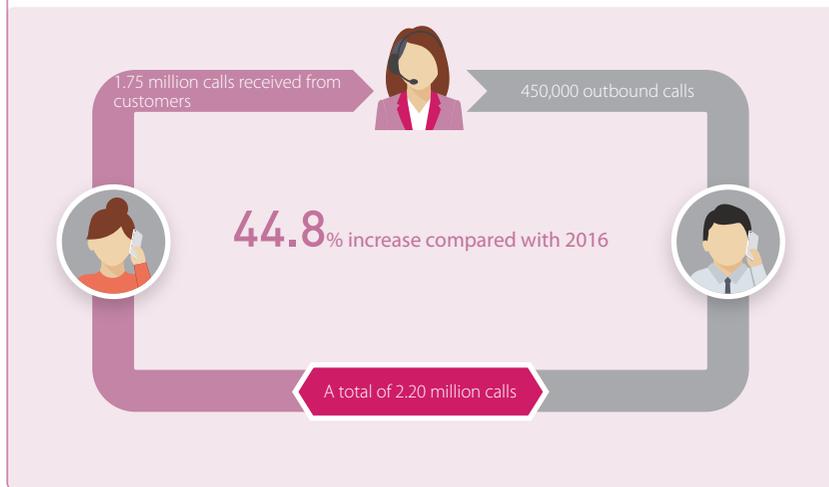
According to the 2017 China Customer Satisfaction Index (C-CSI), an index compiled by brand rating and consulting institute Chnbrand, PetroChina’s aggregate score came out on top in terms of three key satisfaction indicators for gas stations: customer loyalty, overall satisfaction level and elements satisfaction level.

**Enhance Customer Experience.** We promoted Alipay and WeChat pay, and added payment methods such as QR scanning, face-to-face Alipay, mobile payment and mobile transfer. In addition, we further improved third-party payment businesses including Alipay and Tencent, and actively expanded businesses including our retail app, electric coupons, online recharging and credits store, to make consumption more convenient.

**Mystery Customer Program.** We paid for a third party to conduct the “Mystery Customer program” at 31 branch companies. We then published and announced the findings and problems from the visit, and followed up with rectification measures to improve service quality at grassroots stations.



- In 2017, 95504 customer service centers of PetroChina received 1.75 million calls from customers, made 450,000 outbound calls, adding up to a total of 2.20 million calls, marking a 44.8% increase compared with 2016.
- 86.4% of calls from customers were to seek information about how to use the fuel card, the location and phone number of service stations, discount and sales and other businesses; 13.6% were about loss reporting, to leave a compliment, advice and others. Effective work orders of complaints accounted for 0.3%, marking a drop of 0.1% compared with 2016.
- Immediate response rate of work orders reached 99.7%, marking a year-over-year increase of 0.4%, and 11 subsidiaries reached 100%.



**Travel with PetroChina on the Silk Road**

In 2017, the Company held two editions of the self-driving tour “Travel with PetroChina on the Silk Road”. Through interactions with journalists and customers, we provided an in-depth experience of the “smart lifestyle” at our service stations.

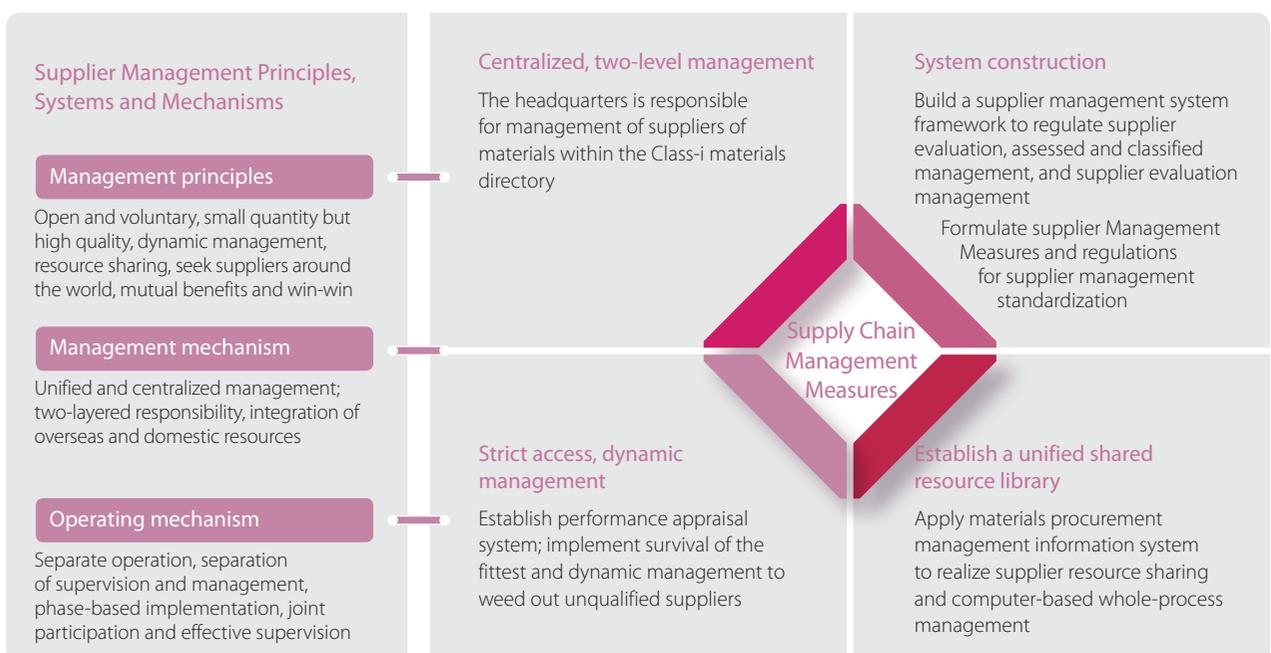


Self-driving tour "Travel with PetroChina on the Silk Road"

## SUPPLY CHAIN MANAGEMENT

At PetroChina, we actively promote the sustainable development of the industry chain, encourage our partners to jointly fulfill our social responsibilities, and provide society with high-quality products and services in a respectful, communicative, honest and cooperative manner.

In 2017, we continued to optimize our business procedure and standards, and realized a top-down integration of business management, control and digitization. We conducted field inspections of suppliers, and strengthened the dynamic management of suppliers. We constantly optimized our supplier base and selected suppliers around the world through public bidding and qualification review, and provided suppliers with equal opportunities under public scrutiny.





# PEOPLE-ORIENTED EMPLOYEE DEVELOPMENT

At PetroChina, employees are our most valuable asset. The all-round development of employees is one of our important development targets. We protect employees' rights, care for their health and well-being, and create a platform for their development. We continue to promote the hiring of local staff, and have been strengthening security at our overseas operations. We endeavor to create an inclusive, equal, mutually trusting and cooperative working environment, and to ensure value is aligned to benefit both employees and the Company.

## SDGs

**3** Good health and well-being



Ensure healthy lives and promote well-being for all at all ages

**4** Quality education



Ensure inclusive and quality education for all and promote lifelong learning

**5** Gender equality



Achieve gender equality and empower all women and girls

**8** Decent work and economic growth



Promote inclusive and sustainable economic growth, employment and decent work for all

**10** Reduced inequalities



Reduce inequality within and among countries



## PROTECTION OF EMPLOYEE RIGHTS

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

### Fair Treatment of Employees

We strictly abide by international conventions approved by the Chinese government including the *International Covenant on Economic, Social and Cultural Rights* and the *Elimination of Discrimination in Respect of Employment and Occupation*, domestic laws including the *Labor Law of the People's Republic of China* and the *Labor Contract Law of the People's Republic of China*, and relevant laws, rules and regulations of the host countries. We have established a complete employment management and policy system to regulate employment practices according to the law. The system incorporates employment contract management, remuneration insurance and benefits, leave, performance appraisal and vocational training. Through self-inspection of our employment practices in compliance with the law, we regulate recruitment, promotion and termination of employee contracts, and provide effective protection of the legal rights of employees.

We are committed to providing equal opportunities and fair treatment to all employees regardless of their nationality, ethnicity, race, gender, religion and culture. We prohibit the employment and use of child labor and reject all forms of forced or compulsory labor. We emphasize the employment of local residents, women, ethnic minorities and college students in order to increase job opportunities for local communities. We strictly implement regulations on female employees' confinement and lactation to protect their rights and interests. We continue to open recruitment without restrictions regarding applicants' ethnicity, gender or religion.



Master's degree and above	3.63%
Bachelor's degree	31.87%
College degree	23.24%
Technical secondary school and below	41.26%



Administrative staff	15.55%
Technical staff	13.49%
Production staff	58.98%
Sales staff	7.46%
Financial staff	2.24%
Others	2.28%



**4.36%**

Female administrative staff account for 4.36% of the Company's total employees



**30.71%**

Female staff account for 30.71% of the Company's employees



**6.5%**

Ethnic minority employees account for 6.5% of the Company's total employees



Over 98% of PetroChina's employees in Kazakhstan are locally employed

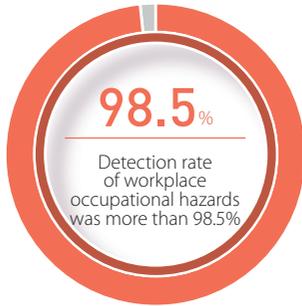
### Remuneration and Benefits

The Company has further improved its performance appraisal and remuneration system, promoted the mechanism to link payroll with performance, established a compensation scheme that pays attention to the value of a position, the job performance and the innovative results of employees while matching the particularities of all staff operations, ensuring that employees' compensation matches the Company's benefit and labor productivity. The compensation system continues to favor researchers, front-line employees, and those in difficult and key posts, so that each employee can realize their full potential. In addition, we pay all social insurance premiums for employees on time and in full in accordance with the *Social Insurance Law of the People's Republic of China*, and we have improved supplementary medical care and insurance, corporate annuity and living allowance schemes to ensure employees' interests are addressed.

### Democratic Participation

The Company attaches great importance to employee democracy and their legal rights and employees play a role through democratic management, democratic participation and democratic oversight. Apart from establishing trade unions, PetroChina has put in place a democratic style of management and a transparent system to deal with matters at its plants, through its Employees' Congress system, to ensure employees are well-informed and have the means to participate in and supervise corporate management. We have further standardized the content, procedures and model of our open system for matters at its plants by clarifying rights and obligations, the organizational system, and working processes for the employee representative congress.

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



## OCCUPATIONAL HEALTH

We abide by the *Prevention and Control of Occupational Diseases Act of the People's Republic of China* in our occupational health management, focusing on the prevention and control of occupational hazards as well as the implementation of related measures. We give top priority to employee health and personal safety by emphasizing occupational health management and protection at field operations, adopting mechanized production to reduce labor intensity and improve working conditions, and caring for employees' mental health.

### Key achievements in occupational health in 2017

Improved occupational health management	Revised <i>Regulations on Detection of Occupational Hazards at Workplace</i> , <i>Regulations on Occupational Health Surveillance</i> and <i>Regulations on Integrating Occupational Disease Prevention and Protection Facilities in the Process of Design, Construction and Operation of Construction Projects</i>
Set up special work groups to supervise occupational health inspection upon project completion	Accelerated rectifications of problems from occupational health inspection for 184 projects
Identified substandard facilities for occupational disease prevention and protection at workplace	Rectified facilities for occupational disease prevention and protection in laboratories and dusty environment



<p><b>Workplaces moderately exceeding emission standards</b></p> <p>Use technical, engineering and management measures to meet occupational exposure limit (OEL) requirements</p>	<p><b>Dust Hazard Treatment</b></p> <p>Fundamental improvement of the working environment</p>	<p><b>Workplaces significantly exceeding emission standards</b></p> <p>Apply remote monitoring technology for unattended operations at posts exposed to hazards</p> <p>Shut down devices in the workplace that still fail to achieve the standards after treatment</p>
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We pay close attention to our employees' mental health, and we abide by China's regulations of working hours and holidays, and take measures to continuously improve the employee vacation system. We implemented the Employee Assistance Program, set up a hotline and a website for psychological counseling, and carried out various forms of training on mental health knowledge, in order to encourage employees to adopt a positive and healthy attitude. In 2017, the Company continued to implement EAP overseas in order to improve employees' mental health and sense of happiness. We employed counselors to deliver lectures on cultivating a healthy mind and related psychological knowledge for frontline employees working in saline wastelands, deserts and other harsh natural environments, in order to help them cope with stress and achieve a healthy work-life balance.



Organize Chinese and local employees to participate in cultural and sports activities

PetroChina's EAP overseas

EAP online platform	On-site counseling by experts	EAP training
Improve psychological counseling service efficiency	Help employees improve stress management capability and better maintain family bonds	Improve EAP talents training
In 2017, the number of counseling cases reached 341, with 652 counseling hours provided and the counseling related service totaled 1,018 hours	In 2017, psychological experts were sent to Algeria, Niger and other enterprises that have overseas businesses, providing 71 training sessions and lectures on crisis response, stress management, and family building	Three EAP ambassador trainings were held in 2017



## ESTABLISHING A PLATFORM FOR EMPLOYEE DEVELOPMENT

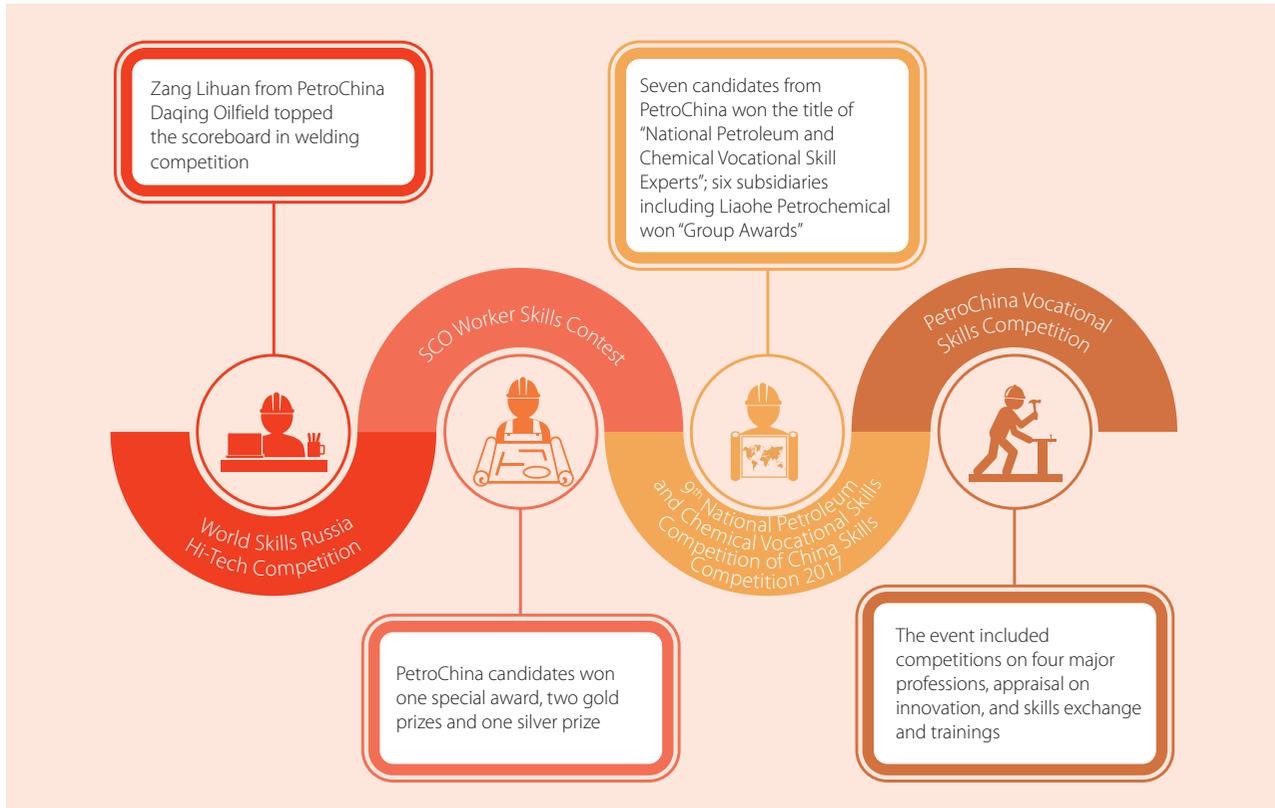
We adhere to modern corporate concepts and advocate innovation in creating space and mechanisms for employee development. We have improved our training centers and network, and address our employees' need for career development at different stages by providing career planning services. We strive to develop innovative employees and provide a stage for employees to develop their self-worth.

### Employee Training

By applying modern corporate training concepts, we continue to improve our training bases and training network. We have carried out diversified and differentiated vocational training for employees through knowledge training, professional training, job training, off-the-job training, etc., in order to achieve positive interaction between employee development and the Company's development.

To promote comprehensive staff training, we conducted the "Four Training Projects" for managerial, technical, skilled and international personnel. The Company's headquarters organized the training for over 20,000 people.





We improve employees' occupational skills and abilities through training and competition. We held the 2017 Vocational Skills Competition on four professions, and we hosted the SCO Worker Skills Contest and National Petroleum and Petrochemical Sector Welding Skills Competition. Our employees teamed up to compete in five international and industrial skills competitions, and won four first team prizes and one second team prize. In addition, three of our employees won the title of "National Skill Experts," six were honored as "Industry Skill Experts" and 27 employees won individual awards.

### Provide Continuous Career Development Channels

With a corporate culture that values moral integrity as well as professional competence, we have developed a selection process that is democratic, open, competitive and merit-based in order to create a positive workplace atmosphere that enables the recognition and best use of talent. We attach great importance to career planning and endeavor to expand career development for employees to maximize their potential. In 2017, we continued to promote the reform of professional rank-based career development for professional technical staff at R&D institutions, kept on improving the incentive system to fully motivate the creativity of talents, and provided technical professionals with an independent, continuous and stable career path. We implemented the Operating Staff Promotion Plan, the Innovation and Efficiency Improvement Program and the Petroleum Expert Development program, in order to improve the career development path for operating staff and motivate employees to be creative on their own posts. We also opened a career path for innovative talents by implementing plans for training oil scientists and outstanding young technicians.

40

By the end of 2017, we set up 40 Skilled Expert Studios

14

14 National Skilled Expert Studios

289

289 senior technical experts

245

245 skilled experts

20



The Company has 20 academicians at the Chinese Academy of Sciences and the Chinese Academy of Engineering

489



489 on job experts entitled to the Government Special Allowance

Skilled Personnel		Innovation Talents
Operating Staff Promotion Plan	Petroleum Expert Development Program	Innovation and Efficiency Improvement Program
Carry out operating staff training and development project to improve career development path	Train top-level talents to play the leading role as skilled experts	Train high-end leading talents and develop talent pool for core talents
<ul style="list-style-type: none"> <li>• Standardize skill classifications</li> <li>• Carry out level and category based management</li> <li>• Improve selection mechanism for skill experts</li> <li>• Launch the election of chief skill experts</li> <li>• Improve incentive and punishment mechanism</li> </ul>	<ul style="list-style-type: none"> <li>• Select 63 employees as key subjects of training</li> <li>• High-end skills seminar and vocational training</li> <li>• Host skill exchange activities for skill experts and organize cross-enterprise, cross-region and cross-profession skill exchanges for key training subjects</li> <li>• Enable one-on-one cooperation between skill experts and technical experts</li> </ul>	<ul style="list-style-type: none"> <li>• Oil Scientists Training Program</li> <li>• Outstanding Young Technicians Training Project</li> </ul>

**Case Study: Star Employee — Roz Mamat Barker**

In Xinjiang Oilfield Company, 25.7% of the employees are ethnic minorities, and one quarter of them are oilfield management personnel, core talents and skilled talents. Roz Mamat Barker is an outstanding representative.

Roz Mamat Barker is a Uygur from Hotan, Xinjiang, and works as an oil production team leader in Xinjiang Oilfield. He has improved his skill set through various development platforms over 23 years of career development. When he started he didn't understand Chinese, but now he is a promoter of Mandarin Chinese and he's a training coach and a national technical expert in the oil production industry. He has received 48 honors including National Outstanding CPC Member, National Model Worker, and National Skill Expert, and 23 of the honors are above provincial level. He was elected to be a delegate to the 19<sup>th</sup> CPC National Congress in 2017.

He has provided oil production training for over 10,000 people, and helped employees from ethnic minorities learn Mandarin and master new skills. When he was promoted to the leader of the oil production team, he innovated the management model and the composite decline rate of oil production under his supervision stood at 9%. The technical exchange website ([www.hlsyw.com](http://www.hlsyw.com)) set up by him has received more than 400,000 visits, making it an influential platform for oil workers to share information and exchange skills and ideas.

He has set up the "Innovation Studio" with core employees in his team, and carried out technical breakthroughs with 16 national level patents, making great contributions to the profitability of the oilfield. Under his leadership, his team has won more than 30 honors, including "National Exemplary Collective for National Unity and Progress", "Top Ten Unit for Culture Building by Company Teams in China", "Top 1000 Exemplary Unit", and "PetroChina Iron Man Pioneer".

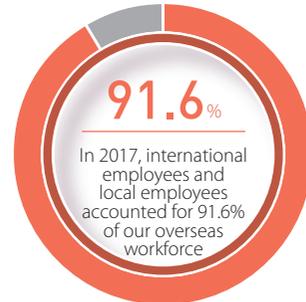
The story of he has motivated a lot of dream-seekers. He explained the importance of knowledge and the charm of the outside world to his fellow villagers and helped more than 100 children who had dropped out of school return to the education system after learning about his story.

## LOCAL STAFF DEVELOPMENT

At PetroChina, we embrace a respectful, open and inclusive culture and we are committed to selecting more local talents who live close to our overseas operations, upgrading their professionalism and making them more responsive to market forces. We abide by all laws and regulations of the host countries. We have formulated Protocols on Local Employee Management in Overseas Operations and have established an optimal system for hiring, deployment, performance appraisal, incentives and penalties. We work hard to attract and train top local talents and to provide them with a working environment conducive to their employee development.

### Local Hiring

We actively recruit and train local employees and do not discriminate against local candidates for managerial positions, providing local people with job opportunities. We have hired professionals in over 30 countries and regions to work in exploration and development, project construction, international trade, finance, accounting, and human resources at overseas projects. In 2017, international employees and local employees accounted for 91.6% of our overseas workforce.



### PetroChina's localization rate in Kazakhstan projects exceeding 98%

PetroChina emphasizes cultural openness and inclusiveness by creating a friendly, harmonious and pioneering atmosphere, and encourages staff of different cultural backgrounds to enhance trust and understanding, and learn from each other. Meanwhile, the Company attaches great importance to the training of local employees by exploring an integrated strategy for talents development, and has formed a competitive team composed of all professions under reasonable structures. The localization rate in our projects in Kazakhstan has exceeded 98%.



The Phoenix dragon boat team of PetroChina Canada competes in Calgary



Tai chi activities of Petrochina International (Japan) enable employees to conduct cultural exchanges while working out

## Respect for Cultural Diversity

PetroChina fully respects cultural diversity and local customs. We promote communication between employees from different cultural backgrounds and advocate respect for different values and traditions, in order to foster cross-cultural cooperation in a culturally diverse workplace.

### Case Study: PetroChina Trans-Asia Gas Pipeline Company Hosted Seminar on Tajikistan Culture

During the Nouruz holiday, PetroChina International Pipeline Company hosted a seminar on Tajik traditional culture for its employees as part of the activities of Central Asian Cultural Tour.

The seminar started with the celebration of Nouruz, explained the history of the development and migration of the Tajik people, introduced their traditional culture and holiday culture, conducted a comparative analysis of the production, living and cultural activities of Tajik people in China and Tajikistan, and showed employees the significance of culture to politics, society and the economy.

The seminar has further enriched the cultural life of employees working on the project and enabled them to better understand Tajik culture and improve relations with local employees. The company is compiling a social science treatise, *Approaching Tajikistan*, and the seminar provided helpful reference for its compilation.

## STRENGTHENING SECURITY IN OVERSEAS OPERATIONS

The safety of our employees has always been an overriding priority in our overseas operations. We promoted the operation of security management systems, strengthened comprehensive control over security risks, continuously enhanced emergency response capabilities, and eliminated security-related fatal incidents in 2017.

### Key measures on strengthening security in overseas operation in 2017

Constantly improve security management system	<ul style="list-style-type: none"> <li>Revised system documents so that management requirements can better match the practical conditions of overseas projects</li> <li>Trained 33 security management consultants and 35 auditors to strengthen technics of security management personnel for overseas subsidiaries</li> </ul>
Enhance supervision and inspection on system efficiency	<ul style="list-style-type: none"> <li>Finished inspection on security management system for 62 overseas projects from 26 subsidiaries</li> <li>Carried out surprise auditing on the security management system at major subsidiaries with overseas business</li> </ul>
Training on anti-terrorism for overseas employees	<ul style="list-style-type: none"> <li>Provided 281 training sessions and trained 17,000 employees to improve their emergency response capability</li> </ul>
Reserve emergency response resources	<ul style="list-style-type: none"> <li>Drafted a global emergency evacuation plan to ensure projects can efficiently respond to emergencies due to rising security concerns in some regions</li> </ul>
Strengthen information-based management	<ul style="list-style-type: none"> <li>Promoted the app of "Overseas Risks" among employees to improve the flow of security information and enhance emergency management through functions like personnel positioning and instant reporting to the police</li> </ul>



# GIVING BACK TO SOCIETY

As a company rooted in society, PetroChina has a duty to give back. Our ultimate goal is to promote socio-economic development, so we attach great importance to the well-being of people and social advancement. We expand cooperation with the private sector through joint ventures, enhance local development capabilities, give donations to impoverished students and organize our staff to facilitate volunteer activities and community services. Through our efforts, we strive to build a harmonious society.

## SDGs

<b>1</b> No poverty  End poverty in all its forms everywhere	<b>2</b> Zero hunger  End hunger, achieve food security and improved nutrition and promote sustainable agriculture	<b>3</b> Good health and well-being  Ensure healthy lives and promote well-being for all at all ages	<b>4</b> Quality education  Ensure inclusive and quality education for all and promote lifelong learning	<b>5</b> Gender equality  Achieve gender equality and empower all women and girls	<b>8</b> Decent work and economic growth  Promote inclusive and sustainable economic growth, employment and decent work for all	<b>9</b> Industry, innovation and infrastructure  Build resilient infrastructure, promote sustainable industrialization and foster innovation
<b>10</b> Reduced inequalities  Reduce inequality within and among countries	<b>11</b> Sustainable cities and communities  Make cities inclusive, safe, resilient and sustainable					



## PROMOTING LOCAL DEVELOPMENT

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

### Case Study: Employment Project in Xinjiang

In 2017, PetroChina recruited ethnic minorities in Lop County of Hotan Prefecture, Xinjiang, to promote the employment of local surplus labor. We formulated training plans for new employees, carried out training on laws and regulations, Mandarin and professional skills, and helped employees overcome difficulties in their life. We employed 205 local people.



### Case Study: Bringing Warmth to Southern Xinjiang in Winter

The five prefectures in southern Xinjiang are underdeveloped regions with a fragile ecological environment. To improve people's lives, protect and ameliorate the fragile ecological environment, PetroChina has successively carried out the "Bringing Natural Gas to Southern Xinjiang" Project and "Southern Xinjiang Natural Gas" Project.

The Southern Xinjiang Natural Gas Project became operational in July 2013. Since then, local people started to use natural gas instead of burning coal and firewood. In 2017, in order to further guarantee gas supply in southern Xinjiang, PetroChina launched several gas pipeline projects and the Awat branch pipeline project, interconnecting the five large gas fields including Dabei Gas Field, Yingmaili Gas Field and Hetianhe Gas Field with the constructed pipeline network. This has effectively coordinated gas supply to the western and eastern regions in China, boosted gas supply to southern Xinjiang, and alleviated the



winter gas supply shortage in southern Xinjiang.

By the end of 2017, the project had cumulatively delivered over 3.786 billion cubic meters of natural gas to southern Xinjiang, benefiting 500,000 households.

Natural gas has not only changed people's lives in southern Xinjiang, but also improved the ecological environment and promoted local socio-economic development.

### "Southern Xinjiang Natural Gas" Project

**6.4** billion RMB

Total investment: RMB 6.4 billion

**2,424** kilometers

Overview: 2,424 kilometers in length, including four trunk lines and 19 branches

**4** million

Gas supply: The daily average gas supply stands at 2 million cubic meters, and peaks at 3.2 million cubic meters in winter, benefiting 4 million local people

**5.2** million tons

Ecological benefits: Reducing 5.2 million tons of carbon dioxide emissions each year



Targeted poverty alleviation program — Sipu Township, Hengfeng County, Shangrao City, Jiangxi Province

## POVERTY ALLEVIATION

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

<p><b>1,039</b> person-times </p> <p>We provided training for poverty alleviation officials, entrepreneurial leaders, teachers and medical workers, totaling 1,039 person-times.</p>	<p><b>46</b> </p> <p>In Barkol Kazak Autonomous County, Xinjiang, we carried out 46 projects including financial poverty alleviation to improve the local infrastructure and enhance the self-development ability of impoverished farmers and herdsmen.</p>	<p><b>17</b> </p> <p>In Qinghe County, Xinjiang, we carried out 17 projects including animal by-products processing to help alleviate poverty.</p>	<p><b>3</b> million RMB </p> <p>In Jeminay County, Xinjiang, we launched projects such as Chinese wolfberry planting and camel breeding to drive the development of the planting and breeding industries with local characteristics. The annual earnings are estimated to be RMB 3 million.</p>
<p><b>76,528</b> </p> <p>We carried out a health insurance project in Xishui County, Guizhou, for 76,528 impoverished people.</p>	<p><b>4,570</b> </p> <p>We implemented a road lighting project in Yinchuan Township, Jishishan County, Gansu, and purchased and installed 60 solar-powered street lamps, benefiting 4,570 villagers.</p>	<p><b>1,200</b> </p> <p>We carried out training on e-commerce, modern agriculture and rural tourism for college-graduate village officials and teachers, with the number of trainees exceeding 1,200.</p>	<p><b>3,000</b> </p> <p>We sent medical experts to Jeminay County and Qinghe County of Altay Prefecture and Barkol Kazak Autonomous County in Xinjiang, as well as Shuanghu County in Tibet, to provide medical diagnosis and treatment, benefiting nearly 3,000 people and training more than 20 healthcare personnel.</p>

In 2017, together with CNPC, we continued to carry out fixed-point poverty alleviation and aid programs, and implemented 45 projects, including infrastructure reconstruction, education and training, healthcare, and industrial collaboration in 13 counties and districts in seven provinces (municipalities and autonomous regions) of China - Xinjiang, Tibet, Qinghai, Chongqing, Henan, Jiangxi and Guizhou, benefiting tens of thousands of people.

#### Some of our cooperated poverty alleviation projects and achievements in 2017

Project Name	Start Time	Location	Partner	Project Details	Achievements
Deepwater Well Construction in Nilka County	2016	Nilka County, Xinjiang	-	From 2016 to 2017, PetroChina built 19 electric pump wells to combat drought in Nilka County	The project covers an agricultural area of more than 1,200 hectares, benefiting 4,725 people
Safflower Industrial Park Project	2016	Jiagasitai Township, Qapqal Xibe Autonomous County, Xinjiang	Yili Yaqina Agricultural Development Co., Ltd.	Taking the agricultural advantage of growing safflower in the region, we invested RMB 3.5 million to establish the Safflower Industrial Park Project, which became operational in October 2017	The project covers 520 poverty-stricken households in the town, creating more income for local farmers and herdsmen, and providing stable employment for impoverished families
Pasture-Herding Cooperative	2017	Toli County, Xinjiang	-	PetroChina invested to improve and promote the breeding of sheep for mutton and goats for milk, and to increase income for herdsmen	The cooperative can create more income and job opportunities for farmers and herdsmen, and improve the traditional way of grazing to protect pasture ecology
Beautiful Village	2017	Fanxian County, Henan Province	China Foundation for Poverty Alleviation Government of Fanxian County	Taking advantage of local resources, Fanxian County develop the cultural tourism industry with lotus planting and processing, and cultural creativity	The project, with estimated annual earnings of RMB 4 million, can promote local employment and development of industries with local characteristics

**Case Study:** A Special Medical Emergency in Shuanghu County

On August 23, 2017, PetroChina's medical team in Tibet successfully helped a woman give birth by cesarean section for the first time in the People's Hospital in Shuanghu. This was a breakthrough for the medical team, and also the first cesarean section at an altitude of 5,000 meters in Chinese medical history.

Since 2009, PetroChina has sent medical teams every year to Shuanghu County in Tibet to provide physical examinations, diagnosis and medicines for local people. Targeting common high-altitude diseases, PetroChina has provided medical services and training to improve the local medical conditions.

**Case Study:** Model Forests for Soil and Water Conservation in Changting

Changting County in Fujian Province is one of China's worst-affected areas for soil erosion and a key county for poverty alleviation and development in Fujian. At the beginning of 2012, PetroChina invested RMB 40 million to construct model forests, which contribute to both the ecological and economic development of the local region.

In the past five years, we have planted 771,822 evergreen broad-leaf trees of 17 species, including soapberry, sweetgum, *elaecarpus sylvestris* and oriental cherry, covering a total of 692 hectares with a survival rate exceeding 98%. In order to increase economic benefits, PetroChina planted 66 hectares 24,000 soapberry trees in core areas of the model forests, generating a production value of RMB 6 million each year. In 2017, to take advantage of the rare earth resources in Changting County, PetroChina invested nearly RMB 800 million to construct the 50kt/a catalytic cracking catalyst project. Upon completion, the project could contribute taxes of around RMB 100 million to Changting County.

Currently, the model forests in Changting are the largest ecological landscape forests in Fujian for soil erosion treatment, and the county has become a model for ecological civilization construction in China. On September 30, 2017, the Ministry of Environmental Protection selected Changting to be among the first batch of Practice and Innovation Bases for "Clear Water and Lush Mountains Are Invaluable Assets", and as a model county for national ecological civilization construction.



Case Study: "Hand in Hand" to Help Achieve Every Small Public Welfare Dream

01

Partner

China Foundation for Poverty Alleviation

Program Purpose

To help ordinary people realize their public welfare dreams, and spread the concept of national public welfare activities

03

02

Program Nature

Mobile client platform for public welfare



04

What We Did

- Set up the platform
- Donated special funds to the China Foundation for Poverty Alleviation
- Explored and funded innovative and feasible public welfare initiatives with social influence

Program Achievements

In 2017, we collected 1,230 suggestions from the public on welfare initiatives and funded 222 of them. These initiatives were contributed by universities, middle and primary schools, community residents, NGO organizations, industry associations and other groups in 30 provinces (municipalities and autonomous regions) including Beijing and Sichuan. They covered a wide range of areas, including youth education, services for the elderly, environment protection and community development. We launched public welfare activities for 215 associations in 145 universities in China, and funded 136 public welfare initiatives.

Ways Public can Participate

The process of collection, approval, voting, funding and supervision of implementation are required to turn the initiatives into actions. The public can log onto the website of the platform to offer public welfare initiatives and download the "Hand in Hand with PetroChina for Public Welfare" mobile app to view them, support them by voting and communicate with others.

05

06

07

Scale of Public Participation

The mobile app of the platform has been used by 128,000 users, a year-on-year growth of 66% compared to the end of 2016. A total of 75% users are under 24 years old. A total of 3.35 million votes have been cast, and people have left over 130,000 comments. It is becoming a platform for the public to demonstrate their creativity, exchange ideas, realize dreams, and spread positive energy.

## SUPPORTING EDUCATION

We believe that supporting education is important to us to fulfill the commitment to social progress and development. The Company strives to carry out various activities and gives young people equal opportunities for education to help them pursue their goals and boost their personal growth. Specifically, we set up scholarships, offer grant loans and subsidies to students from underprivileged families, improve teaching conditions for impoverished regions, and support scientific and cultural activities as well as relevant competitive activities. In 2017, we granted PetroChina Scholarships worth a total of RMB 7.98 million to 1,270 students. We have sponsored the Kunlun Lubricant Formula Student China (FSC) program for seven consecutive years, aiming to create a cooperation platform for the government, enterprises, colleges and universities, research institutes and users, to nurture talent for the automobile industry.

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

**1,270** students

In 2017, we granted PetroChina Scholarships to 1,270 outstanding students

**7.98** million RMB

In 2017, we granted a total of 7.98 million RMB

### Case Study: Teacher Training Program

**100** teachers

We cooperated with Beijing Shijia Education Group, Beijing No. 171 Education Group, Lhasa-Beijing Experimental High School and Urumqi No.58 Middle School, and arranged for more than 100 primary and middle school teachers from areas receiving assistance to receive in-class training in the above-mentioned schools.



**1,700** local teachers

We invited famous teachers from the High School of Renmin University of China and Beijing No.171 High School to provide on-site teaching demonstrations for over 1,700 local teachers in Xinjiang, Henan, Jiangxi and Guizhou.



### Case Study: PetroChina Xuhang Educational Program



In 2017, PetroChina Xuhang Educational Program received the “2016 Excellent Program of Targeted Poverty Alleviation” award.

The Xuhang Program is a public welfare project launched by PetroChina in 2015, aimed to help impoverished senior high school students from underdeveloped areas complete their studies and gain access to college education by providing support for their learning and daily life.

In 2017, the Program was implemented in 10 schools in 10 counties in Sichuan, Henan, Jiangxi and Guizhou, doubling its assistance capabilities. In total 1,500 senior high school students in extreme poverty received assistance from this Program.

#### Make Financial Donations to Help Solve Students' Problems with Living Expenses

##### Offline Activities

“Walker of Kindness”, a large scale outdoor hiking activity launched by China Foundation for Poverty Alleviation in 2014 to help raise funds, combines public welfare with outdoor hiking exercise. The activity requires 4 people to form a team, complete the hiking challenge of 50 kilometers or 100 kilometers within the prescribed time, and raise funds to help children in poverty-stricken areas.

- In 2017, we organized 30 teams including 120 employees to participate in the “Walker of Kindness” activity launched by China Foundation for Poverty Alleviation to raise funds for the Xuhang Program.
- Our teams joined over 3,000 people on the hike. Teams from PetroChina won the championship, finished in second and third place in the 50km hike. One of our teams also finished second in the 100km hike. Nearly ten thousand employees, along with other generous people, donated a total of RMB 600,000 to support the Xuhang Program, making our group the top fundraisers.

##### Online Activities

With the help of the online public welfare platform of Ant Financial, the Xuhang Program has received RMB 334,200 from 13,900 people since it started fund raising on September 6.



#### Care for Growth and Development of Students

We launched activities such as the service station donation “one liter of oil, one lifetime of kindness” for students during the college entrance exams and work-study programs. During the summer vacation, over 200 service stations of ten thousand tons, several hundred employee volunteers and nearly one million people participated in these activities.

## VOLUNTEER ACTIVITIES

At PetroChina we attach great importance to public welfare activities and advocate civilized values. We encourage our employees to participate in volunteer activities to help people in need and make our own contribution to cultural and ethical progress.

### Volunteer Activities of Employees

We encourage our employees to serve communities and participate in other volunteer activities. In 2017, we had 5,903 youth volunteer teams with 163,000 members. They provided 395,000 hours of volunteer services, carrying out activities such as providing financial support to impoverished people, donating blood, planting trees, caring for wild animals and plants, and protecting natural and cultural heritage.

Beijing Marketing Company of PetroChina joined hands with Beijing Municipal Environmental Protection Bureau to carry out the Clean Air and Green Driving environmental protection campaign at the Company's service stations. Our youth volunteer teams have been honored with titles such as PetroChina Model Groups of Volunteer Services, Beijing Model Stations for Volunteer Services, and Beijing Top Ten Volunteer Organizations. Dalian Petrochemical Corporation established the volunteer association, and organized its employees to clean-up marine litter. PetroChina Shandong Marketing Company provided break rooms at service stations for sanitation workers and launched work experience days to teach the public how to respect and care about sanitation workers.

### Volunteer Services for Migrant Workers on Their Way Home

The Spring Festival in 2018 marked the seventh consecutive year we provided free gasoline, food and insurance at the Company's nearly 100 services stations at major national and inter-provincial highways in Fujian, Guangxi, Jiangxi, Hunan and Hubei provinces for migrant workers who need to travel home on motorcycles. The volunteer service was extended from 10 to 40 days. Since we launched the initiative, the number of beneficiaries has exceeded 150,000 people.

163,000



In 2017, we had 5,903 youth volunteer teams with 163,000 members

150,000



The number of beneficiaries has exceeded 150,000 people



Free service for migrant workers who are returning home on motorbikes for the 7<sup>th</sup> consecutive year

## CONTRIBUTIONS TO THE DEVELOPMENT OF OVERSEAS COMMUNITIES

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

### Enhancing Communication with Local Communities

We have set up environmental protection and community relations coordination departments in many overseas areas to promote cooperation with local governments, NGOs and community representatives. By holding conferences, issuing reports and paying visits, we strengthen communication and coordination and achieve a win-win situation in cooperation. In Peru, we set up the public relations department to coordinate and develop relations with local communities, and adopt flexible and effective measures to communicate with local communities, to win their trust and support.

### Community Welfare

We take an active role to help improve the living conditions of local people, give donations to education, healthcare and other public welfare programs to achieve harmonious and mutual development.

<p>In Singapore</p>	<ul style="list-style-type: none"> <li>• We have sponsored and held the New Year Banquet for Elderly People for several years, inviting over 300 senior citizens of different ethnic groups from rest homes to celebrate the New Year</li> <li>• We have provided financial support to Singapore Children Society for years, and donated to Movement for the Intellectually Disabled of Singapore, Council for the Development of Singapore Malay/Muslim Community, Singapore Indian Development Association, National Kidney Foundation, Breast Cancer Foundation, etc</li> <li>• We carried out charity activities for children</li> <li>• In 2017, we invested RMB 688,000 in various aid programs and our volunteers contributed a total of 308 hours, earning favorable comments from members of parliament</li> </ul>
<p>In Kazakhstan</p>	<ul style="list-style-type: none"> <li>• We were involved in supporting a local orphanage</li> <li>• We purchased musical instruments for disabled children</li> <li>• We provided fuel for the vehicles of the Association of Blind People</li> <li>• We provided funds for a local public fund to treat children with life-threatening illnesses</li> <li>• We supported the Almaty government to conduct fire drills</li> </ul>
<p>In Japan</p>	<ul style="list-style-type: none"> <li>• We sponsored the local Go Congress</li> <li>• We opened our soccer field to the community and organized football games for teenagers</li> <li>• We invited local primary school students to visit the refinery plant and helped them gain knowledge of petroleum</li> </ul>
<p>In America</p>	<ul style="list-style-type: none"> <li>• We continuously carried out volunteer activities in local communities, and voluntarily worked in a peanut butter plant of a local church</li> </ul>



Indonesia project protects ecological environment in its operation area

## Local Environmental Protection

We strongly believe in the importance of striking a balance between business development and environmental protection. Therefore, we strictly comply with the laws and international standards on environmental protection in the countries in which we operate, protect local ecological environments, and strive to minimize the impact of our operations on the environment.

<p>In Indonesia</p>	<ul style="list-style-type: none"> <li>• Strictly abide by relevant laws and regulations of the Indonesian government and implement high standards on work safety and environment protection. We keep improving the HSE management system and protect the ecological environment in production and operation zones.</li> </ul>
<p>In Oman</p>	<ul style="list-style-type: none"> <li>• We insist on the principle of “zero-pollution” during oilfield operation and production, and treat oily soil through bioremediation. Industrial solid waste is 100% recycled and treated.</li> </ul>
<p>In Kazakhstan</p>	<ul style="list-style-type: none"> <li>• We use cutting-edge technology to move natural gas and oil directly from the wellheads to the oil and gas treatment plants. We adopt airtight pipelines during the sale of natural gas and crude oil, and paint and overhaul equipment for oil storage, loading and unloading to decrease the vaporization of oil.</li> <li>• We apply treatment to the waste drilling fluid and rock debris produced when drilling and repairing wells. We discharge wastewater into environmentally-friendly tanks for recycling, and restore the landform and plants at the well site upon well completion.</li> </ul>
<p>In Singapore</p>	<ul style="list-style-type: none"> <li>• We took the lead in installing a vapor recovery system for refuelling, to provide a cleaner and safer service at gas stations.</li> </ul>
<p>In Japan</p>	<ul style="list-style-type: none"> <li>• We assisted local environmental protection organizations to carry out forest protection activities. The Osaka prefecture government and Izumisano government sent us letters of appreciation, commending our efforts in environmental protection.</li> </ul>

**2.876** million tons 

We had saved a total of 2.876 million tons of fresh water by the end of 2017

**3,296** 

By the end of 2017, we had planted a total of 3,296 trees, covering 18,726 square meters

#### Case Study: Environmental Protection in Niger

**Protecting local ecological environment.** Since the refinery in Niger became operational in 2012, safe production and environmental protection have been our development principles and basic requirements. We adopted advanced water saving technologies such as wastewater reuse and direct air cooling in a captive power plant, and saved a total of 2.876 million tons of fresh water by the end of 2017. In addition, we designed and constructed landfills for solid wastes in accordance with the most advanced standard in China, treated household garbage through harmless landfill or waste incineration, and hired special recycling companies to deal with recyclable wastes like wood and steel plates. We also built monitoring sites around the refinery to monitor changes of atmosphere and water quality.

**Actively planting trees.** Our company in Niger continuously explored ways to grow green vegetation. The front-line employees took saplings with them when they were transported by plane or truck. From 2009 to 2017, several thousand trees have been planted in the Sahara Desert, with the survival rate exceeding 80%. Our efforts were highly praised by the Niger government and its people. By the end of 2017, we planted a total of 3,296 trees, covering 18,726 square meters.

**Strengthening environmental protection and water conservation in an oilfield in the desert.** In 2016, our company in Niger invested USD 2 million to build three complete sets of wastewater treatment facilities as well as variable frequency constant pressure water supply equipment for afforestation. In March 2017, the three sewage treatment stations were put into operation, and all indicators of the water sample were tested to the highest qualification. We used the reclaimed water to irrigate existing vegetation in the campsite regularly, and recycled sewage. The three campsites can save 7,860 cubic meters of local desert groundwater each month and 94,320 cubic meters groundwater for greening each year.

### Develop Local Economy

We place a strong emphasis on the reliance of local resources and procurement of local products and services, to strengthen cooperation with local enterprises in technical services, logistical support, catering and logistics to boost and promote the development of local SMEs and create more income and employment opportunities for the local communities.

### Tax Payments According to Law

PetroChina strictly complies with the laws and regulations in the countries where it operates, makes lawful and transparent tax payments to local governments, and makes due contributions to local economic development. In countries where the EITI (Extractive Industries Transparency Initiative) standard is implemented, such as Mongolia and other countries, our local companies actively participate in the multi-stakeholder groups and publish information on our projects and tax payments, as required by EITI with the content beyond EITI's minimum disclosure requirements. We support and respond to the Base Erosion and 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 towards sustainable development and make due contributions to socio-economic development.

**25.2** billion RMB

Tax payments overseas in 2017: RMB 25.2 billion



### PetroChina Tax Policy

PetroChina tax policy is consistent with its corporate strategies. PetroChina is committed to paying taxes in countries where business activities take place and value is created in compliance with applicable tax laws and regulations, and to contribute to local economic growth and the sustainable development of the company.

- PetroChina carries out tax planning in support of its business strategy and in compliance with international tax agreements and principles, as well as the tax laws of host countries. PetroChina opposes aggressive tax planning to avoid potential risks and negative impacts on the company's reputation and sustainability.
- PetroChina pays taxes in compliance with applicable tax laws of host countries, its business principles and code of conduct, and adheres to high professional standards to ensure the legitimacy and accuracy of tax payment in a timely manner.
- PetroChina advocates tax transparency, and ensures its tax information disclosures are accurate and fully completed in line with requirements of tax authorities.
- PetroChina manages tax risks through its effective internal control system and engages with tax authorities and external advisors in case of a different interpretation of tax laws and regulations for professional judgment.
- PetroChina carries out intercompany transactions based on the "arm's-length principle" and not for the purposes of eroding tax bases and shifting profits.
- PetroChina takes part in promoting a fair, consistent and stable taxation environment globally and strives to establish a fair, transparent and effective dialogue with tax authorities of host countries.

## Protecting Indigenous Rights

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

### Case Study: Communicating with Stakeholders

In Canada, we actively communicate with the indigenous people living around the operating areas. Specifically, we signed bilateral agreements with local communities and paid local people for consultation on environment protection regularly. We set up training programs on oilfield services, provided local people with job opportunities and set up a fund to help protect indigenous cultures.

In addition, we entered into discussions with local communities and supervising authorities on sustainable development, and how to form a community with shared interests and positive interactions. In recent years, we have paid CAD 750,000 in consulting fees to indigenous people.

# INVESTOR FAQs

## OVERALL ESG PERFORMANCE



### 1. How does PetroChina monitor and ensure the HSE performance of its contractors?

Work safety and environmental protection is a pre-requisite, which secures our steady development. We attached great importance to health, safety and the environment (HSE), giving it top priority in our operations, and reinforced our HSE system. By improving the management system and implementing stricter inspection of responsibility fulfillment, PetroChina closely monitored workplace safety results, strengthened hazard control, and endeavoured to enhance HSE management performance. As a result, our overall HSE performance was stable and improved.

The Company carries out system audits covering all units twice a year. In 2016, we set up an audit team to conduct on-site audits, make recommendations and rectify problems. We initiated quantitative management of the HSE system, organized the preparation of *Criteria for Quantization Review and Evaluation of the HSE Management System*, and helped affiliates in benchmarking against advanced standards to improve their management level. Using the scoring system, the criteria not only include laws and regulations and the Company's system requirements, but also reflect the HSE best practices of outstanding enterprises. It also combines priorities and weaknesses, including rated risk prevention and control, contractor management, risk control, and pollution reduction.

To ensure HSE management keeps pace with our daily production and operations, we carried out HSE standardization at the grassroots level, which covered compliance with management and operation procedures, equipment integrity and worksite cleanliness. We emphasized the importance of risk management and control, focused on the enhancement of execution capability, and standardized our procedures in order to ensure our staff at the grassroots level to pass the assessments. We promoted advanced HSE management concepts and methods to staff, and facilitated the continuous improvement of HSE at the grassroots level.

### 2. How does PetroChina view the impact of environmental, safety and governance factors on its business operations and financial performance?

As the founding member of the Oil and Gas Climate Change Initiative (OGCI), we have taken the initiative to reduce carbon emissions and sequester carbon to address climate change challenges together with the international community. PetroChina has developed the *Action Plan for Green Development*, promoted green and sustainable development as our business strategy, and has taken the initiative to adapt to the global trend of low-carbon development. We are able to maintain stable business operations and financial performance while focusing on environment, safety and governance. As a leading energy company in China, PetroChina operates in a socially and environmentally responsible manner, pays high attention to the environment, safety and governance, maintains a good reputation and pursues harmonious relationships between energy, the environment and the society.

### 3. As a participant in the United Nations Global Compact (UNGC), how does PetroChina apply the UNGC principles to its business strategy?

As a member of the UN Global Compact, we are committed to observing and supporting the Ten Principles advocated by the Global Compact in the fields of human rights, labor rights, environment protection and anti-corruption, using the Ten Principles to guide our practices in fulfilling social responsibilities.

In terms of human rights, we support and respect the protection of internationally proclaimed human rights, and promise not to be complicit in human rights abuses. In terms of labour rights, we uphold the freedom of association and the effective recognition of the right to collective bargaining, the elimination of all forms of forced and compulsory labour, effective abolition

of child labour, and elimination of discrimination in employment and occupation. As for environmental protection, we support a precautionary approach to environmental challenges, undertake initiatives to promote greater environmental responsibility and encourage the development and diffusion of environmentally friendly technologies. With regard to anti-corruption, we strive to combat corruption in all its forms, including extortion and bribery, and to establish a global framework for sustainable development and enhancement of social benefits.

#### 4. To what extent is PetroChina's HSE management system certified by OHSAS18001 or other systems?

PetroChina has enhanced its HSE system through recognized certification, in compliance with international regulations and standards. For example, the Oman Project was certified under OHSAS 18001:2007, ISO 9001:2008, ISO 14001:2004, three international certifications issued by the British Standards Institution. Det Norske Veritas was engaged for the Halfaya Project to conduct a HSE audit in 591 aspects, according to the requirements of International Safety Rating System (SRS).

To ensure the smooth operation of the HSE system and its continuous improvement, PetroChina introduced a third-party HSE management system. We have established an independent HSE Management Certification Center, which is also certified under the national OHS-MS management system. The Certification Center will conduct an independent audit of HSE applicants. Successful applicants will be granted both HSE and OHS-MS certification.

## CORPORATE GOVERNANCE



#### 5. What measures has PetroChina taken to prevent corruption?

PetroChina strives for good corporate governance, and has always made the three areas of safety and environmental protection, harmony and stability, and anti-corruption as its top priorities. Further, PetroChina takes a firm stance against corruption. As a company listed in three major financial hubs, including the Hong Kong Stock Exchange, New York Stock Exchange and Shanghai Stock Exchange, PetroChina has a well-established corporate governance structure as well as an open and transparent information disclosure system, in compliance with all applicable listing rules and related policies. Since becoming a member of United Nations Global Compact (UNGC) in 2007, and as one of the pioneering Chinese company participants, PetroChina has been reporting its progress in social responsibility, including anti-corruption, in compliance with the Ten Principles of the UNGC.

PetroChina remains steadfast in its determination to fight against corruption and has taken a series of measures.

(1) We view anti-corruption as one of the key initiatives for the management. PetroChina has established an anti-corruption leading group led by its Chairman, and formulated a system and work plan for corruption penalties and prevention, to continuously promote the functioning of disciplinary mechanism for corruption.

(2) The Company has developed comprehensive mechanisms, rules and procedures to combat corruption. PetroChina has further enhanced and reinforced its systems, promoted management innovation, strengthened its fundamental work, ensured the proper exercise of management authority, clearly defined the delegation of power, developed a compliance management system, stepped up the supervision of its overseas businesses, and strengthened its supervision and accountability system. Since 2012, the Company has implemented a series of measures and regulations, including the *2013-2017 Work Plans to Establish and Improve the Systems for Punishment and Prevention of the Bribery Act*, the *Anti-corruption Guidelines for Overseas Businesses* and the *Views on the Implementation of Anti-Corruption Training of Senior Management*. These aim to create a long-lasting, effective mechanism which can close loopholes, and prevent and resolve problems.

(3) To improve the corporate governance structure, PetroChina has set up a board nomination committee, consistent with the best standards in corporate governance in August 2015. A more transparent and complete nomination process has thereby come into being.

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#### 6. What kind of workplace health and safety (WHS) strategy does PetroChina adopt? Does it cover contractors?

PetroChina has always been attaching high importance to workplace health and safety, and has set up Health, Safety and Environmental Protection (HSE) Committee. The main responsibilities for the committee involve the following aspects: supervising the effective implementation of the Company's HSE plans; making recommendations to the board of directors and the president on major decisions or major issues affecting the Company's health, safety and environmental protection; raising questions about major accidents that have occurred involving the Company's production and operation, property assets, employees or other facilities as well as the relevant liabilities, and examining and supervising the handling of such accidents. In addition, the Company has built a dual-prevention mechanism covering risk prevention and hazard control, while improving classified risk control and close-loop hazard management, in order to eliminate risks and potential hazards before they occur. We emphasize the management of key links and areas including high-risk operations. Safety and environmental protection technology diagnosis and management assessment are carried out on key subsidiaries, key projects and high-risk areas to ensure that major risks are under control. On the contractor's side, PetroChina promotes the holding of dual certificates by contractors' management personnel, strictly implements the safety supervision responsibility of contractors, based on the principle that those who undertaking, supervising and implementing the project are held responsible and conduct targeted safety inspection of contractors' oversight. The Company implements safety qualification screening system for contractors and suppliers. Contractors with major accidents will no longer be engaged.

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#### 7. How does the Company assess potential corruption in its supply chain? Does the Company perform due diligence on suppliers? Does the Company conduct competitive bidding and how will it prevent possible violations through the procurement process?

We have also established a complete supplier quality management mechanism which covers quality approval, inspection, supervision and spot-checking, and onsite supervision of the manufacturing of major products. Through the application of information technology and internet, we implemented targeted and comprehensive supervision and inspection to minimize dishonest behaviors.

We have set up a supplier review committee, which includes 54 materials working groups composed of representatives from the relevant departments and subsidiaries of PetroChina. They are authorized to exercise supplier management for relevant materials on behalf of headquarters. We have built a unified supplier base to implement "open business, controlled processes, whole-process documentation, and permanently traceable records" to ensure the quality of the procured products and services.

We conduct global supplier sourcing through open bidding qualification examination to provide fair and transparent competition for supplier participation and accept supervision from all walks of life. In addition, the Company has established performance appraisal system, to implement survival of the fittest and dynamic management to weed out unqualified suppliers.

## OVERSEAS OPERATIONS

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#### 8. How does PetroChina prevent and control risk in overseas operations?

PetroChina is in a stage of rapid development of its domestic and international operations. Our overseas operations are mostly in countries and regions with high risks. Uncertainties in production and operation have led to an increase in unforeseen factors and a significant increase in security risks. In response, the Company has taken careful control measures. First,

we have been persisting in incorporating joint venture companies with strong partners with outstanding advantages, and sharing cooperation results and operational risks with host countries and partners. Second, we have further optimized the structure and layout of overseas oil and gas assets. Third, we have been actively adapting to changes in political and economic environment of the host countries while adopting a flexible and pragmatic management strategy. Fourth, we have been vigorously promoting the localization of overseas employees. Fifth, we strictly observe the laws and regulations of the host countries, fully respect local cultural traditions and customs, and actively perform social responsibilities, support and participate in public welfare undertakings, protect the ecological environment and benefit the communities and the public. Sixth, we have built an overseas early warning and emergency response mechanism, consummated our risk prevention system and improved our emergency response capabilities, thus ensuring the safe operation of overseas projects and employees' life and property safety. The practice has proved the measures and actions that we have taken are fruitful, and we will carry them forward while making constant improvement.

## COMMUNITIES AND STAKEHOLDERS' INVOLVEMENT



### 9. How does PetroChina view international cooperation? How will the Company build energy cooperation communities?

Against a backdrop of rising complexity in the international political and economic situation, traditional energy enterprises, especially oil and gas companies, face a series of challenges to their development, including loss of development space to non-fossil fuels, and greater requirements for clean and low-carbon development in response to global climate change. Meanwhile, it faces a major opportunity for the rapid development of the natural gas industry. Enhanced international cooperation is required to overcome the multiple challenges and promote transition and development.

As a major player in international energy cooperation, we will build energy cooperation communities to align ourselves with the market trend. First, we will broaden the fields of cooperation. Taking the opportunity of global energy industrial restructuring and guided by government initiatives such as the "One Belt and One Road Initiative", we will establish new partnerships and expand all-round cooperation along the entire value chain. Second, we will strengthen the sharing and exchanges of technologies and expertise, by fostering open multilateral technical and skills exchanges, enhance joint development and the promotion and application of new technologies, and strengthen exchanges and joint training of our talents. Third, we will actively promote and participate in energy management, encourage governments to provide open resources and markets, participate actively in the construction of regional and global energy trading markets, support the democratization and institutionalization of global energy governance rules, and create more favorable investment environments. Fourth, we will take part in actions dealing with major risks, and establish platforms for information sharing and coordination mechanisms for risk prevention and control.

PetroChina will adhere to the spirit of openness and the concept of mutual benefits and win-win results, enhance cooperation with businesses in various countries, and play a constructive role in a responsible manner to become a preferred partner for its counterparts all over the world.

### 10. How does PetroChina enforce its intensive communication with the stakeholders?

We have built a multi-level and multi-form mechanism to communicate with stakeholders, through periodic reports, interim reports, media communications, interviews and visits, and interactive communication. We amplified and perfected the management and related systems for the disclosure of major events. By engaging with stakeholders and listening to their opinions and opinions, the Company can effectively identify the issues that stakeholders are most concerned with on major issues.



## ENVIRONMENTAL PROTECTION

### 11. What are PetroChina's plans in relation to future GHG direct emission and zero routine flaring by 2030?

As a responsible energy company, we attach great importance to the control and reduction of greenhouse gas emissions and have addressed climate change in our development plan. We have already started to formulate the roadmap for low-carbon development and started to establish a carbon emission control system. This specifically sets development goals, emission reduction measures and technical routes, with a primary focus on carbon footprint verification, carbon emission reduction and on building near-zero carbon emission demonstration projects. Additionally, we strengthen greenhouse gas management and controls, plan and mitigate carbon dioxide and other greenhouse gas emissions from the source, production process and product use, and conduct carbon inventories and reporting in accordance with international practice.

PetroChina strictly complies with the Chinese government's requirements on greenhouse gas emission reductions, and actively supports and cooperates with the international community in the formation of policies and action to address climate change. The final conclusion of the Paris Climate Agreement marked the acceleration of clean energy development and the establishment of a global carbon assessment standard. As the founding member of the Oil and Gas Climate Change Initiative (OGCI), we have taken the initiative to reduce carbon emissions and sequester carbon to address climate change challenges together with the international community.

In terms of long-term business strategy, we actively optimize our business structure, step up the development and utilization of natural gas exploration, accelerate the efficient development of unconventional resources, and increase the output of green, low-carbon energy forms. In China, we supply natural gas to more than 500 million people, increasing the proportion of natural gas in China's primary energy consumption by 3.4%.

With regard to the disclosure of carbon emissions, the Company will calculate greenhouse emissions based on the new national greenhouse emission calculation methods and reporting guidelines. The emission data will be released according to applicable regulations upon approval by third party organizations and government authorities. At present, relevant work is under preparation, and will complete as soon as possible.

### 12. PetroChina is a member of OGCI and has made due contribution to this organization. Can you list some cases to prove the Company has exerted positive influences as an OGCI participator?

Since becoming a member of the OGCI, PetroChina has been actively involved in all types of activities within the OGCI framework, and has worked closely with its international counterparts. The specific work is mainly reflected in the following three aspects:

(1) We have established the OGCI work leading group to ensure the execution of various endeavors. The OGCI work leading group is composed of three working groups: Carbon Capture, Utilization and Storage; Low Emissions Roadmap; and Managing Methane Emissions.

(2) We actively participated in the preparation of OGCI's new management regulations. Through respective teleconferences with the executive committee members from BP, Total, Shell, Saudi Aramco and other member companies, CNPC appreciated the cooperative relations among these companies, coordinated their opinions on important issues, and ensured that the Company's viewpoints were fully understood and addressed.

(3) We actively participated in the Climate Investments (CI). We took part in the work of the OGCI Climate Investments preparatory group, followed the work in progress, and invested in demonstration projects in low-carbon areas jointly with member companies. The member companies will invest USD1 billion over the next 10 years to accelerate development of innovative technologies, and the investment will be made mainly in technologies development, demonstration projects and emerging projects.

### 13. How does PetroChina strengthen environmental impact assessment and governance?

Our oil and gas exploration and development projects, long-distance pipeline projects and refining facilities may involve certain environmental risks. PetroChina respects and protects the environment and strictly complies with relevant international and domestic laws and regulations. We take the initiative to evaluate the environmental impact of our decisions and activities, step up efforts in hazard control and environmental protection during production in order to safeguard our land, water and biodiversity, and reinforce ecological restoration of the environment. By doing so, we endeavour to grow in harmony with the environment.

We assess and identify environmental risks, implementing a risk prevention and control management model focusing on environmental forecasting, early warning and monitoring. We begin the environmental risk management at an early stage, and establish a sound risk management mechanism featuring “management in tiers, prevention and control by level”. Environmental management is implemented for the duration of construction projects. For each construction project, facilities for the prevention and control of pollution, and other potential damages to the environment, are integrated and established in the process of design, construction and operation, with the main project to ensure full control of environmental risks. We have reinforced the environmental monitoring capacity, completed the installation and data networking of online monitoring equipment for waste water and waste gas, and performed real-time monitoring and early warning of discharges from major pollution sources, to ensure treatment at the source and control over the production process.

### 14. What progresses has PetroChina made in developing low-carbon energy?

We believe only by increasing the development and use of clean and efficient low-carbon energy and by reducing the carbon emissions caused by the use of energy, can the Earth reach the carbon dioxide emissions peaking soon and effectively control the rise in the Earth’s temperature. Natural gas is generally recognized as a high quality clean energy and is the most realistic option to adjust the energy structure, control air pollution and reduce carbon emissions at present. PetroChina is eyeing the sustainable supply of future clean energy, and considers natural gas as a strategic and growing business. It is increasing investment in natural gas exploration and development, accelerating the construction of cross-border gas pipelines and the domestic gas pipeline backbone network facilities, advancing the development of unconventional gases such as tight gas, coal bed methane and shale gas, pushing forward the development and use of natural gas, researching, developing and promoting the development and use of new energy, in order to meet demand by the society for clean energy.

In addition, as the application of science and technology plays a significant role in controlling greenhouse gas emissions and addressing climate change, we carried out studies on carbon dioxide flooding and storage and other key carbon lowering technologies. PetroChina’s “Study on Key Technologies for CO<sub>2</sub> Enhanced Oil Recovery and Carbon Dioxide Storage” project under the National 863 Program passed national acceptance. Moreover, we established China’s first CCS (carbon capture and storage) base in Jilin Oilfield which covers the entire value chain, including carbon dioxide separation, capture and flooding in. Furthermore, a memorandum of understanding was signed with GE on technology and R&D cooperation which promotes our collaboration in carbon capture, storage and utilization, and low-carbon and environmentally friendly technologies.

With its excellent performance in green, low-carbon development, PetroChina was named a “China Low-carbon Model Enterprise” for the sixth consecutive year at the Seventh “Low-carbon Development • Green Life” Charity Exhibition and the Press Conference on 2016 China Lowcarbon Model Enterprises organized by China News Service and China News Weekly.

# PERFORMANCE STATISTICS

Category	Indicator	2015	2016	2017
Economic	General assets (RMB 10 <sup>9</sup> )	2,393.8	2,396.7	2,404.6
	Turnover (RMB 10 <sup>9</sup> )	1,725.4	1,616.9	2,015.9
	Net Profit (RMB 10 <sup>9</sup> )	35.5	7.9	22.8
	Taxes (RMB 10 <sup>9</sup> ) <sup>①</sup>	337.5	317.1	329.6
	R & D Spending (RMB 10 <sup>9</sup> )	-	175.65	186.01
	Overseas Tax (RMB 10 <sup>9</sup> )	283	285	252
	Proved reserves of crude oil (10 <sup>6</sup> barrels)	8,521	7,438	7,481
	Proved reserves of gas (10 <sup>9</sup> ft <sup>3</sup> )	77,525	78,712	76,888
	Oil equivalent production (10 <sup>6</sup> barrels)	1,493.9	1,466.6	1,457.8
	Crude oil production (10 <sup>6</sup> barrels)	971.9	920.7	887.0
	Marketable natural gas production (10 <sup>9</sup> ft <sup>3</sup> )	3,131.0	3,274.5	3,423.4
	Total length of crude oil pipelines (km)	18,892	18,872	19,670
	Total length of refined products pipelines (km)	10,091	10,560	11,389
	Total length of natural gas pipelines (km)	48,629	49,420	51,315
	Safety	Crude runs (10 <sup>6</sup> barrels)	998.1	953.3
Ethylene production (10 <sup>3</sup> tons)		5,032	5,589	5,764
Environment <sup>②</sup>	Fatalities caused by accidents (person/100 million working hours)	0.26	0.20	0.12
	Total accident rate (incidents/million working hours)	0.0498	0.0598	0.0652
	Total energy consumption (10 <sup>6</sup> TCE)	80.77	79.90	80.98
	Total raw coal consumption (10 <sup>6</sup> TCE)	11.83	11.80	12.21
	Total crude oil consumption (10 <sup>6</sup> TCE)	2.90	2.03	1.87
	Total natural gas consumption (10 <sup>9</sup> m <sup>3</sup> )	16.5	16.2	16.6
	Total electricity consumption (10 <sup>9</sup> kwh)	42.9	46.6	50.3
	Fresh water consumption (10 <sup>6</sup> m <sup>3</sup> )	-	-	791.21
	Comprehensive energy consumption for producing unit volume of oil and gas equivalent (kg of standard coal/ton)	128	119	118
	Unit energy factor consumption for refining (kg standard oil/[t · factor])	8.3	8.07	7.91
	Fresh water consumption for processing 1 ton of crude oil (m <sup>3</sup> )	-	-	0.51
	Comprehensive energy consumption of producing ethylene products (kg of standard coal/ton)	594	576.3	584
	Energy conserved (10 <sup>6</sup> TCE)	1.04	0.87	0.82
	Water conserved (10 <sup>6</sup> m <sup>3</sup> )	16.83	11.32	11.01
	Employees	Saved land (hectare)	1,200	1,135
COD discharged (10 <sup>3</sup> tons)		28.5	28.4	28.2*
NH <sub>3</sub> -N emissions (10 <sup>3</sup> tons)		11.7	11.4	10.8*
SO <sub>2</sub> emissions (10 <sup>3</sup> tons)		123.3	123.2	109.1*
NO <sub>x</sub> emissions (10 <sup>3</sup> tons)		122.7	112.7	102.9*
Number of employees (10 <sup>3</sup> )		522	508.8	494.3
Percentage of female staff (%)		31.6	31.2	30.71
Public welfare	Percentage of female administrative staff (%)	4.7	7.22	4.36
	Percentage of employees receiving occupational health checks (%)	98	98	98.5
	Percentage of non-Chinese nationals in overseas hires (%)	91.3	91.1	91.6
	Contribution to poverty alleviation (RMB 10 <sup>6</sup> )	208.64	252.89	129.31
Public welfare	Educational donations (RMB 10 <sup>6</sup> )	15.40	41.88	26.58
	Donations to disaster relief (RMB 10 <sup>6</sup> )	3.88	1.74	79.73
	Environmental protection (RMB 10 <sup>6</sup> )	92.95	2.43	3.36

① The total taxes paid by the Company in China and abroad. The data disclosed in Sustainability Reports published before 2015 were the taxes paid by the Company in China.

② Data indicated with \* are internally tested and audited data.

1 BOE = 1 barrel of crude = 6,000 cubic feet of NG = 169.9 cubic meter of NG

1 cubic meter of NG = 35.315 cubic feet of NG

1 metric ton of crude = 7.389 barrels of crude (API = 34)

## OBJECTIVES AND PLANS

In 2018, we will comply with the fundamental requirements for high-quality development, keep making progress while ensuring stability, and adhere to the principle of steady development. We will further seek steady growth, promote reform, improve weak areas, guard against risks, increase efficiency, and fully accomplish various tasks and objectives in a coordinated way, so as to make new contributions to promoting China's sustained and healthy economic and social development.

Aspects	2018 Objectives	2018 Action Plans
Corporate governance	Improve the modern enterprise system, and promote the building of a modern and internationalized corporate governance system and management and control capability	<ul style="list-style-type: none"> <li>• Break bottlenecks, and carry out management system reform and professional restructuring and integration</li> <li>• Stimulate vitality, and deepen the reform of the market-oriented mechanism</li> <li>• Enhance quality and efficiency, and promote mixed ownership reform and make the Company leaner and healthier</li> </ul>
Oil & gas production and supply	Give full play to the market-oriented and efficiency-based principle by implementing the supply-side structural reform, make full use of domestic and foreign resources and markets, ensure optimal operation of oil business chain and gas business chain, and enhance quality and efficiency in oil and gas production and supply	<ul style="list-style-type: none"> <li>• Strengthen domestic oil and gas exploration and development, and lay a solid and reliable foundation for development and source for benefits</li> <li>• Promote the transformation and upgrading of refining and petrochemical business, and build an important pillar for value growth</li> <li>• Address the areas of weakness in oil product marketing, and develop Gas Station Version 3.0</li> <li>• Accelerate the development of natural gas and pipeline business, and implement projects of strategic value</li> <li>• Develop overseas operations in a high-quality and efficient manner, and build a community of shared interests in international oil and gas cooperation</li> <li>• Strive for coordinate development and new energy development, to build an integrated energy service provider</li> </ul>
Safety and environmental protection	Strengthen fulfillment of responsibilities and risk prevention and control, and ensure continual and steady improvement of HSE situation	<ul style="list-style-type: none"> <li>• Profoundly promote the efficient operation of the HSE management system</li> <li>• Actively establish a dual-level prevention mechanism for graded risk control and hazard identification and treatment</li> <li>• Vigorously improve environmental management and control</li> <li>• Attach great importance to oil and gas security and anti-terrorism</li> </ul>
Employee development	Build a contingent of high-caliber cadres Develop a talent team for innovation and creation Improve a mechanism for regular growth in staff income	<ul style="list-style-type: none"> <li>• Carry out pilot projects for leadership term and leadership tenure</li> <li>• Continue to promote the pilot projects for professional manager system</li> <li>• Improve the total wage decision-making mechanism</li> <li>• Improve the salary distribution system closely linked with performance appraisal results</li> <li>• Start full-scale personnel location, and resettle redundant employees</li> <li>• Organize research on regional coordination, system and mechanism reform for new energy business and other areas</li> </ul>
Social contribution	Let the general public enjoy the fruits of our reform and development in a wider and fairer way	<ul style="list-style-type: none"> <li>• Take targeted measures in poverty alleviation, especially through industrial poverty alleviation, to contribute to China's fight against poverty</li> <li>• Promote mixed ownership reform</li> <li>• Support and promote local economic and social development</li> </ul>

## GLOSSARY

<b>Proven reserves</b>	According to China National Standards, proven reserves are estimated quantities of hydrocarbon deposits possibly to be recovered from reservoirs proved by appraisal drilling during the period of reservoir evaluation, with a reasonable certainty or a relative difference of no more than $\pm 20\%$ .
<b>Proved reserves</b>	According to the guidelines of the US Securities and Exchange Commission, proved reserves refer to, against current economic and operating circumstances, the quantity of oil, natural gas or liquid natural gas which can be reasonably identified and recovered from known oil & gas layer in the future according to geological and engineering documents. Their price and cost are based on the reality in evaluation. Price changes will only consider the changes of current price specified by contract agreement rather than escalations. Proved reserves include proved reserves developed and undeveloped.
<b>Reserve replacement ratio</b>	The reserve replacement ratio refers to the value of the amount of oil and gas reserves added in a year divided by the amount of oil and gas produced during that same year.
<b>Recovery ratio</b>	The percentage of oil/gas in place that is recoverable from underground.
<b>Horizontal well</b>	A class of nonvertical wells where the wellbore axis is near horizontal (within approximately 10 degrees of the horizontal), or fluctuating above and below 90 degrees deviation. A horizontal well may produce at rates several times greater than a vertical well, enhance recovery efficiency and prolong the production cycle, due to the increased wellbore surface area within the producing interval. Meanwhile, the environmental costs or land use problems that may pertain in some situations, such as the aggregate surface "footprint" of an oil or gas recovery operation, can be reduced by the use of horizontal wells.
<b>Liquefied natural gas (LNG)</b>	Liquefied natural gas is produced by dewatering, deacidifying, dehydrating and fractionating the natural gas produced from a gas field and then turning it into liquid under low temperatures and high pressure.
<b>New energy</b>	New energy refers to unconventional energy and renewable energies, mainly including CBM, shale gas, oil sands, oil shale, fuel ethanol, biodiesel, geothermal energy, wind energy, solar energy, hydrogen energy, water-soluble gas and NGH.
<b>Low-carbon economy</b>	A low-carbon economy is an economic development model characterized by low energy consumption, low pollution and low emissions. Its essence is efficient energy consumption, development of clean energy and pursuit of green GDP. The core of this model is the optimization of the industrial structure, low-carbon technology and institutional innovation. A low-carbon economy is developed by means of energy conservation, emissions reduction and the development of clean energy.
<b>Greenhouse gas (GHG)</b>	Greenhouse gases are gases in an atmosphere that absorb solar radiation from the surface and then emit radiation, such as water vapor, CO <sub>2</sub> , and most refrigerants. Their effect is making the Earth's surface warmer, as the "greenhouse effect" sequesters solar radiation and increases the temperature of the air. Greenhouse gases in the Earth's atmosphere mainly include CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, HFC <sub>s</sub> , PFC <sub>s</sub> and SF <sub>6</sub> .
<b>Carbon sequestration</b>	Also refers to carbon sinks. It is the process, activity and mechanism to remove carbon dioxide from the air. Generally, it indicates the capability of forests to absorb and store carbon dioxide. Carbon dioxide in the atmosphere is artificially sequestered in biological forms in plants and the soil through forestation, forest management, and other forest carbon sequestration measures.
<b>HSE management system</b>	HSE is the acronym of the health, safety and environment management system. The HSE management system is an integration of various elements such as organizational structures, mandates, practices, procedures, processes and resources used for health, safety and environment management. The advanced, scientific and systematic integration and operation of these elements create the mutually reinforcing, supportive and interactive and dynamic management system.

<b>Oils (mineral oil)</b>	Compounds of hydrocarbons in wastewater. These include all substances collected by certain solvents, as well as all substances extracted by solvents from acidified samples, which remained fixed during the extracting process.
<b>Chemical oxygen demand (COD)</b>	Chemical oxygen demand is the quantity of strong oxidant consumed to process water samples. It serves as a comprehensive index of pollutants in wastewater and their impact on the environment. A higher COD represents the heavier pollution of reductive substances in the water body.
<b>Major accident</b>	Major accidents refer to accidents that cause deaths above 10 but below 30, or grievous harm to people numbering above 50 but below 100, or economic losses worth above RMB 50 million but below RMB 100 million.
<b>Emergency accidents</b>	Emergency accidents refer to sudden emergent accidents which result in or may result in serious casualties, and/or damage to property, the environment, society and public safety. Emergency accidents faced by PetroChina include four types, namely natural disasters, accidents, public health and social security.
<b>Occupational disease</b>	Diseases caused by exposure to dust, radioactive substances and other toxic and hazardous substances to employees working for enterprises, institutions and private organizations.
<b>Occupational health surveillance</b>	A series of health examinations for professionals in an industry aimed at preventing occupational health threats and improving the health of employees. Occupational health surveillance includes occupational health checks, management of occupational health archives, etc.
<b>Occupational health examination</b>	Physical examination of workers exposed to occupational health threats. The items and frequency of checks should be determined by the category of health threats, and by stipulations in the <i>Items and Frequencies of Occupational Health Checks</i> . These include checks before, during and at the end of a worker's assignment, as well as emergency checks.
<b>Occupational health examination ratio</b>	The annual ratio between the numbers of workers exposed to occupational threats who have taken occupational health checks and the total number of workers who should receive such checks.
<b>Stakeholders</b>	Stakeholders are groups and individuals that are able to impact the accomplishment of corporate goals, or groups and individuals that are impacted by corporate goals, including the natural environment, future generations, and non-human species that are directly or indirectly affected by corporate business activities
<b>Production base</b>	Generally this refers to mining zones recovered, being recovered or to be recovered. It includes several regions covering mines and open mines equipped with utilities like production processes, ground transportation, power supply, telecommunication scheduling, production management and living services.
<b>Community</b>	A community is an administrative jurisdiction within which a group of people live in a fixed geographical area, fulfilling their social functions and creating social norms. It is at the same administrative level as an administrative village.

## GRI, IPIECA/API AND HKEX INDEX

The report consults the reporting elements and performance indicator indices proposed by the Global Reporting Initiative (GRI) and compares the report with indicators listed in Oil and Gas Industry Guidance on Voluntary Sustainability Reporting by the International Petroleum Industry Environment Conservation Association (IPIECA) and American Petroleum Institute (API). Meanwhile, we took reference from the Environmental, Social and Governance (ESG) Reporting Guide issued by the Hong Kong Stock Exchange.

		IPIECA/API 2015	GRI 4.0	ESG
<b>Material Topics</b>			G4-19	
<b>About Us</b>			G4-3, G4-4, G4-5, G4-6, G4-7, G4-8, G4-9, G4-13, G4-17, G4-56	B6
<b>Message from the Chairman</b>		E1, E3, SE1, SE4, SE11, SE12	G4-1, G4-2, G4-43, G4-56, G4-EC2	B7
<b>Interview with the President</b>		E1	G4-1, G4-2, G4-43, G4-EC2	A1.3
<b>Integrity and Compliance-Based Corporate Governance</b>	Sustaining Steady Development		G4-1, G4-2, G4-35, G4-42, G4-43, G4-44, G4-45, G4-51	
	Improving Governance Framework		G4-34, G4-35, G4-36, G4-38, G4-40, G4-41, G4-46, G4-47, G4-48, G4-49, G4-52	
	Optimizing Management System	SE11, SE12, SE18	G4-57, G4-58, G4-SO4	B7
	Upholding Business Ethics	SE11, SE12	G4-56, G4-SO4	B7
	Communicating with Stakeholders	SE11	G4-24, G4-25, G4-26, G4-27, G4-37, G4-45	
<b>Sustained Energy Supply</b>	Consolidating Our Resource Base		G4-8	A2.3
	Developing Clean Energy	E3	G4-8, G4-EN27, G4-EC7	
	Pushing Forward Pipeline Network Construction		G4-6, G4-8, G4-EC7, G4-EN30	
	Ensuring Stable Supply		G4-8	
	Enhancing International Cooperation		G4-6	
<b>Safe and Clean Production and Operation</b>	Improving HSE Management		G4-14	
	Enhancing Operational Safety	HS5	G4-14	
	Ecological Protection	E4, E5, E6, E7, E8, E10, E11	G4-14, G4-EC7, G4-EN5, G4-EN8, G4-EN10, G4-EN11, G4-EN12, G4-EN13, G4-EN27	A1.3, A1.5, A1.6, A2, A2.4
	Promoting Energy Conservation	E2	G4-EN2, G4-EN3, G4-EN5, G4-EN6	
	Response to Climate Change	E1, E2, E3, E4	G4-14, G4-15, G4-EC2, G4-EN11, G4-EN15, G4-EN16, G4-EN17, G4-EN21, G4-EN31, G4-LA15, G4-SO10	A1, A1.5
<b>Customer-First Market Service</b>	Enhancing Quality Management System	HS4	G4-16	B6.4
	Providing High-Quality Products	HS4	G4-PR1, G4-PR2, G4-PR3, G4-PR5	B6, B6.3
	Delivering Considerate Services		G4-8, G4-PR5	B6.2
	Supply Chain Management	SE8, SE9	G4-12, G4-13, G4-EN33, G4-HR11, G4-SO10, G4-LA14, G4-LA15	B5
<b>People-Oriented Employee Development</b>	Protection of Employee Rights		G4-10, G4-15, G4-52, G4-58, G4-LA1, G4-LA3, G4-LA5, G4-LA8, G4-LA12, G4-HR4, G4-HR5, G4-HR6	B1, B1.1, B4, B4.2
	Occupational Health			B2, B2.1, B2.2, B2.3
	Establishing a Platform for Employee Development		G4-LA10, G4-LA11, G4-HR2, G4-HR4	B1, B3
	Local Staff Development	SE6, SE15, SE17	G4-LA12, G4-EC6	B1
	Strengthening Security in Overseas Operations	SE10	G4-6, G4-LA6	B1
<b>Giving Back to Society</b>	Promoting Local Development	SE1, SE5	G4-EC7, G4-EC8	B8, B8.1
	Poverty Alleviation	SE4	G4-15, G4-EC7, G4-EC8	B8.1
	Supporting Education	SE4		B8.1
	Volunteer Activities			B8.1
	Contributions to the Development of Overseas Communities	SE1, SE2, SE3, SE4, SE5, SE7, SE15	G4-EC1, G4-EC7, G4-EC8, G4-EC9, G4-SO1, G4-HR8	B8, B8.1, B8.2

	IPIECA/API 2015	GRI 4.0	ESG
Investor FAQs	SE2, SE3, SE8, SE9, SE11, SE12, SE15, SE16, SE17	G4-26, G4-41, G4-43, G4-58, G4-SO3, G4-SO4, G4-HR1, G4-HR2, G4-HR5, G4-HR6, G4-HR7, G4-LA14, G4-EN15, G4-EN16, G4-EN17, G4-EN19	A1, A2, A3, A3.1, B1, B2, B3, B4, B7, B7.1, B7.2, B8, B8.1
Performance Statistics	E2, E6, E7, HS2, HS3, SE4, SE6	G4-EC1, G4-EN5	A1, A1.1, A1.3, A1.5, A1.6, A2.1, A2.2, A2.4
Objectives and Plans			
Appendix			A1, A2, B1, B2, B4, B5, B6
Global Compact and Us		G4-16	
Approach to Reporting		G4-17, G4-18	
About This Report		G4-20, G4-21, G4-22, G4-23, G4-28, G4-29, G4-30	
Contacts		G4-31	

This report follows the HKEG's ESG Reporting Guide. In compliance with the "comply or explain" provisions, we make the following explanations on the undisclosed indicators A1.2, A1.4 and A2.5:

1. In accordance with national guidebook and technical standard for the accounting and reporting of greenhouse gas emission, the Company conducts accounting of greenhouse gas emission. To ensure the relevancy, integrity and consistency of emission data, we are proceeding with the verification of relevant data.
2. The Company has been focusing on energy efficiency and recycling, actively conducts comprehensive utilization of solid waste, boosts comprehensive utilization efficiency so as to reduce the discharge of pollutant. We have deepened systematic control of the discharge, collection, storage, utilization, transportation, disposal and other phases in order to ensure the management of solid waste complies with laws and regulations.
3. Our products do not apply to A2.5.

## APPENDIX

We strictly complied with applicable laws and regulations on quality management. For this, we established rules and regulations covering all production units, staff and processes relevant to the Company, which including but not limited to:

1	<i>Measures of PetroChina Company Limited for Management of Labor Contract</i>
2	<i>Measures of PetroChina Company Limited for Performance Evaluation of Senior Executives</i>
3	<i>Administration Measures of PetroChina Company Limited on Production Safety and Environmental Protection Accountability System</i>
4	<i>Administrative Measures of PetroChina Company Limited for Supervision and Inspection of Product Quality</i>
5	<i>Administrative Measures of PetroChina Company Limited for Appraisal of Staff Safety and Environmental Performance</i>
6	<i>Regulations of PetroChina Company Limited on Environmental Protection Concerning Project Acquisition</i>
7	<i>Administrative Measures of PetroChina Company Limited for Energy and Water Conservation</i>
8	<i>Regulations of PetroChina Company Limited on Quality Supervision of Procured Materials</i>
9	<i>Regulations of PetroChina Company Limited on Detection of Occupational Hazards at Workplace</i>
10	<i>Regulations of PetroChina Company Limited on Occupational Health Surveillance</i>
11	<i>Measures of PetroChina Company Limited for Material Supplier Management</i>
12	<i>Measures of PetroChina Company Limited for Tender Management</i>
13	<i>Measures of PetroChina Company Limited for Service Trademark Management</i>
14	<i>Measures of PetroChina Company Limited for Land Management</i>
15	<i>Regulations of PetroChina Company Limited on the Management of Industrial Water of Refining Enterprises</i>

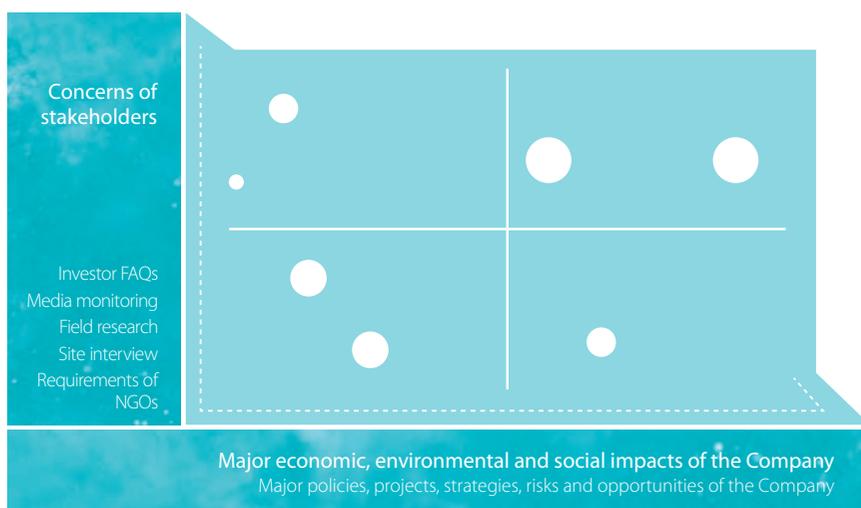
## GLOBAL COMPACT AND US

The Global Compact is a global framework initiated and advocated by the United Nations aiming at the promotion of sustainable development and the collective improvement of social well-being through responsible and innovative business practices. As a member of the UN Global Compact, we are committed to observing and supporting the Ten Principles advocated by the Global Compact in the fields of human rights, labor rights, environment protection and anti-corruption, using the Ten Principles to guide our practices in fulfilling social responsibilities. And we will continue to disclose our progress in keeping with the Ten Principles in the Global Compact in our annual report.

	Ten Principles in the Global Compact	Corresponding sections herein
Human Rights	1. Businesses should support and respect the protection of Internationally proclaimed human rights	5.1 Employees' Rights, Investor FAQs
	2. Make sure that they are not complicit in human rights abuses	5.1 Employees' Rights, Investor FAQs
Labour Rights	3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	5.1 Employees' Rights, Investor FAQs
	4. The elimination of all forms of forced and compulsory labour	5.1 Employees' Rights, Investor FAQs
	5. The effective abolition of child labour	5.1 Employees' Rights, Investor FAQs
	6. The elimination of discrimination in respect of employment and occupation	5.1 Employees' Rights, Investor FAQs
Environment Protection	7. Businesses should support a precautionary approach to environmental challenges	3.5 Response to Climate Change
	8. undertake initiatives to promote greater environmental responsibility	Message from the Chairman, Interview with the President, 3.2 Enhancing Operational Safety, 3.3 Ecological Protection, 3.4 Promoting Energy Conservation, 3.5 Response to Climate Change
	9. Encourage the development and diffusion of environmentally friendly technologies	3.5 Response to Climate Change, Investor FAQs
Anti-Corruption	10. Businesses should work against corruption of all kinds, including extortion and bribery	About US, Integrity and Compliance-based Corporate Governance, Investor FAQs

## APPROACH TO REPORTING

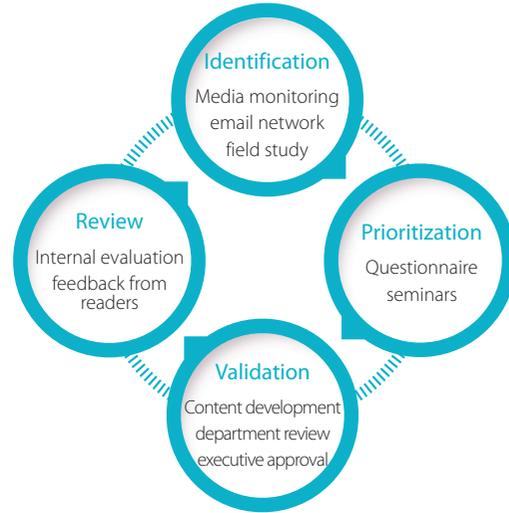
This report focuses on major international and domestic events related to the sustainable development of the Company and its subsidiaries.



## Content Selection Process

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

1. The Company pays close attention to the views of its stakeholders, and collects their comments through community visits, periodical reports, field study and online communication. It makes suggestions on the topics of the report by taking into account stakeholders major concerns.
2. We assess the Company's sustainable development strategy and cover major social, economic and environmental events related to our strategies, risks and opportunities.
3. We refer to UN SDGs and the social responsibility initiatives and standards proposed by NGOs for topic selection. These include ISO 26000 (Guidance on Social Responsibility).
4. Topics are selected based on the comprehensive assessment of stakeholders concerns and their impact on the Company's strategies. The time span and the scope of impact for each specific topic are clearly defined to ensure the accuracy of the information disclosed.



## ABOUT THIS REPORT

This report illustrates activities the Company undertook in 2017 pursuant to its ongoing commitment to advance the community, the economy and the environment. All information disclosed in this report was sourced from PetroChina's official documents and statistics as well as from statistics gathered from the Company's affiliated enterprises. It takes into account the Company's development priorities and stakeholder concerns. This report has been reviewed in accordance with the Company's *Rules for Information Disclosure Control and Disclosure Procedures*. For continuity and comparability purposes, this report provides explanations on past and future initiatives on certain issues.

This report is formulated according to the key principles of accuracy, transparency and consistency. We took reference from the *Guideline on Preparing the Report on Performance of Corporate Social Responsibility* issued by the Shanghai Stock Exchange and the *Environmental, Social and Governance (ESG) Reporting Guide* issued by the Hong Kong Stock Exchange. Furthermore, we continued to consult the *Sustainability Reporting Guideline (Version 4.0)* released by the Global Reporting Initiative (GRI) and the *Oil and Gas Industry Guidance on Voluntary Sustainability (2015)* co-published by the International Petroleum Industry Environmental Conservation Association (IPIECA) and the American Petroleum Institute (API). As a member of the United Nations Global Compact (UNGC), we report our progress in compliance with the Ten Principles and Sustainable Development Goals and will submit the report to be posted on UNGC's website (<http://www.unglobalcompact.org>).

This report includes a set of Forward-Looking Statements. Excluding historical facts, all events that may or will occur (including, but not limited to, premise, objectives, estimation and business plans) and descriptions of such events are categorized as Forward-Looking Statements. Due to the presence of external uncertainties, actual outcomes or the future climate may differ from those expressed in the Forward-Looking Statements. As the Forward-Looking Statements were made prior to December 31, 2017, PetroChina holds no responsibility or liability for any modifications made subsequent to the said date.

Thank you for taking the time to read this report. We welcome any comments and suggestions you may have as we believe that your feedback can improve our performance. This report is published, along with the Company's Annual Report 2017 in March 2018, in simplified Chinese, traditional Chinese and English. In the case of any discrepancy, the version in simplified Chinese shall act as the lead publication.

The Board and all the Company's directors hereby certify that there are no misrepresentations, misleading statements or material omissions in this report. Furthermore, we jointly and severally accept full responsibility for the truthfulness, accuracy and completeness of this report.





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