



onsibility Report

About the Report

This is China National Petroleum Corporation's 11th annual Corporate Social Responsibility Report since the establishment of the reporting system in 2006. This report reflects our accomplishments in fulfilling our economic, environmental and social responsibilities. Hereby, we make the following statement on relevant information:

Reporting company: China National Petroleum Corporation (CNPC)

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

Timeframe: From January 1 to December 31, 2015.

Given the continuity and comparability of the disclosed information, part of the information may be taken forward or backward as necessary.

Reporting period: This is an annual report. The 2015 Corporate Social Responsibility Report was issued on April 28, 2016.

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

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

Information sources: The Company's official documents, statistical reports and statistics related to the Company's subsidiaries.

All the information has been reviewed by the Company's management and its subsidiaries.

Report improvements: In order to showcase our social responsibility performance in a more objective, comprehensive and prioritized manner, the 2016 report increases disclosure on such topics as "Sustainable Energy Production and Supply" and "Combating Climate Change". While compiling this report, we carried out on-site investigations on the CSR performance of our affiliated companies, verified the authenticity of enterprises case studies, extensively solicited opinions and suggestions and actively responded to the concerns of all stakeholders.

References:The Guideline on Fulfilling Social Responsibility

by Central Enterprises and Guidance on Central Enterprises' Implementation of Harmonious Development in the 12th Five-Year Plan Period issued by the State-owned Assets Supervision and Administration Commission (SASAC). We also referred to the Sustainability Reporting Guideline (G4.0) published by the Global Reporting Initiative, Oil and Gas Industry Guidance on Voluntary Sustainability Reporting (2010) co-published by the International Petroleum Industry Environmental Conservation Association and the American Petroleum Institute, ISO26000 Guidance on Social Responsibility by ISO, the Guidance on Social Responsibility Reporting (GB/T 36001-2015) by China National Standardization Management Committee, and China CSR Reporting Guide (CASS-CSR2.0) by CASS.

Language: The report is published in Chinese and English.

In case of any discrepancy, the Chinese version shall prevail.

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



You may send email to csr@cnpc



We also issued the Myanmar-China Oil and Gas Pipeline Project(Myanmar Section) Special Report on Social Responsibility.

Contents

- 2 Chairman's Message
- 4 About us
- **5** Topic index
- 6 Figures in 2016
- **8** Corporate Governance
- 10 Corporate Social Responsibility Management
- 11 Communication with Stakeholders
- 16 Sustainable Energy Supply
- 17 Energy and Future
- 18 Technological and Managerial Innovation
- 20 Clean Energy
- **25** Energy Cooperation
- **28** Responsible Operation
- 29 Safe Operation
- **32** Environmental Protection
- 38 Climate Change
- **42** Products and Services
- 45 Supply Chain Management

- **46** Employee Development
- Employees' Rights and Interests
- 48 Career Development Platform
- **51** Localization and Diversification
- 53 Physical and Psychological Health
- 55 Caring for Employees
- 56 Public Welfare
- 57 Poverty Alleviation
- **60** Supporting Education
- 62 Local Development
- 63 Humanistic Care
- 64 Construction of Overseas Communities
- 72 Performance Data
- **73** Outlook for 2017
- 74 Glossary
- 76 Index

Chairman'sMessage



I feel very pleased to present the CNPC Corporate Social Responsibility Report 2016. In this extraordinary and unforgettable year, CNPC faced enormous challenges in its steady development as a result of the complicated international political and economic situation, the New Normal of the Chinese economy, lingering low oil prices, sluggish oil and gas demand, and intensified market competition. Staying true to the Company's mission, we forged ahead through thick and thin. As a result, we made substantial progress while ensuring stability, got off to a good start in the "13th Five-Year Plan" period and took major steps toward the goal of building a world-class integrated international energy company.

Always bearing in mind that our company's sustainable development is inseparable from that of society, we strived to explore opportunities, seek development, and create shared value with all our stakeholders while meeting the demands of society and addressing common challenges based on the development concept of innovation, harmony, environmental-friendliness, openness and mutual benefit.

Deepening reform & innovation and promoting steady development

Faced with an extremely challenging situation and unprecedented pressure, we relied on reform to realize steady development, as we understand that reluctance to change will take us nowhere and bring no opportunities. CNPC has charted its course for reform and will carry it out unswervingly. In 2016, we formulated opinions on comprehensively deepening reform and plans on reform projects during the "13th Five-Year Plan" period, with 61 major reform initiatives in steady progress. New progress and breakthroughs were made in management systems, business restructuring and expansion of business autonomy. We continuously improved corporate governance. Additionally, the equity transfer of the Central Asia Gas Pipeline for joint-venture was completed, and the newly established CNPC Engineering Company Limited and CNPC Capital Company Limited were successfully listed on the capital market.

Innovation is the primary driving force for development. In 2016, we pushed forward technological innovations, intensified R&D, promoted innovation in management and business model through information technology, stimulated creativity of all staff, and scored more achievements in innovation-driven development. Advanced and applicable technologies enabled us to provide the public with better energy solutions. Especifically, two projects won the Second Prize of National Science and Technology Progress Award: "Paleo carbonate exploration theory and technology innovation and discovery of the giant Anyue gas field" and "Large-scale ethane process technology package, key equipment and industrial application". And "Special drilling liquid for complex well and industrial application" won the Second Prize of National Technical Invention Award.

We conscientiously implemented the government's deployment on the supply side structural reform, kept increasing income and efficiency while cutting cost and expense, pushed forward with the governance of loss-making enterprises, and raised overall development quality and efficiency. In 2016, although crude oil prices fell 21.4%, natural gas prices fell 18.3%, and our investment was reduced by 19%, we still generated RMB 50.73 billion profit and paid RMB 349.7 billion tax.

Shaping a low-carbon future through clean and green development

Climate change remains one of the world's most significant challenges today. In 2016, major progress was made in the global efforts to address climate change. In partnership with other OGCI members, we issued the 2016 OGCI Annual Report and OGCI's Joint Declaration, presented action plan for reducing greenhouse gas emissions in the oil and gas industry, and pledged to take action to accelerate the building of a low-carbon future. Together with nine other OGCI members, we jointly invested USD 1 billion to promote the innovation and application of low-carbon technologies.

It has become a public consensus to pursue a green and low-carbon consumption mode and lifestyle. As a member of society, CNPC is both an energy provider and an energy consumer. While supplying more quality and clean energy to society, we promote green production in every process of production and operation. CNPC is China's largest natural gas producer and supplier, with domestic gas production and supply accounting for 73.2% and 68.4% of China's total respectively. We have been accelerating the development and utilization of natural gas, which is a realistic approach to low-carbon growth, and intensifying our efforts to build facilities for natural gas exploration, development, storage, and transportation. In 2016, the proportion of gas in the oil & gas equivalent increased by 2 percent year-on-year, and our gas pipeline network covered 30 provinces, municipalities, autonomous regions and the Hong Kong SAR, benefiting over 500 million people. In order to provide cleaner energy, we accelerated the upgrading of oil products and all 23 National V standard oil products upgrading projects were accomplished as planned. At the same time, we accelerated the implementation of key energy-saving projects, worked hard to develop low-carbon technologies, promoted high-efficiency, energy-saving technologies, and endeavored to reduce our own energy consumption. In 2016, the energy we saved equaled to 950,000 tons of standard coal and 13.39 million cubic meters of water, making due contribution to combating climate change and building a beautiful China with blue sky, green land and clean water.

Creating shared value for social development

While pursuing our own development, we are committed to sharing development opportunities with our stakeholders for mutual benefit. We attach great importance to social responsibility management throughout the industry chain, and encourage our suppliers and contractors to fulfill their social responsibility by leveraging our advantages in funding and technology to achieve common development. Adhering to the principle of putting people first, we provide our employees with career development platforms and promotion channels. We support social welfare undertakings, carry out targeted poverty alleviation, and integrate our development strategy with the local resource advantages, to deep strategic cooperation, achieve win-win results, and promote local economic and social development. In Xinjiang autonomous region, we implemented targeted poverty alleviation projects such as safflower plantation and financial poverty relief, effectively increased the income of local farmers and herdsmen. In Kazakhstan, we were granted the national second-class "Order of Friendship" by Kazakh President Nursultan Nazarbayev for our outstanding socioeconomic contributions.

2017 will be an important year for the achievement of the United Nations Sustainable Development Goals 2030, and it marks the first year for the Paris Agreement to come into effect. Chinese government will also deepen the supply side structural reform in 2017, which puts forward higher requirements on the sustainable development of CNPC. We are faced with new pressure and challenges from the accelerated low-carbon and clean transition of the global energy landscape and the New Normal of the Chinese economy.

Following the general principle of seeking progress while maintaining steady development, we will vigorously implement our strategies of resources, market, internationalization and innovation, take targeted measures for internal reform and restructuring, and focus on innovation-driven development with higher quality and efficiency as well as image improvement. We will make persistent efforts to build the company into a world-class integrated international energy company, and make new contributions to promoting healthy economic development and social harmony.

Looking to the future, CNPC will faithfully fulfill our responsibilities and obligations, and give back to society, our stakeholders and employees with excellent performance. We are grateful for your attention and support over the years. We will continue to promote communication through platforms such as this report, further enhance our interaction with all stakeholders, and jointly create a better future for all of us.

2247

Wang Yilin, Chairman

About us

As one of China's largest oil and gas producers and suppliers, CNPC is an integrated international energy corporation, with our business covering oil and gas exploration and development, refining and chemicals, marketing and trading, pipeline transmission and stockpiling, technical services, engineering construction, equipment manufacturing, and financial services. We are the leading company in oil and gas exploration and development in China, and possess oil and gas assets and interests in 35 countries. In 2016, CNPC ranked 3rd among world's top 50 oil companies and 3rd in the Fortune Global 500.

Our mission

Caring for Energy, Caring for You

Our value

Integrity, innovation, safety, excellence

Our philosophy

Patriotism, honesty, dedication, entrepreneurship

Our strategy

Resources, markets, international operation, and innovation

Business Ethics

- Compliance Management (P9)
- Supply Chain Management (P45)
- Management of Business Impact on Community (P64)





Governance Structure and Decisionmaking Mechanism and Process

• Governance Structure (P8)

Compliance Management

Compliance Management (P9)





Climate Change

- Energy Challenge (P17)
- Promotion of Natural Gas Utilization and Alternative Fuel (P23)
- Climate Change (P38)
- Management of Business Impact on Community (P64)

Water Resource Management

• Water Resources (P34)





Atmospheric Environment

- Promotion of Natural Gas Utilization and Alternative Fuel (P23)
- Climate Change (P38)

Biological Diversity and Environmentally Sensitive Areas

- Protection of Biological Diversity and Natural Habitats (P36)
- Management of Business Impact on Community (P64)

Topic index



Emission Management

- Emission Control (P38)
- Carbon Emission Management (P38)

Land Conservation and Restoration

- Land Resources (P35)
- Management of Business Impact on Community (P64)

Oil Spill Management

 Strengthening Risk Prevention and Control (P32)



Employee Occupational Health

- Occupational Health (P53)
- Mental Health (P53)

Management of Hazardous Chemicals

- Management of Hazardous Chemicals (P30)
- Supply Chain Management (P45)

Products

- Product Safety (P43)
- Quality Control (P42)
- Product Management (P43)
- Quality Products and Services (P43)



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Localization

- Promote Localization (P51)
- Respect for Cultural Differences (PP51)
- Management of Business Impact on Community (P64)

Supply Chain Management

- Supply Chain Management (P45)
- Supply Chain Safety (P45)



Poverty Alleviation

- Poverty Alleviation (P57)
- Promote Local Economic Development (P62, P69)



Human Rights Policy and Position

- Management of Business Impact on Community (P64)
- Supply Chain Management (P45)
- Employees' Rights and Interests (P47)

Response to Low Oil Prices

- Enhanced Benefits through Management Innovation (P19)
- Key Work of the Board in 2015 (P8)
- Energy and Future Development (P17)
- International Energy Cooperation (P25)



Provide Clean and Affordable Energy

- BuildEnergy Future through Science and Technology (P18)
- International Energy Cooperation (P25)



Economic Contributions to the Society

- Legal and Transparent Tax Payment (P70)
- Respect for Cultural Differences (P51)
- Local Development (P62)
- Promote Local Economic Development (P62, P69)

Figures in 2016



Assets & Profits

CNPC registered total assets of RMB 4.0698 trillion. We recorded sales revenues of RMB 1.8719 trillion and total profits of RMB 50.73 billion, down 7.2% and 38.5% respectively year-on-year. Our tax and fees payments totaled RMB 349.7 billion.

4.0698



Resources Base

In China, our newly added proven oil in place totaled 649 million tons, exceeding 600 million tons for the 11th consecutive year; and newly added proven gas in place reached 541.9 billion cubic meters, exceeding 400 billion cubic meters for the 10th consecutive year.

Newly-added proven gas in place

541.9

billion cubic meters



Oil & Gas Production

Domestic and overseas oil and gas production amounted to 259.63 million tons of oil and gas equivalent, even with the previous year. Domestically, we produced a total of 105.45 million tons of crude and 98.1 billion cubic meters of natural gas, accounting for 53.4% and 73.2% of China's total respectively.

Domestic and overseas oil and gas equity production

259.63

million tons of oil equivalent



Oil and Gas Pipelines Network

CNPC operated oil and gas pipelines with a total mileage of 81,200 kilometers, covering 30 provinces (municipalities and autonomous regions) and the Hong Kong SAR.

Total length of CNPC-operated oil and gas pipelines

81,200 kilometers



Oil & Gas Supply

Our domestic marketing volume of refined products was 113.03 million tons, accounting for over 40% of the domestic market share; we increased supply of clean energy, and our domestic marketing volume of natural gas was 131.5 billion cubic meters, up 7.2% year-on-year.

Domestic sales volume of refined products

113.03



International Business

Our overseas oil and gas operations in 35 countries yielded an equity production of 76.0° million tons of oil and gas equivalent. We provided technical services and engineering construction in 71 countries and regions around the world.

Overseas oil and gas equity production

76.01

million tons



Environmental Protection

We saved energy equal to 950,000 tons of standard coal, 13.39 million cubic meters of water, and 1,135 hectares of land. Emissions of major pollutants decreased year-on-year.

Saved energy

One of standard coal



Technological Progress

three of our R&D achievements won China's national science and technology awards. In particular, the "Paleo-marine carbonate exploration theory and technology innovation and discovery of giant Anyue gas field" and "Large-scale ethane process technology package, key equipment and industrial application" was awarded the second-class National Science and Technology Progress Award.

National Scientific and Technological Advancement Prize

> 3 awards



Employee Development

We have a total of 1,463,700 employees, and more than 82% of our overseas employees are local hires. We spent 1.49 billion RMB on employee training and a total of 1,090,000 employees were trained among which 100% frontline staff was covered.

Spending on employee training

1.49

billion RMB



Public Welfare

We invested more than RMB 600 million in public welfare undertakings globally, benefiting 100 million people. In China, we spent RMB 75.99 million launching 40 projects to support 13 counties (districts) in 7 provinces (municipalities and autonomous regions).

Investment in public welfare undertakings

600+

Corporate Governance

CNPC is a solely state-owned enterprise. According to laws and regulations such as the Company Law of the PRC, and the Law of the PRC on the State-owned Assets of Enterprises, in addition to arrangements made by the State-owned Assets Supervision and Administration Commission of the State Council, CNPC promotes and regulates the establishment of a board of directors, and constructs and continuously perfects the legal person governance structure with clearly defined rights and responsibilities among the board of directors, supervisory committee and senior executives, to ensure that each department carries out its own duties with effective balance, scientific decision-making and coordinated operations. In 2016, CNPC amended its Articles of Association, strengthened its supervision and accountability system with a focus on system building and fulfillment of responsibilities, and realized clear control objectives, effective integration of resources and optimal efficiency and effectiveness. We also enhanced corporate social responsibility performance and achieved sustainable growth.

Governance Structure

Board of Directors

The Board of Directors consists of eight members. The Board has four affiliated committees, the Strategic Development Committee, the Nomination Committee, the Evaluation and Remuneration Committee and the Audit and Risk Management Committee, which are designed to provide advice and recommendations for Board decisions.

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

Key work of the Board of Directors in 2016

Drafting development strategy

- ¤ Guided the drafting of and approved the Company's development plan for the "13th Five-Year Plan"
- m Drafted annual plan for business development, investment and budget

Managing top management team

- ¤ Appointed Zhang Jianhua as the President and Xu Wenrong as the Vice President
- ¤ Enhanced communication with executives to provide more guidance and counseling
- $\hbox{$\tt m$ Organized six meetings of the Board of directors, seven meetings of the affiliated Board Committees and four targeted field studies to advise on the development of the Company}$
- $\ensuremath{\mathtt{m}}$ Enhanced communication with the Board of Supervisors

Reviewing and approving major issues

¤ Reviewed and approved major investment projects including the Fourth Shaanxi Beijing Gas Pipeline and major issues such as business restructuring

Strengthening risk prevention and control

- ¤ Reviewed and approved the annual audit report and risk management report of the Company. Presented improvement suggestion
- ¤ Guided related departments to reinforce risk liability and to implement major risk response measures

Affiliated Board Committees

As specialized organs directly under and accountable to the Board of Directors, the committees provide advice and recommendations for Board decisions. These committees perform their duties as authorized by the Board and in accordance with the Articles of Association of the Company. Committee members are nominated by the Chairman of the Board and approved by the Board.

In 2016, giving full play to their respective professional advantages, the Board of Directors exercises due care and diligence, playing a positive role in guiding the strategic development of the Company, strengthening the management of appointment of the senior executives, reviewing major issues, and strengthening risk control.

Conventional authorization of the Board of Directors covers

- 1 ¤ Investment
- 2 ¤ Financing
- 3 ¤ Guarantee
- 4 ¤ Futures business
- 5 ¤ Assets and equity disposal
- 6 ¤ Donation or sponsorship
- Matters relating to the Company's exercise
 of shareholders' rights in the invested enterprise
- g a Other matters deemed necessary by the Board

Compliance Management

Compliance is incorporated into CNPC's core values and strategies. In CNPC, compliance is prior to economic benefits; the compliance system is superior to the business system; and its compliance requirements are stricter than external regulations. We include compliance requirements into the whole process of operation and management and set up a compliance management system covering both headquarters and all regional subsidiaries with rigorous enforcement and assessment. In 2016, the Company was appointed the "pilot enterprise" for compliance management by the Stateowned Assets Supervision and Administration Commission of the State Council (SASAC). Additionally, compliance management research was deepened and compliance system building was pushed forward.

The Company strictly upholds business ethics, credibility and integrity in its operations. We obey international covenants and regulations, respect trade controls and fight against corruption, bribery, monopoly, and unfair competition of any form.

Major Initiatives of CNPC's Compliance Management in 2016

All-staff compliance commitment

¤ Issued Integrity and Compliance Guidelines to all employees and integrated compliance education into new staff training and ask employees to sign letter of promise on compliance requirements.

Compliance training

^m Conducted extensive compliance training, and 1.1 million employees took part in the training and passed the test through the compliance management platform.

Responsibility fulfillment

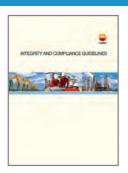
¤ Took compliance as a prerequisite for business development, and strengthened compliance in safety, environmental protection, investment, finance, procurement and sales to ensure business leaders accountable for compliance management.

Compliance evaluation

^{II} Organized employees to conduct self-evaluation and evaluation between superiors and subordinates.

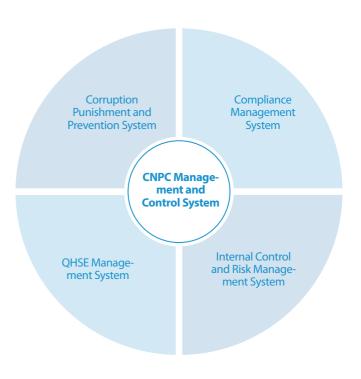
Compliance due diligence investigation

Incorporated compliance investigation into the process of selecting suppliers, and conducted compliance evaluation on suppliers and contractors. Conducted compliance due diligence investigation on joint ventures and mergers and acquisitions, and included compliance into contract terms.



Refer to our *Integrity and Compliance Guidelines* for more information.

(h) http://www.cnpc.com.cn/cmsresources/1a/ed/2cb 3e435480d853fd8672d311c50_1.0.pdf



Corporate Social ResponsibilityManagement

Corporate Citizenship Philosophy

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

Upholding the corporate mission of "Caring for Energy, Caring for You", we aim to achieve the organic unity of economic, environmental and social responsibilities, and strive to become an outstanding global corporate citizen with higher profitability, stronger influence, and a greater charisma to society. We have never relented in our efforts to implement our social

responsibilities, adhere to legal operation, be honest and trustworthy, conserve resources and protect the environment, insist on the people-oriented principle and build a harmonious enterprise, in order to make return to society and realize value sharing.

Responsibility Management

At CNPC, we take it as a fundamental work to establish and improve the social responsibility management mechanism for advancing responsibility management. Focusing on system establishment, organizational structure and capability building, we have established a set of comparatively complete mechanisms on social responsibility management.

System Building

We have developed working rules and regulations on economic, environmental and

social responsibilities, laying a solid foundation for the fulfillment of social responsibilities. In 2016, we continued our efforts to promote social responsibility management according to the Guideline on Better Fulfilling Corporate Social Responsibility for the SOEs by SASAC.

Organizational Structure

CNPC has established Social Responsibility Management Committee to make major decisions on social responsibility policies and planning. The Committee is composed of heads of the function departments at headquarters. Meanwhile, we have established the External Experts Committee and regularly hold communication meetings to solicit professional advice on social responsibility management and practices, and to provide support for our decision-making. Under the General Office of the Company, we have set up the Social Responsibility Office for CSR implementation, which is responsible for organizing and coordinating the planning and implementation of our social responsibility work. A working mechanism has been established, in which the Committee takes the lead, departments in charge organize the work, business sectors take respective responsibilities and affiliates are fully engaged. This has effectively ensured the progress of our social responsibility concepts and planning.

Capability Building

We actively carry out research in the field of social responsibility, promote CSR education and training, and boost CSR communication with relevant organizations home and abroad, so as to continue enhancing CSR awareness and the capability for fulfilling responsibilities among all employees. In particular, special research has been carried out to provide a useful reference and basis for implementation of independent public welfare projects.



Communication with Stakeholders

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

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

Improving Disclosure of Social Responsibility Information

In 2016, we released reports on our progress in poverty alleviation and low-carbon development, including the CNPC CSR Special Report on Poverty Alleviation and Development (2006-2015), the Health, Safety and Environmental Protection Report and the Environmental Protection Communique.

Expanding Public Communication Channels

In 2016, we encouraged stakeholders to participate in the Company's major decision-making and activities, and provided the media and the general public with a better understanding of CNPC. We introduced a variety of ways to enhance communication with our stakeholders including the staff congress, announcements, seminars, dialogues and joint actions. We also launched a series of activities including the Service Station Open Day, CNPC Open House Day, mystery customer visits, and activities which invited energy experts, college student journalists and Internet VIPs to pay visits to CNPC

We hosted the "China Student Reporters Practice Camp" jointly with China Youth Daily. Thirty student reporters from 28 universities visited our oilfields, where they gained firsthand experience about the whole process of oil production and the daily work of CNPC employees.



Parent-Child Summer Camp

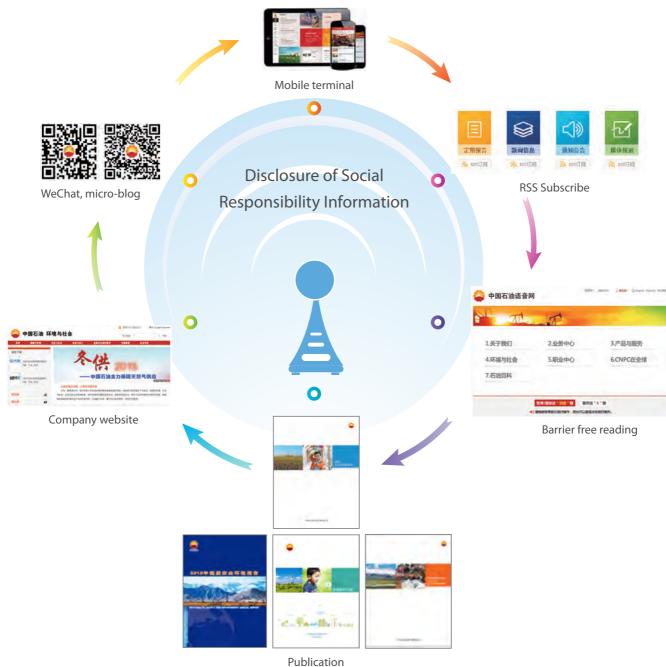
CNPC's refinery project in Yunnan invited the general public to participate in project environmental impact assessment, set up the "Yunnan Petrochemical Green Construction Advisory Committee" composed of representatives from local communities, enterprises, social organizations and local government, and organized roundtable dialogues. Through these dialogues, Yunnan Petrochemical responded to issues one by one including residents' relocation and resettlement, local employment, impact on surrounding safety and environment, project information disclosure, communication with the general public, refinery knowledge promotion and government supervision.

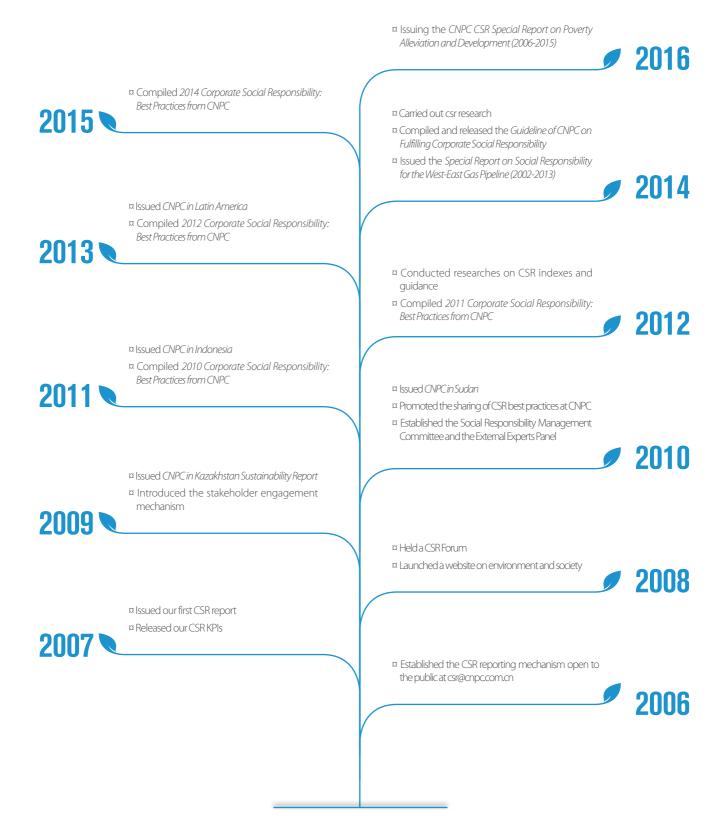
More than 50 people participated in the roundtables including representatives from Kunming municipal people's congress and municipal CPPCC, local communities of Anning city, local governments, NGOs, and nearby enterprises, as well as petrochemical experts. Representatives of the Center for Environmental Education and Communications of the Ministry of Environmental Protection and Yunnan Environmental Protection Department attended the roundtables as observers.



Increasing Routine Disclosures

Through the Company's website and its microblog, WeChat, mobile platforms and other new media, we enrich information disclosure on social responsibility and enhance the effectiveness of our communications.







1





Goals and

Concerns

Government

Guarantee energy security

- Stabilize market supply
- Fulfill social responsibility
- Energy conservation and emission reduction
- Strengthen operation in compliance with all legal requirements
- Deepen enterprise reform
- Guarantee investors' interests

Employees

- Guarantee employees' rights and interests
- Employee career development
- Employee value realization
- Employee health and safety

Customers and consumers

- Provide safe, environmentally friendly, and high-quality products
- Provide quality services
- Improve customer satisfaction
- Establish communication mechanisms
- Advocate sustainable consumption patterns
- Protect consumer privacy
- Improve consumer complaints mechanism

Means of Communication and Participation

- Legal operation, integrity and trustworthiness
- Respond to the government's call, and accept supervision
- Contribute to the formulation of energy policies, laws and regulations and industry standards
- Push forward the supply-side reform
- Enhance the quality of products, engineering and services
- Improve environmental performance

- Support trade unions at different levels
- Hold staff congresses
- Reinforce staff training
- Improve salary distribution system
- Hold contests and evaluations
- Safeguard consumers' interests
- Supervise product quality
- Solicit the opinions of customers and consumers

- Change the mode of development, increase resource potential, promote technological innovation, maintain sound operations and increase the value of stateowned assets
- Safeguard energy supply and optimize energy mix, in coordination with national energy strategy
- Promote the building of national key laboratories and major scientific and technological innovation projects
- Draft and implement 36 measures in 12 categories including optimizing structure, exploring markets, cutting costs and reversing losses to increase revenue, cut expenditure and costs, and improve efficiency

- Improve the staff development mechanism
- Enhance employee training by hosting professional skills competitions
- Protect the legitimate rights and interests of employees, including remuneration, education and training, rest and vacations, and labor protection
- Continue to organize occupational health examination and poverty alleviation activities
- Increase clean oil supply and realize supply of National V standard gasoline and diesel nationwide
- Further promote the CNPC Quality Month Campaign
- Provide natural gas and other clean energy products
- Establish a unified service station management system and launch overall inspections on service stations
- Implement customer satisfaction investigation and conduct mystery customer visits
- Launch CNPC e-station app to promote self-service refueling

Our Actions







Business partners

- Comply with national laws, regulations and business ethics
- Standardize HSE management
- Fair competition, mutual benefits
- Promote social responsibility in the value chain

NGOs and relevant organizations

- Participate in discussion on public policy and industry standards
- Pay attention to industry trends and policy moves
- Advance the sustainable development of enterprises and industries
- Carry out cooperation in social development and environmental protection
- Share corporate experience
- Attend related meetings and forums
- Facilitate international exchanges and cooperation

Communities and the public

- Promote community development
- Protect community environment
- Increase local employment
- Support education, public health and other public welfare activities
- Perform social investment
- Enhance sustainable development capacity

Means of Communication and **Participation**

Goals and

Concerns

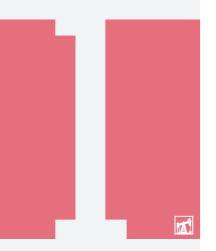
- Promote e-procurement through e-commerce platform
- Share management experience and technical standards
- Strengthen communication with suppliers and contractors

- Provide education, training and employment opportunities
- Promote cultural exchange
- Pay community visits

Advocate fair competition, standardized operations, and promote the use of e-procurement and management platform

- Strengthen control over key processes including design, procurement, construction and supervision, and strengthen HSE management for suppliers and contractors
- Exchanges with the public on their concerns
- Participate in high-level strategic cooperation forums to discuss how to build an efficient, safe and competitive supply chain
- Carry out disaster relief, poverty alleviation and donations to education, and support the reconstruction of disaster-stricken areas
- Carry out fixed-point poverty alleviation and aid programs
- Support and drive the development of local economies through major project construction, and make steady progress in joint venture cooperation in refining, pipelines, shale gas, and marketing network
- Implement oil and gas recovery projects to minimize evaporation
- Support the development of SMEs and promote local procurement

Our Actions



Sustainable

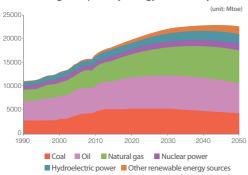
Energy Supply

- ☑ Energy and Future Development
- ☑ Technological and Managerial Innovation
- ☑ Clean Energy

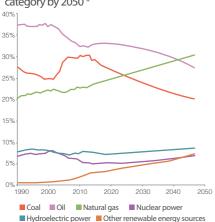
It is CNPC's due responsibility and mission to meet energy challenges and satisfy the ever increasing demand for low carbon clean energy. To this end, we have enhanced technological innovation, laid a solid resource basis, continued to increase our efficiency in hydrocarbon development and utilization, and raised the proportion of clean energy such as natural gas in our energy supply, in order to make contributions to the construction of a stable, safe, clean and economical energy supply system and the prosperity of human society.

Energy and **Future**

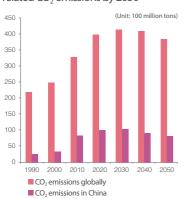
Forecast of global primary energy demand by 2050 *



Forecast of global primary energy demand by category by 2050 *



Forecast of global and China's energy-related CO₂ emissions by 2050 *



*Data source: 2016 Energy Statistic Data of CNPC Economics & Technology Research Institute

Energy Challenges

Energy demand continues to increase.

Revenue and population growth, and the urbanization and industrialization of developing countries are driving forces of growing energy demand. Although there are still uncertainties in global GDP growth, the world certainly requires more energy to ensure global economic prosperity and development in the future.

Equal access to energy. Over 1.2 billion people in the world still do not have access to affordable modern energy, losing the opportunity for equal development. Helping this group of people to obtain energy is an important part of the target of realizing the United Nations' goal of sustainable development.

Energy structure keeps changing. Despite the accelerated energy structural transition to clean and low-carbon development, fossil fuels remain the major source powering global economic growth, whereas non-fossil fuels are expected to grow at a rapid speed. Oil accounts for a fairly stable share of primary energy consumption mix, and natural gas has become and is becoming the fastest growing fossil fuel, and is expected to reach 8.3~10% of primary energy consumption mix by 2020.

China's economy enters into "new normal".

China's economy is moving forward steadily at a reasonable speed with improved quality and efficiency. But there is a serious conflict between overcapacity and upgraded demand structure, with slow growth of domestic oil demand and ample natural gas supply.

Providing Clean, Low-carbon and Affordable Energy

The world is undergoing a profund and rapid energy transition towards a cleaner, more efficient and diversified energy structure. Oil and gas industry shoulders important responsibility in meeting global energy challenges. As a major player in the industry, CNPC has been actively cooperating with the government and

companies in the industry chain, and strives to provide clean, low-carbon and affordable energy while meeting future energy demand, in an effort to jointly build a sustainable energy future.

We implement the development concept of innovation, harmonization, green, openness and sharing, actively improve ways of energy production, strengthen technological and management innovation, and constantly consolidate our resource basis. With the aim of future sustainable energy supply, we accelerate the development of natural gas, explore unconventional energy, deploy new energy development, and supply more clean energy. In addition, we expand international cooperation, optimize global business layout, and strive to become a major supplier to provide energy in a more environmentally responsible way to drive the socio-economic development.

We support the UN's goal of "Ensuring access to affordable, reliable, sustainable and modern energy for all":

- $^{\mbox{\scriptsize m}}$ Ensuring an affordable and reliable modern energy service to all by 2030.
- Substantially increasing the proportion of renewable energy in the global energy structure by 2030.
- ^m Doubling the global energy efficiency improvement rate by 2030.
- must Strengthening international cooperation, promoting research and technologies for obtaining clean energy, including renewable energy and energy efficiency as well as technologies for advanced and cleaner fossil fuels, and encouraging investment in energy infrastructure and clean energy technologies by 2030.
- ^{III} Increasing infrastructure construction and upgrading technologies to provide all people with a sustainable modern energy service by referring to the support plan of developing countries, especially least developed countries, small island developing states and landlocked developing countries by 2030.

Technological and Managerial Innovation



CNPC headquarters spending on R&D in 2016

4.95 billion

Technological innovation platform and talent development



Advanced and applicable technology and effective management innovation enable us to provide better energy solutions, address climate change, improve energy utilization efficiency, and mitigate hedge against the economic risk of low oil prices.

Building Energy Future with Science and Technology

Technological innovation is the driving force for us to keep overcominge challenges. The remaining proven recoverable reserves are now mainly low permeability and lithologic reservoirs, whereas new discoveries are deteriorating in grade and difficult to recover. The overall exploration & development environment is getting more complex. Thanks to continuous technological breakthroughs, CNPC increases enhances the recovery of existing resources, explores new areas of energy development through cutting-edge technologies, and develops green production technology to provide energy for society in a more responsible way (see P28 Responsible Operation for more information) .

In 2016, CNPC focused on removing technological obstacles to sustainable development and actively promoted R&D of cutting-edge technologies. This provided theoretical and technological support for our major strategic projects, including the steady development of Daqing Oilfield, stable production of Changqing Oilfield, rapid growth of new businesses such as tight oil and gas and shale gas, and increased overseas production and business scope, refinery restructuring and product quality upgrading.

Key Laboratories and Experiment Bases

National-level Laboratories and Research Centers

- National key laboratory for petroleum and petrochemical pollutants control and treatment
- National engineering and research center for CBM development and utilization
- National energy experiment center for shale gas research and development
- National energy R&D center for LNG technologies
- ► National energy R&D center for tight oil and gas

CNPC Key Laboratories/ Experiment Bases

- Pilot test base for CBM production
- Experiment base for carbon dioxide flooding and storage
- Key laboratory for clean fuels
- Key laboratory for natural gas quality control and energy metering

Major Technical Achievements

Major core supporting technologies

- Tight gas exploration and development technology
- High-rank CBM exploration and development technology
- Carbon Capture, Utilization and Storage Technology (CCUS)
- Key low-carbon technologies
- Technology package on clean gasoline/diesel production meeting National V standards
- ─ Technology package on 20,000 tons/a Hexene-1 and new products of medical polyolefin production
- Refinery energy system optimization technology
- Construction and operation technology for large-scale gas liquefaction and receiving terminals

Major technological breakthroughs and leading reserve technology

- Shale gas exploration and development technology under depth of 3,500m
- Green and low-carbon oil refining process technology
- New technology on aviation biofuel production
- Logging interpretation evaluation technology for unconventional oil and gas
- Third-generation large volume gas pipeline engineering technology
- 270,000m³ full capacity LNG tank building technology

Technological innovation created more than 100 billion yuan during our "12th Five-Year Plan" period.

In 2016, CNPC pushed forward technological innovations

- x Scored 12 major landmark achievements
- ¤ Achieved significant progress in 24 major equipments, products and softwares
- ¤ Applied 5,017 patent in 2016
- ^m Won two Second-prize of National Science and Technology Progress Award

In 2016, CNPC's newly-added proven oil in place exceeded 600 million tons for the 11th consecutive year, and newly-added proven gas in place exceeded 400 billion cubic meters for the 10th consecutive year, with the total of proven oil and gas reserves exceeding 1 billion tons for the 10th consecutive year. Daqing Oilfield's complex chemical flooding and fine water flooding technologies provided strong support for the sustainable development of the oilfield, improving its recovery ratio by over 18% and 1%~3% respectively. Changqing Oilfield focused on increasing single well output, enhancing recovery ratio and cutting development costs, kept debottlenecking and enabled over 50 million tons production of oil and gas equivalent for the fourth consecutive year in 2016. CNPC's total oil and gas production reached 183.63 million tons of oil equivalent in 2016. In addition, CNPC is capable of supplying National-V gasoline and diesel, and its comprehensive energy consumption for oil refining and ethylene combustion dropped continuously.

CNPC Innovative Technologies Winning National Awards in 2016

Technology	Award	
Paleo carbonate exploration theory and technology	Second-prize of National Science	
innovation, and discovery of the giant Anyue gas field	and Technology Progress Award	
Large-scale ethane process technology package, key	Second-prize of National Science	
equipment and industrial application	and Technology Progress Award	
Special drilling liquid for complex well and industrial	Second- prize of National Technical	
application	Invention Award	
Quantitative calculating method of oil saturation in fractured reservoirs	Gold Medal of China Patent Award	



Increase Profits through Managerial Innovation

In face of low oil prices and the "new normal" of economic development, CNPC endeavored to increase profits through managerial innovation New breakthroughs were made in the reorganization of the management system and business as well as key innovation reforms. Functions at all levels were specified and part of the departmental functions at the headquarters were straightened out. We strengthened our natural gas sales network by setting up five regional natural gas marketing companies. The newly established China Petroleum Engineering Company Limited and CNPC Capital Company Limited went public successfully. In addition, we constantly optimized our production and business layout, took measures to increase efficiency and profit and cut cost and expenditure, and special efforts were made in loss-making subsidiaries to improve their performance. We continued to push forward supply-side structural reform, strengthen reform and management, and improve development quality and efficiency. In 2016, operational costs per unit of oil and gas, processing charges for each ton of oil and marketing cost for per ton oil dropped by 10.1%, 0.4% and 3.6% respectively.

Clean Energy

In order to secure future sustainable supply of clean energy, we vigorously develop natural gas business, explore new energy development and continuously enhance the quality of oil products to meet market demand for clean and high-quality energy.



As the energy consumption mix is getting more diversified with lower carbon emissions, did CNPC make any adjustment in traditional oil and gas and new energy development?

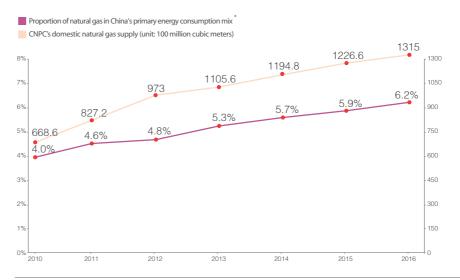
Fossil fuels will continue to play the main role in energy consumption before 2030. In China, as energy consumption growth slows down, and energy structure keeps optimizing, we are going to enter a new stage where overcapacity in traditional energy coexists with the rapid growth of clean and low-carbon energy. Against this backdrop, CNPC will stabilize oil production and increase the output of natural gas focusing on development quality and efficiency. Meanwhile, we will push forward the development of new energy, and explore associated resources in oil and gas basins including geothermal and natural gas hydrate.



Natural Gas

CNPC intensifies natural gas exploration and development as a strategic and growth-oriented project, accelerates the construction of transnational natural gas pipelines and domestic natural gas pipeline network, promotes the development of conventional natural gas and unconventional gas such as tight gas, shale gas and coalbed methane, and imports overseas natural gas resources to build a diversified energy supply system.

The rise of "Green Power" in energy supply has optimized China's energy structure and met people's need for clean energy.



 * Data source: Energy Statistic Data of CNPC Economics & Technology Research Institute

Domestic natural gas market share in 2016

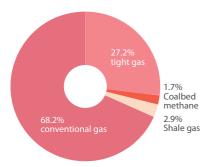
68.4

Domestic natural gas production share in the national total in 2016

73.2%

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

42.6%



CNPC's domestic gas production

Natural Gas

We constantly strengthen exploration in our four gas provinces in China. In 2016, newly constructed natural gas production capacity reached 10.94 billion cubic meters.

Four gas

provinces

of CNPC

- ¤ Located in Tarim basin
- main gas source of West-East Pipeline project
- ¤ Proven recoverable natural gas reserves of 910.2 billion cubic meters
- Material Distriction with a comparison of 23.4 billion cubic meters in 2016

Tarim gas province

Qinghai gas province

- ¤ Located in Sichuan basin
- ¤ Gas source of Southwest gas pipeline network and Zhongxian-Wuhan Gas Pipeline
- max Proven recoverable natural gas reserves of 164.4 billion cubic meters
- $\tt m$ Output of 6.5 billion cubic meters in 2016

- ¤ Located in Ordos basin
- ¤ Gas source of Shaanxi-Beijing Gas Pipeline network
- $\ensuremath{\mathtt{m}}$ Proven recoverable natural gas reserves of 1241.5

billion cubic meters

¤ Output of 36 billion cubic meters in 2016

Changqing gas province

Southwest gas province

- ¤The highest gas field in the world
- ¤ Gas source of Sebei-Xining-Lanzhou Gas Pipeline
- m Located in Qaidam basin
- ma Proven recoverable natural gas reserves of 1178.3 billion cubic meters
- ¤ Output of 20.7 billion cubic meters in 2016

Tight gas

We set up the National Energy R&D Center for Tight Oil and Gas to improve tight gas development efficiency.



We accelerated construction of coalbed methane production bases, promoted scale development, and set up the most advanced CBM lab in China. Baode gas field, the largest middle and low rank coalbed methane field in China, was put into operation. Two coalbed methane production bases in Qinshui and Edong realized reserve growth and large-scale development.



CNPC chose favorable development zones and formed six major technology series with platform horizontal well fracturing as the core technology and matching domestically-produced toolkits, realizing large-scale production and efficient development. By the end of 2016, two state-level shale gas demonstration zones at Changning-Weiyuan and Zhaotong achieved production capacity of 3 billion cubic meters.

Pipeline Construction

In 2016, the fourth Shaanxi-Beijing Gas Pipeline started construction, and the eastern section of Third West-East Pipeline and its Guigang-Yulin and Jintan-Liyang branches were put into operation. This will greatly improve our resource distribution and market supply capabilities in Beijing, Fujian, Guangxi and Jiangsu. By the end of 2016, CNPC operated 52,000 kilometers of natural gas pipelines, covering 30 provinces (municipalities and autonomous regions) and Hong Kong SAR in China and benefiting more than 500 million people.

We accelerated transnational natural gas pipeline construction, explored natural gas importing channels and improved natural gas supply capability.

- ^m The testing section of the Eastern Route of Russia-China Gas Pipeline started construction with 3,405km of newly built pipelines. Annual designed capacity is 38 bcm/a.
- The line A, line B and line C of Central Asia GasPipeline has a annual transmission capacity of 50bcm/a and the length of single line is1,833km.
- ^{II} The Myanmar-China Gas Pipeline has a capacity of 12 bcm/a and a total length of 2,546km.

CASE

West-East Gas Pipeline Project Delivering Clean Energy and Facilitating Low-carbon Transition

In December 2016, the eastern section of the Third West-East Pipeline (Line Three) was fed with gas. Line Three is another pipeline running from west to east in China and linked to the Central Asia Gas Pipeline after Line Two. The eastern section of Line Three will help Eastern China realize low-carbon transition and turn resource advantages in Central Asia and Western China into economic and environmental advantages.

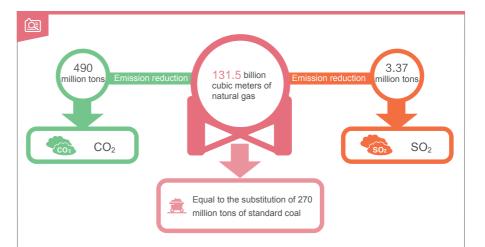
The West-East Pipeline network will be able to deliver 77 billion cubic meters of natural gas annually upon completion, accounting for 37% of China's total natural gas consumption in 2016, replacing 160 million tons of standard coal and reducing ${\rm CO_2}$ and ${\rm SO_2}$ emissions by 290 million tons and 1.97 million respectively.



The First West- East Gas Pipeline	Completed in 2004	Transmission capacity: 17 bcm/a
The Second West- East Gas Pipeline	Completed in 2012	Transmission capacity: 30 bcm/a
The Third West- East Gas Pipeline	The western section was completed in 2014, the eastern section was completed in 2016, and the Zhongwei-Ji'an section is under construction	Transmission capacity: 30 bcm/a

Natural gas utilization and substitution for other fuels

CNPC has actively expanded the utilization of natural gas in areas such as city gas, gasfired power generation, public transportation, shipping, etc.CNPC actively promoted "coal-togas" projects in Beijing, Tianjin, Hebei, Shandong and Southwest China, in an effort to improve local air quality.



In 2016, CNPC's gas supply volume was 131.5 bcm, which, if calculated by equivalent heat value, is equal to the substitution of 270 Mt of standard coal and emission reduction of 490 Mt of $\rm CO_2$ and 3.37 Mt of $\rm SO_2$ respectively. The Shaanxi-Beijing Gas Pipeline project has accumulatively provided 110 billion cubic meters of natural gas to Beijing and North China since the first Shaanxi-Beijing Gas Pipeline became operational in 1998. The proportion of natural gas in primary energy consumption mix in Beijing has jumped to over 30% in 2016 from only 0.5% in 1997. Natural gas has made great contribution to improving the energy structure and combating air pollution in Beijing and North China.





Serving the G20 Summit

CNPC's measures to ensure market supply during special periods in 2016

Natural gas supply in winter

- ¤Drafted purchase and sales plan in advance and drafted natural gas supply plan
- © Communicated with local governments and users to arrange gas supply in advance
- Example 2 in advance with domestic counterparts on resource swap in advance
- *Increased domestic gas production and gas supply from Central Asia
- ¤ Paid attention to spot LNG resource purchases
- ¤ Accelerated construction of the Baodi-Xianghe-Xiji Pipeline and the third Yongqing-Dagang Pipeline to ensure supply in winter
- ¤ Closely followed market dynamics to improve demandside management

Serving busy farming season

- ¤ Contacted related departments to better understand the general situation of oil demand in the agriculture sector
- ¤ Stored diesel in advance
- ¤ Coordinated railway and pipeline delivery capacity to increase supply to regions with busy agricultural activities
- ¤ Provided quality services

Supporting major national activities

- ^m Drafted supply plan for Zhejiang and Jiangsu during the G20 Summit
- E Set up emergency group to ensure supply for the G20 Summit, and followed overall refined product supply dynamics

New Energy

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

Geothermal energy

CNPC completed a demonstration study on middle and deep layer geothermal resource evaluation and development, and carried out research on middle and low temperature geothermal power generation, oilfield waste water residue heat utilization, ground water recharge, and high temperature geothermal drilling. Huabei Oilfield participated in the research for the 863 project on middle and low temperature geothermal power generation, and passed acceptance checks.

Biomass energy

CNPC's ethanol gasoline realized large-scale supply in northeast China. We made breakthroughs in the industrial development of aviation biofuel by refining aviation biofuel from Jatropha fruit and passed test flights. Compared with traditional aviation kerosene, this fuel can reduce greenhouse gases by 50%~90% within its lifecycle and has become an ideal alternative to fossil fuels.

Upgrading of Refined Products



We strive to provide cleaner and more efficient refined products and optimize the energy consumption mix by increasing investment, accelerating R&D and application of new technologies, and upgrading gasoline and diesel quality. By the end of 2016, CNPC completed all of its National V gasoline and diesel upgrading projects and commenced production as scheduled.

41.2%

2016

In 2016, 41.2% of CNPC's domestic gasoline supply met the National V standard

20,2%

2016

In 2016, 20.2% of CNPC's domestic diesel supply met the National V standard

Energy Cooperation

International energy problems can't be solved without cooperation. Upholding the principle of "mutually beneficial cooperation for common development", we give play to our advantages in integrated businesses, capital, technology and managerial expertise, and cooperate with host governments and partners to address the local energy challenges, in order to meet local energy demands and maintain regional energy security.

By the end of 2016

CNPC operated in

35 countries and regions

CNPC operated

01 projects

CNPC provides technical service and engineering construction for

countries and for regions

International Energy Cooperation

Despite low oil prices and regional turmoil, CNPC guaranteed the stable operation of cooperation projects. In 2016, CNPC produced 146.32 million tons of oil and gas equivalent overseas, with CNPC equity production of 76.01 million tons, up 5.5% year-on-year. The Company made due contributions to meeting energy demand in host countries and supporting local economic development.

Middle East

- ¤ The North Azadegan project in Iran went into production.
- $\tt m$ The Rumaila project in Iraq realized production of 3 billion barrels since start of operation in 2010, resulting in an oil revenue of USD 200 billion for the country.

Africa

- $^{\rm m}$ Reserves of our projects in Chad increased by 28 times in the recent five years, with an annual growth rate of 96%.
- Our integrated cooperation with Niger in the upstream, midstream and downstream sectors helped the country build a complete modern oil industry system. The cooperation projects not only met local energy demand, but also achieved exports of refined products in 2016.

Control Acia

- The Amu Darya project in Turkmenistan focused on natural gas exploration and production, with total natural gas output in 2016 of 13.13 billion cubic meters. The project created 22,000 jobs and invested over USD 3 million in public welfare undertakings.
- ¤ Since its construction completion, the Central Asia Gas Pipeline has transmitted 172.4 billion cubic meters of natural gas, having turned local resource advantages into economic advantages and met the energy demand from the market along the pipeline. In 2016, the project created more than 1,800 jobs in Kazakhstan and Uzbekistan.
- ^{III} Seven upstream projects in Kazakhstan produced 18.79 million tons of crude oil and 8.35 billion cubic meters of natural gas in 2016. Investment in public welfare undertakings reached USD 29.69 million.



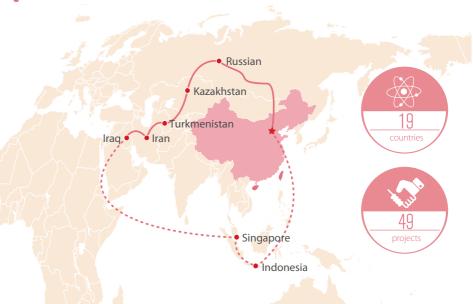
CNPC imported 48.12 million tons of oil from the "Belt and Road" regions, accounting for 64% of the Company's total oil imports respectively

64 %

CNPC imported 42.5 billion cubic meters of natural gas from the "Belt and Road" region, accounting for 95% of the Company's total gas imports

95

CNPC in "Belt and Road"region



CNPC has got 49 oil and gas cooperation projects in 19 countries along the "Belt and Road", including Russia, Kazakhstan, Turkmenistan, Iraq, Iran, Indonesia and Singapore. We also participated in the construction and operation of pipelines such as Central Asia Gas Pipeline.

In 2016, CNPC imported 48.12 million tons of oil and 42.5 billion cubic meters of natural gas from the "Belt and Road" region, accounting for 64% and 95% of the Company's total imports respectively.



Hope Oilfield in Kazakhstan



The North Azadegan project in Iran



▲ Halfaya project in Eraq

Joint E&P in China

We continue to make steady progress on cooperation with international partners in developing oil and gas resources in China. While deepening cooperation in conventional areas, we reinforced cooperation with IOCs in shale gas and other unconventional resources. In 2016, we entered into a production sharing contract with BP for the Neijiang-Dazu shale gas block of Sichuan Basin. The Luojiazhai High-sulfur Gas Field of Chuandongbei Gas Project jointly developed by CNPC and Chevron was put into operation, which will increase gas supply to regions including Sichuan and Chongqing. The Changbei Project in Changqing Oilfield in cooperation with Shell maintained stable production. Our domestic oil and gas production equivalent in cooperation with international partners amounted to 9.13 million tons.

Major Joint E&P Projects in China in 2016

Project	Partner	Progress
Zhaodong crude oil project	New XCL Roc Oil (Bohai) Company	Maintained stable production
Changbei natural gas project	Shell	Maintained stable production
Chuandongbei natural gas project	Chevron	Luojiazhai high sulfur gas field went into production
South Sulige natural gas project	Total	Maintained stable production

International Marketing

Supported by our overseas operation hubs and trade networks, we conduct international trading through cooperation and joint ventures in 80 countries and regions around the world, further improving our resource deployment capability. In 2016, we reported 450 million tons of international marketing volume, and witnessed improvements in both trade scale and operational quality.





Responsible

Operation

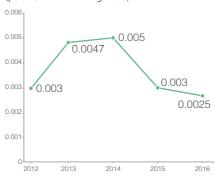
- ☑ Safe Operation
- ☑ Environmental Protection
- ☑ Climate Change
- ✓ Products and Services
- ☑ Supply Chain Management

We are always committed to the principle of "Environment prioritized, safety first, quality foremost, people oriented" and the goal of "zero defects, zero injuries and zero pollution". We regard providing clean energy, minimizing environmental impact and reducing emissions as the strategic foundation for the Company's sustainable development. The Company continues to improve product and service quality management, and promote safe, environmentally-friendly and resource-saving operations, in order to promote the construction of an ecological civilization and develop a resource-saving and environmentally-friendly enterprise.

Safe Operation

pollution accidents in the year.

Fatality rate caused by work safety accidents (person/million working hours)



In 2016, we continued to improve our safety management mechanism, strictly executed the

Management System and Performance Assessment

accountability system in which those who fail to fulfill their duties must be punished, and we strengthened the implementation of safety and environmental protection responsibilities of all employees. We carried out evaluation of employees' capabilities to perform safety and environmental protection duties. As a result, the Company-wide safety management system that is clearly graded in responsibilities and covers all staff was continuously improved. We optimized our HSE quantitative auditing standard and fully promoted HSE quantitative auditing, in order to strengthen auditing of leadership performance and process control.

We actively promote the construction of long-acting work safety system and comprehensively

enhance work safety management level. All key projects were steadily proceeded as planned. In

2016, CNPC saw a stable improvement in work safety performance, with a continuous decline in the number of production accidents and fatalities. We reported no major safety or environmental

The number of fatalities in production accidents dropped by



Content of safety and environmental protection performance assessment

Duty performance assessment

Capability assessment

To review employees' performance in safety and environmental protection, with the assessment results included in performance appraisal

To review the employees' capability in safety and environmental protection, with the assessment result serving as a reference for determining whether the employees changing positions are qualified for the jobs



Promote the standardized construction of grassroots stations and competency assessment

Through promoting standardized construction of grassroots stations of all business units, the standardization rate overall reached 41%, in which that of the pipeline segment reached 90%.

Competency assessment on safety and environmental protection was carried out on grassroots managers and key personnel, with emphasis on the assessment of newly promoted, appointed and transferred staff. We linked the assessment results with rewards and penalties, appointments and promotion to create an environment matching competency with posts and the voluntary assumption of responsibilities.

HSE Training

We promoted the application of the HSE training matrix at the grassroots level, and issued a handbook on HSE training matrix compilation and application for grassroots employees facing high risks. We explored the application of the HSE training matrix for grassroots employees through multiple ways, in small scale and with short training hours, in order to improve training effectiveness.

Rectification rate of long-distance pipeline hazards reached 100%

100%

Rectification rate of chemical tank field hazards reached 98%

98%

Safety and environmental technology diagnosis and management assessment were conducted at 12 key subsidiaries and projects; significant problems and major hazards were handled with follow-up measures.

12 subsidiaries and projects

Safety Risk Management

We built a dual-prevention mechanism covering risk prevention and potential hazard control, while improving classified risk control and close-loop hazard management, in order to eliminate safety risks and potential hazards.to prevent accidents. We emphasized management of key areas including supply chains, hazardous chemicals and high-risk operations. Safety and environmental protection technology diagnosis and management assessment were carried out on key subsidiaries, key projects and high-risk areas to ensure that major risks are under control. We continued to improve our emergency response capability and attached great importance to anti-terrorism work in overseas projects by putting in place targeted emergency response plans.

Supply Chain Safety

We included suppliers and contractors into our safety management, and had an all-process management on their access, selection, training, use and evaluation. We provided guidance to our suppliers to ensure their operations and production are in compliance with the law, quality standards and safety regulations. HSE assessment was conducted regularly to prevent and reduce accidents caused by suppliers and contractors. We strengthened contractor training by putting in place unified standards, requirements, as well as rewards and punishments, in order to build a competent and trustworthy contractor team with standard management and outstanding performance. We regularly assessed contractors' HSE performance and those with a record of major accidents were black-listed.

CNPC Supply Chain Safety Management

Process

Strict screening process

- m Implement safety qualification screening system for contractors and suppliers
- ¤ Establish safety performance records
- ¤ Regularly publish the list of qualified contractors, and remove unqualified contractors from it

Capability building

- ¤ Promote the "dual certification" mechanism for contractors' management personnel
- Provide training on HSE system development, audits, and management

Process control

- Strictly implement the safety supervision responsibility of contractors, based on the principle that "the contract issuer is the supervisor, the owner is taking responsibility"
- ¤ Conduct targeted safety inspection of contractors

Evaluation and assessment

- ¤ Establish safety performance evaluation system
- ¤ Carry out safety capability assessment, daily safety performance evaluation, and comprehensive safety performance assessment
- Extrictly hold accountable for those who violate national workplace safety laws and regulations and contracts
- $\ensuremath{\mathtt{m}}$ Delist contractors responsible for accidents

Hazardous Chemicals Management

The Company has kept strengthening safety supervision of hazardous chemicals, and regulating full process management of hazardous chemicals covering production, storage and transportation. We strengthened safety education and training on hazardous chemicals, set up a hazardous chemicals safety technology center, and promoted the construction of information platform on hazardous chemical safety supervision. Inspection and treatment of potential hazards were carried out at chemical tank farms, with the rectification rate of key potential hazards at tank farms reaching 98% for the whole year.

Emergency Management

We have been constantly improving our emergency management mechanism and our emergency rescue capability was improved greatly. In 2016, the Company improved its emergency plan at the headquarters level, conducted emergency drills, and strengthened emergency training. All our subsidiaries were equipped with site emergency plan and emergency card. Substantial progresses were made in regional emergency interaction and emergency materials layout.



Set up oil spill emergency response system covering all lands and waters in China



CNPC Offshore Emergency Response Center has set up an oil spill emergency response system covering all lands and waters of the country, which is capable of providing emergency rescue in case of oil spills in different environments including shallow seas and bay areas. The Company has been improving oil spill emergency plan system in four aspects of emergency preparation, warning and monitoring, emergency handling and joint emergency response, to ensure that the system is more rational, targeted and workable

Offshore Oil Production Safety

The Company strengthened supervision of offshore oil production safety. We carried out special inspections on project commencement in spring, typhoon prevention, offshore operations in winter, and wharf workplace safety. We focused on supervision of main offshore construction projects in the process of design, construction and operation, and implemented the "tag and check" system on major potential hazards. Additionally, emergency response drills were carried out for fire and explosions at offshore oil and gas production facilities as well as oil spills and pollution. In 2016, we realized stable and orderly operation at our offshore oil production facilities.

Overseas Security Management

Personnel safety has always been an overriding priority in our operations. We steadily promoted social security management systems, strengthened social security risk prevention and control, continuously enhanced emergency response capabilities. In 2016, there were no fatalities in our overseas projects concerning social security.

- ¤ Kept improving security management system to increase its relevance, practicality and operability.
- ¤ Strengthened supervision and inspection of the security management system's operational efficiency, and conducted security management system review of overseas projects.
- ¤ Continuously strengthened anti-terrorism security training for overseas employees to improve their emergency response capabilities. More than 16,000 employees were trained at 264 training sessions in

maintaining the basic production of the oilfield, we evacuated 348 employees in a safe and orderly manner, ensuring the safety of employees and oilfield property.

In 2016, we effectively responded to the

armed conflict in South Sudan. While

Overseas Security Risk Management

Risk level Management measures efore project implementation: carry out security risk assessment and formulate an effective security oject shall not be implemented until it is reviewed and approved by the Company. During project i keep improving the security program and revising the emergency response plan according to changes in local security situations, and organize drills to ensure personnel safety.

Environmental Protection

We take the initiative to evaluate the environmental impact of our decisions and activities, and make efforts to reduce adverse effects on the environment and climate. By improving the resource utilization efficiency, implementing the Clean Air Act, promoting energy conservation and emission reduction, and striving to achieve environmentally-friendly and resource-saving operations, we vigorously advocate ecological civilization, in order to achieve harmonious development with the environment.

Strengthening Risk Prevention and Control

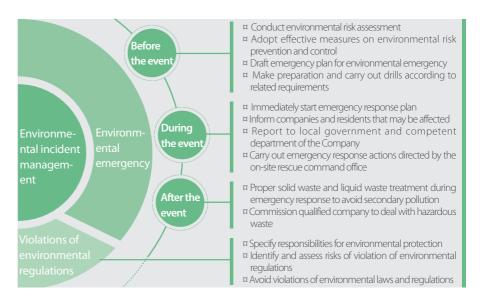
We carried out environmental risk identification and assessment, and implemented a risk prevention and control management model focusing on environmental forecasting, pre-warning and monitoring. We began the environmental risk management at an earlier stage, and established a sound risk management mechanism featuring "management in tiers, prevention and control by levels", in order to ensure overall control over environmental risks. In 2016, no major environmental accidents were reported and all major pollutants reduction targets were achieved.



We carried out classified management of "six major environmental risks", drafted targeted control plans, and organized major subsidiaries to identify potential risks and implement risk control measures, so that management measures can be implemented at every level.



In 2016, we released CNPC's Administrative Measures on Environmental Incidents and CNPC's Regulations on Oil Pipeline Environmental Risk Prevention and Control to strengthen the management of emergencies and environmental risks, thereby controlling, reducing and eliminating harmful environmental incidents.



For continuing to reinforce our environmental monitoring capabilities, we completed the installation and data networking of online monitoring equipment for waste water and waste gas, and performed real-time monitoring and alarm of discharges from major pollution sources. In order to strengthen supervision and evaluation of subsidiaries, we set up an environmental monitoring network featuring "three-tiered environmental monitoring, environmental emergency monitoring and online monitoring of pollutants", which ensured treatment at the source, and control over the production process.



Real-time environmental risk management via internet technology

We actively integrated internet technology with our ecological conservation practices. The Pollution Sources Online Monitoring System was set up, realizing networking and sharing of ecological data. With 45 functions divided into six modules, the System could accurately monitor, calculate and analyze emission data of each monitoring point in real time; monitor emissions from key sources in real time, assess the operating results of environmental protection facilities; and collect and analyze the alarm data.

In case of an environmental accident, the Pollution Sources Online Monitoring System could be used as the environmental emergency monitoring and decision-making platform. It could receive, analyze and process the emergency monitoring data, video images of the accident and weather conditions, and integrate the functions of GIS space analysis, pollutants migration simulation, environmental alert and consultation on final decisions.

By the end of 2016, 304 key monitoring points of CNPC completed data networking, covering 87 waste water and 217 waste gas discharge outlets in the national monitoring list of key enterprises.

Sustainable Use of Resources

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

Water Resources

CNPC endeavors to improve water utilization efficiency and realize sustainable water utilization throughout various links in our production and operation activities. We improved water management by using wastewater treatment and reclaimed water reuse technologies to reduce freshwater consumption. In 2016, the Company reduced overall freshwater consumption by 1.78% year-on-year, and saved a total of 13.39 million cubic meters of water.



treated wastewater

Eco-environmental Management in Full Life Cycle throughout the Industry Chain



- In our oil and gas development, equal importance was given to water pollution prevention & control and water recycling. After the oil-water separation and filtration treatment of the recycled wastewater, oil recovery and water reinjection were both realized, preventing groundwater and surface water contamination. By the end of 2016, over 100% of oil extraction wastewater in our oil and gas fields was treated, with a reinjection rate of more than 95%.
- We carried out water system maintenance and revamping, improved the water qualification rate, optimized operation programs, and upgraded wastewater discharge and treatment processes to reduce production water discharge, and promoted the application of new technologies for water treatment to maximize water conservation. In 2016, the comprehensive qualification rate of the Company's oilfield wastewater reached 100%, and water discharges were reduced by 10% year on year.



We focused on managing the impact on water resources by construction projects and the risk of leakage accidents during pipeline operations. Environmental impact assessments (involving water environment) were conducted, and water conservation and protection concepts and awareness were assimilated into construction activities.



We improved water consumption efficiency by promoting clean production processes, saving water from the source, and optimizing water consumption systems. We increased the concentration times of circulating water to reduce water supplement, and strengthened steam condensate water recovery to realize water saving. In addition, we emphasized wastewater treatment and reuse to reduce wastewater discharge and improve the industrial water recycling rate; and enhanced underground pipelines to get lower groundwater leakage rate.

Reducing water pollution risks through threetiered pollution prevention and control system

We set up a safe, timely and effective pollution prevention and control system, conducted environmental risk assessment, and adopted necessary prevention measures to control water pollution risks and prevent oil spill accidents. Comprehensive inspection was carried out across the Company, and three-tiered prevention and control mechanism against water pollution accidents was implemented at enterprises located close to rivers and lakes or at places where public water pollution is possible.

Tier 1 prevention and control system

Prevent possible minor pollution risks by setting up cofferdam, tank farm fire dike and supporting facilities

Tier 2 prevention and control system

Prevent possible major pollution risks by setting up rainwater cutting system, waste barrage, anti-overflow and diversion facilities, as well as intermediate accident buffer and supporting facilities Tier 3 prevention and control system

Prevent possible serious pollution risks by setting up terminal accident buffer and supporting facilities.

In 2016, 1,135 hectares of land were reclaimed

1,135 hectares

In 2016, the Company saved 950,000 tons of standard coal equivalent, accounting for 125% of the planned annual volume

125%

Technology on improving the efficiency of oil and gas field boilers and heating systems raised the overall efficiency of boilers by 5%

5%

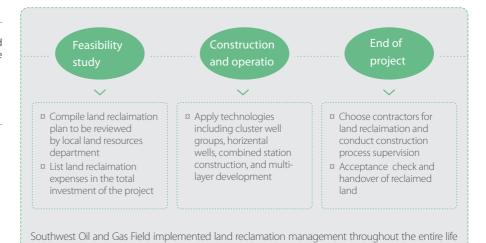
Five oil and gas subsidiaries including Daqing Oilfield and seven refining companies including Jilin Petrochemical received the award of the "National Advanced Unit in Petroleum & Petrochemical Industry in 12th Five-Year Plan".

Dushanzi Petrochemical was selected as the energy efficiency leader of the ethylene industry by the Ministry of Industry and Information Technology, the National Development and Reform Commission, and the General Administration of Quality Supervision, Inspection and Quarantine in 2016.

Comprehensive control of VOC emission was conducted, and the VOC comprehensive control information platform for refining enterprises was set up.

Land Resources

The Company attaches great importance to the protection of land resources. We made careful and intensive use of land during production, strictly controlled land use growth, made good use of land through various ways, actively reclaimed land, and carried out environmental treatment and recovery in mining areas. Changqing Oilfield managed to save 15,000 acres of land in 2016 through measures such as the extensive use of cluster well and horizontal well, optimizing well pattern arrangement, and integrative planning of stations.



cycle of the projects. From 2011 to 2016, a total of 3002.26 hectares of land were reclaimed at the oilfield,

and 100% of the reclaimed land was turned into grassland or forest.

Energy

We have been striving to reduce the consumption of fossil fuels and increase energy efficiency by reducing energy intensity. We paid high attention to energy conservation at the source, and carried out energy-saving assessments of newly-developed, revamped and expanded projects. We promoted the application of energy-saving technology and equipment to boost the efficiency of heating furnaces in oil and gas fields and optimize refining and chemical energy systems. We reinforced energy use management in the production process, and conducted monitoring and evaluation of energy and water-intensive devices and equipment.

Waste and Pollutants

We strictly monitored and controlled discharges of waste and pollutants in the production process, strengthened waste management, and reduced discharges of pollutants in the air, land and water. In 2015, the emission intensity per unit of crude oil production of four major pollutants measured by chemical oxygen demand, ammonia nitrogen, sulfur dioxide and NOx decreased by 31.5%, 23.1%, 33.6% and 28.3% respectively, compared with 2010; the emission intensity per unit of crude oil processing decreased by 27.8%, 28.8%, 54.8% and 32.0% respectively, compared with 2010.

In 2016, we implemented 58 projects to reduce emissions, including 49 on waste gas emission reduction, and 9 on waste water discharge reduction. Emissions of sulfur dioxide, ammonia nitrogen, COD and nitrogen oxides dropped continuously.

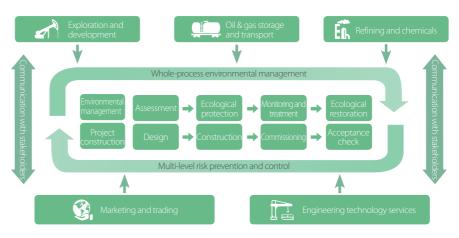
State Key Laboratory of Petroleum and Petrochemical Pollution Control and Treatment

Key areas	Petroleum and petrochemical waste water treatment and reuse	Solid waste recycling	VOC detection and recycling	Field pollution risk prevention and restoration
Research achievement	Packaged technology for upgraded processing of refinery waste water based on advanced oxidation pretreatment - in-situ upgrading - in-depth processing	Packaged technology for resource treatment of drilling waste while drilling	Packaged technology for wet desulfurization and low- temperature denitrification of catalyst regeneration flue gas for catalytic cracking units	Packaged technology for restoration of petroleum hydrocarbon contaminated sites
Research achievement	In Solved difficulties such as biological inhibition and poor biodegradability of point source wastewater In Met requirements of new standard for Chemical Oxygen Demand (COD) and ammonia nitrogen In Applied the upgrading of wastewater treatment in subsidiaries such as Lanzhou Petrochemical	^{III} Realized drilling waste recycling rate of 100%, and clean drilling operation with zero solid or liquid waste discharge ^{III} Promoted in natural gas wells in Sichuan-Chongqing Region, generating RMB 80 million in economic benefits	Emitted SO ₂ and NO ₂ with concentration lower than 50ppm which met ultraclean emission standards, and denitration catalyst reached international advanced level Completed desulfurization and denitrification projects at 20 units, saving RMB 130 million for technology introduction and catalyst costs	 Applied waste storage sites in Jilin and in several service stations and oil-contaminated coastlines in Hebei, providing technical support for site pollution prevention and control for oil enterprises Obtained four invention patents, two utility model patents and one software copyright

Conservation of Biodiversity and Natural Habitats

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.

Eco-environmental Management in Full Life Cycle throughout the Industry Chain



CASE

Green drilling to protect the environment

CNPC integrated environmental protection into the whole well-drilling cycle and took all kinds of measures to protect surface and underground water. During the drilling process, we used ecofriendly mud, strengthened recycling of drilling waste, and conducted standard treatment of waste liquid. By the end of 2016, CNPC recycled 1.05 million tons of drilling waste, and the reuse rate of waste liquid reached 80%.

Eco-friendly mud

Econducted R&D and upgrading of eco-friendly mud: oil-based mud - water-based mud - eco-friendly mud

Recycling of drilling waste

- ${\tt m}$ Used bio-safety treatment technology for drilling waste
- ^{III} Adopted solidified disposal and bio-safety treatment to drilling detritus and waste mud, which became useful building materials reaching environmental and building material strength standards

The green drilling philosophy and technology was widely applied in CNPC's global operation. For example, in Chad, the Company used the close-loop treatment system to separate, treat and reuse waste mud, and turned it into mud plate and clean water to be used in well station construction and mud mixing.

CASE

Wetland protection in North Azadegan project gains recognition from the host country

Paying high attention to local wetland protection, CNPC's North Azadegan project in Iran was the first foreign enterprise to win the award on environmental protection from the country. In order to reduce the impact on wetland by well site road and keep the fluidity of water resources, we reconstructed wetland water flow network to avoid dead lake by building high-standard culverts and road network in the form of "three horizontal and two vertical lines". By the end of 2016, North Azadegan project built 149 culverts in the oilfield wetland, and effectively guaranteed the eco-balance of wetland.



North Azadegan project won "environmental protection award" in Iran



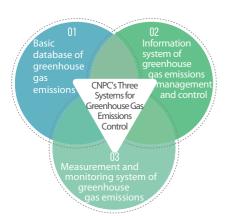
Site of North Azadegan project

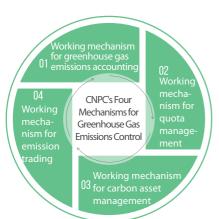
Plans and initiatives for greenhouse gas emission reduction and control supported and participated in by At CNP of this of developments of this of developments of the control support of the control support of the control support of the control o

¤ Paris Agreement

CNPC

- ¤ China's National Program to Address Climate Change
- x National Plan on Climate Change (2014-2020)
- Echina Technology Strategic Alliance for CO2 Capture, Utilization and Storage Technology Innovation (CTSA-CCUS)
- ¤ Oil and Gas Climate Initiative(OGCI)





Climate Change

At CNPC, we supported the goal of limiting global warming to less than 2 degrees Celsius by the end of this century. To this end, we actively responded to climate change, devoted ourselves to low-carbon development, and shared the practice of greenhouse gas control with industry peers and all sectors of society.

Our overall objectives to address climate change

Implement the strategy of low-carbon development, actively develop clean energy, establish carbon emission control mechanism, and effectively control greenhouse gas emissions.

Our action plan

Actively develop and utilize natural gas, coalbed methane and shale gas, and implement demonstration projects for carbon capture, utilization and sequestration. Promote energy conservation, enhance energy efficiency and substitution of clean energy for other fuels, and strengthen the comprehensive utilization of greenhouse gases. Enhance the recovery and utilization of vent gas and associated gas, and promote control of greenhouse gas emissions in the refining process. Carry out international cooperation to combat climate change and participate in the work of the Oil and Gas Climate Initiative (OGCI).

Our measures

Develop management rules and work plans and establish the control and management system for greenhouse gas emissions, strengthen capacity for greenhouse gas emission control, increase capital investment, and promote innovation of low-carbon technologies.

Our key tasks for greenhouse gas emission control

Carry out greenhouse gas emission accounting, exercise carbon emissions quota control, take measures to control greenhouse gas emissions, regulate greenhouse gas emissions reporting, and strengthen international cooperation to combat climate change.

Carbon Emission Management

We paid close attention to greenhouse gas emissions and included climate change tackling in our development plan. In 2016, we specified our objectives, action plans, safeguard measures and key tasks to address climate change. We focused on carbon footprint verification and built basic management databases, in order to lay foundation for carbon emissions accounting and reporting.

Development of Low-Carbon Energy

As an advocate and practitioner of low-carbon economy, we actively developed natural gas, coal bed methane (CBM), shale gas, biomass and other low-carbon energy, produced and supplied clean products, and worked hard to achieve clean production of the products and the consumption process (see P16 Sustained Energy Supply for details).

Development and Application of Low-Carbon Technologies

With science and technology playing a significant role in controlling greenhouse gas emissions and addressing climate change, we carried out special studies on R&D of low-carbon technologies, established major projects in key technologies for low-carbon and clean development, and engaged in technological research on CO_2 flooding and storage, aviation bio-fuel production, refining energy system optimization etc.

	Achievements	Application Effect/Prospects
Strategies and policies	Research on policies, standards and strategies for low-carbon development	We established the low-carbon data management platform and comprehensive low-carbon evaluation index system, and the statistical and accounting standard for greenhouse gases from upstream and downstream enterprises, providing technical support for greenhouse gas emissions accounting and reporting, as well as carbon emission benchmark value accounting of the Company.
	Research on evaluation index systems for energy saving and emission reduction	We developed evaluation index systems, energy efficiency benchmarking and pollutant emissions reduction benchmarking techniques for energy saving and emission reduction. We also established index database framework for energy efficiency benchmarking and pollutant emission reduction benchmarking. As demonstrated by pilot applications, the index systems showed high practicality and could provide strong support for implementing our energy saving and emission reduction projects.
	Carbon dioxide flooding technology	The technology was deployed in industrial tests at the Jilin and Daqing oilfields. By the end of 2016, nearly 2 million tons of carbon dioxide was injected and a total of nearly 700,000 tons of oil was produced.
	Biomass energy development technology	Significant progress was made in core technologies for aviation biofuel production, and key technical and economic indicators reached the international advanced level. The packaged technology for aviation biofuel production with independent intellectual property rights are of great significance to the partial replacement of petroleum resources, the reduction of greenhouse gas emissions and the improvement of the environment.
Technologies	Energy system optimization technology	The technology has been comprehensively promoted and applied in the Company, saving over 200,000 tons of standard coal per year. Targeting at highly integrated refining and chemical business with intensive IT support, this technology, played an important role in the highly automated and intelligent refining and chemical production process.
	Vent gas (associated gas) recycling technology	The technology enabled the closed gathering, transportation and treatment of associated gas throughout the production process, and was applied in Changqing and other oilfields. It is expected to recover 200 million cubic meters of natural gas each year.
	CBM development technology	We innovated and developed a series of CBM development technologies focusing on high-efficiency discharge and recovery as well as production stimulation. We produced 7 bcm of marketable gas totally, equivalent to reduction of 105 mt of carbon dioxide emissions.
	Geothermal energy utilization technology	We improved standards for the evaluation of geothermal resources in oil provinces, established the geological model for geothermal field development, and developed geothermal resources evaluation software. We optimized abandoned exploration wells, designed direct heat transfer underground, and evaluated the economic efficiency of absorption heat pump technologies.

Carbon Emission Reduction during Production

While supplying society with clean oil products, we paid high attention to optimizing the structure of energy consumption by ourselves. We also cared about carbon emissions and carbon footprint during production and operation. In Huabei Oilfield, Tarim Oilfield and other areas, we used renewable energies such as geothermal energy and solar energy to reduce carbon emissions during production.

Market-based Mechanism for Carbon Saving

We actively participated in carbon trading activities to achieve carbon emissions reduction targets through market-based mechanisms. We were the co-founder of the Tianjin Climate Exchange (TCE), the first comprehensive emissions trading institution in China. The energy saving and emissions reduction projects developed by TCE could save more than 200,000 tons of standard coal annually, equivalent to over 500,000 tons of carbon dioxide emission reduction.

2009	Completed China's first carbon neutral deal based on standardizing carbon verification
2010	Certified the first carbon emission reduction (CER) at the energy efficiency market
2011	Completed the first voluntary emission reduction deal in China based on the PAS2060 carbon-neutrality standard
2012	Built a financing vehicle dedicated to energy-saving service companies jointly with financial institutions including Shanghai Pudong Development Bank and Industrial Bank, as well as the ESCO Committee of the China Energy Conservation Association
2015	Completed the largest CCER (Chinese Certified Emissions Reduction) transaction in China, with a trading volume of 506,125 tons
2016	Established the China Carbon Market Capacity Building (Tianjin) Center to help enterprises in non-pilot areas enhance their capacity in low-carbon development and carbon market participation

In 2016, we invested a total of RMB 32,426,000 in public-welfare forestation funds and planted 3.89 million trees

 $32,426,000_{\text{RMB}}$



Forestry Carbon Sequestration

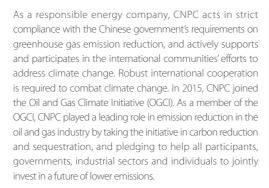
We actively supported carbon sink forest construction and forestation activities in China. We established the China Green Carbon Foundation together with the State Forestry Administration, building an accumulative total of 22.07 million hectares of carbon sink forests. Meanwhile, we set up the Forestation Committee to ensure continuous forestation in our production areas and living quarters. As of 2016, green presence in CNPC's production areas reached 289 million square meters, representing a vegetation coverage rate of 26.89%. A total of 647,000 employees voluntarily planted 3.89 million trees in 2016.

We established the China Green Carbon Foundation together with the State Forestry Administration, building an accumulative total of 22.07 million hectares of carbon sink forests, equivalent to the area of 3,090football fields.

	Location	Area
	Shaanxi	6,667 hectares
	Inner Mongolia	6,667 hectares
Forestation projects	Hebei	3,333 hectares
supported by China Green	Anhui	3,333 hectares
Carbon Foundation	Hunan	6,667 hectares
	Yunnan	26,667 hectares
	Sichuan	13,333 hectares
	Dingxi, Gansu	1.33 million hectares
	Qingyang, Gansu	1.33 million hectares
Foundation nucleate	Zezeng, Heilongjiang	5.33 million hectares
Forestation projects operated by CNPC through	Beijing	1.53 million hectares
China Green Carbon	Dingzhou,Hebei	1.33 million hectares
Foundation	Wuhan, Hubei	6.67 million hectares
	Lin'an, Zhejiang	466,690 hectares
	Longzhou, Guangdong	2 million hectares
	Shantou, Guangdong	2 million hectares







"Implementing the Paris Agreement requires the further promotion of energy supply-side structural reform. OGCI provides an ideal cooperative platform for the global petroleum industry's low carbon transformation."

Since becoming a member of the OGCI, CNPC has been actively involving in all types of activities within the OGCI framework, and worked closely with member companies such as BP, Total and Shell.



We 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. The working groups carry out joint research with other member companies respectively, and released phased research reports at the CEO Summit in early November 2016.



We actively involved in the preparation of OGCl's new management regulations.

Through telephone communication with the executive committee members from BP, Total, Shell, Saudi Aramco and other member companies, we gained better understanding about the cooperative relations among these companies, and coordinated on important issues to make sure that CNPC's opinions were fully understood and responded to.



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 USD 1 billion over the next 10 years to accelerate development of innovative technologies, and the investment will be made mainly in technology development, demonstration projects and emerging projects.

Products and Services

100% of our production and operation subsidiaries passed third party certification in quality management system

100%

We organized 67 quality training activities with participants of 20,000 person-times.

20.000

person-time

"The experience of quality system maturity assessment of Bohai Drilling Engineering Company" won the award of 2016 national petroleum and petrochemical industry quality benchmark.

Lanzhou Petrochemical and Bohai Drilling Engineering Company won the award of "2016 demonstration enterprise for industrial brand nurturing" from China Petroleum and Chemical Industry Federation.



Following the principle of quality foremost and people oriented, we strengthen the quality management system and improve process quality control to create brand products. In addition, we continue to improve product, project and service quality.

Quality Control

In 2016, CNPC continued to enhance quality management and improved the quality of products, projects and services, focusing on quality supervision, metrological verification and standard revision.



Quality Supervision and Inspection

We carried out supervision and spot-checks on the quality of the products we produced, sold, procured and used, as well as the quality of construction project in progress. We regularly reported quality hazards and announced quality risks of major projects, and adopted zero tolerance against unqualified products.

- Promoted business management innovation, and investigated and punished suppliers of unqualified products
- a Carried out comprehensive spot-checks on warehouses of procured products to improve coverage of supervision and spot-checks
- ¤ Released spot-check results in a timely manner

We attached equal importance to physical and behavioral quality. Focusing on identifying major potential quality hazards, we have realized full coverage of supervision and inspection of projects under construction.

^m We combined daily supervision and expert inspection, and strengthened quality supervision of major projects under construction including the Fourth Shaanxi-Beijing Gas Pipeline and the Second Russia-China Crude Pipeline



Formulation and Revision of Standards

Strictly implemented mandatory standards, actively upgraded corporate standards, and participated in formulation and revision of national and industry standards

- ¤ We formulated and revised 74 national and industry standards, and 73 corporate standards in 2016
- We formulated and implemented self-declaration and disclosure plan for product and service standard to ensure compliant and effective adoption of standards
- = 32 experts took part in international standardization conferences, and led and participated in the formulation and revision of related international standards



Metering Infrastructure Construction

- ¤ Primary standard device of Chengdu branch of the National Oil and Gas Large Flow Metering Station started construction standard test
- ¤ Guangzhou branch received national authorization and started verification
- ${\tt m}$ Urumqi branch completed commissioning and started construction standard test
- ¤ Oil metering standard device layout moved forward stably



Nurturing Quality Culture

- ¤ We carried out the Quality Month Campaign and supervision of product and project quality, and released QC achievements
- ^{II} 62 groups won the national award on excellent quality management,
 22 teams won the national award on trustworthy quality, and
 four subsidiaries won the title of excellent enterprises in quality
 management team activity

Product Management

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



- Made innovation in well pattern adjustment technology for the layer system of ultra-high water-cut oilfields, and researched and developed key tools such as intelligent flow measurement and adjustment instruments, enhancing the waterflooding recovery rate by 1-3 percentage points.
- ¤ Achieved an annual output of more than 4 million tons and enhanced the recovery rate by more than 18 percentage points through the industrial promotion of chemical compound flooding technology.
- ¤ Researched and developed the high-performance recoverable fracturing fluid system, fully soluble composite bridge plugs and other key tools, reducing the cost by 30%.

Quality Products and Services

Providing Quality Products

By strengthening technological innovation and promoting product quality upgrading, we provided applicable solutions for our industry as well as safe, reliable, high-quality and environmentally-friendly products for our customers.



- We promoted the application of independently developed clean National
 V gasoline and diesel production technology, with production capacity
 reaching 105.5 million tons/year.
- ¤ Catalyst on fixed bed residue hydrotreating PHR series was successfully tested for commercial production, with better performance in desulfurization, carbon removal and denitrification.
- ¤ We developed 1.03 million tons of new petrochemical products of 84 specifications and models. Important progress was made in automobile fuel tank materials, IBC container materials, special medical materials, and Goodvear materials.
- Developed production technologies for specialty chemicals such as 20 thousand tons/year of Hexene-1 and highnitrile SAN.
- Major progress was made in the technology development for olefin polymerization monomer, methanol conversion to olefin, and alkylation of benzyl alcohol, providing technical support for efficient resources utilization, low-cost chemical feedstock production and high-grade lubricant PAO.





- ¤ We developed X80/Ф1422 steel pipe and fitting, and supporting construction equipment; and could carry out X90 pipeline testing section engineering to provide technical guarantee for the construction of the Eastern Route of the Russia-China Gas Pipeline.
- ⁿ We saw safe operation of our gas storages, innovated core technologies on evaluation of dynamic seal of gas reservoir storage trap, and developed six types of equipment and products, including well leakage detector.
- ¤ As of 2016, CNPC has completed refined product replacement in oil storage and stations in 31 provinces and municipalities and provided these places with products meeting national V standard.
- **5017** patent application in 2016
- EVENUE IN EXECUTION IN THE PROPERTY OF A CAPTURE AWARD STATE OF THE PROPERTY OF OF THE PRO

According to the Chinese Customer Satisfaction Manual jointly issued by the Customer Satisfaction Measurement Center under China National Institute of Standardization and the Chinese State-owned Enterprise Research Center under Tsinghua University, our company's service stations ranked first on customer satisfaction in 2016 compared with peers in China.

NO.

Satisfaction rate of followup on customer complaints reached 95.9%, up 3.2% year-on-year.

95.9%



communicative, honest and cooperative manner.

Promoting Service Level

We constantly improve consumption experience and provide consumers with satisfactory and efficient services.

Optimize Service Network

¤ We owned over 20,000 service stations in China, with annual retail capacity of 80.18 million tons. Our sales service covered 31 provinces (municipalities and autonomous regions) and the Hong Kong SAR.

Provide Value-added Service

- ¤ Developed CNPC e-station app to realize mobile payment.
- ^m Opened CNPC e-station official WeChat account for rechargeable cards and credits store.
- ¤ Promoted Alipay and WeChat pay nationwide; added ways to pay such as QR scanning, face-to-face Alipay, mobile payment and mobile transfer.
- max Promoted full and semi self-service stations in more than 7,300 stations in 27 provinces.

Expand Scope of Service

- $^{\mathrm{m}}$ The number of convenience stores selling non-oil products reached 17,000, and 89% of our service stations were equipped with convenience stores.
- ¹² Worked closely with automakers and auto service providers, increased the number of 2S auto service stations, and 300 auto service stations were opened in 2016.

Improve Consumer Satisfaction

- ^{II} Took measures such as collecting consumer opinions, conducting customer satisfaction surveys and launching the "Customer Experience Day", and solicited customer opinions in a timely manner to improve service quality continuously.
- ¤ Invited third party to conduct "mystery customer visit" on 31 branch companies, and followed up with rectification measures to improve service quality at grassroots stations.

In 2016, the Company invited 69 customers and journalists, through CNPC E-station, online and offline recruitment, to take part in the self-driving tour themed "CNPC takes YOU on the Silk Road". Through the activity, participants got to know our work at oilfields and refineries, experienced the integrated sales model covering refined oil, fuel cards, convenience stores and lubricants, and enjoyed the intelligent way of consumption at service stations.



Supply Chain Management

RMB 110 billion of procurement expenses in 2016

110 billion

25,435 suppliers in 2016

25,435 suppliers



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

Through public bidding, we provided suppliers with fair, transparent and competitive opportunities. A unified supplier database was established for open tenders, fair competition and online transactions. The "Open, controlled, fully documented, and permanently traceable" process could ensure the quality of procured products and services. We have also established a complete supplier quality management mechanism which covered quality approval, quality inspection, supervision and spot-checking, and onsite supervision of the manufacturing of major products. Through the use of information technology and Internet tools, we implemented supervision and inspection of different units, different positions and different stages in the same process of the same business, to minimize dishonest behavior. Moreover, at various stages of supplier access, supplier assessment, strategic supplier development, materials and service procurement, tender invitations and tender evaluations, we clearly stated specific requirements in terms of business ethics, human rights, HSE, quality standards and public responsibility, in order to jointly build a responsible supply chain of petrochemical products.

In 2016, we revised administrative measures on material suppliers, unified requirements on supplier qualification management, and carried out inspections onsite, in an effort to strengthen source management of suppliers and improve the quality of procured materials. We constantly optimized our supplier base and selected suppliers around the world through public bidding and qualification review, providing suppliers with equal opportunities and accepting supervision from the general public.

Supplier Management Principles, Systems and Mechanisms

Management principles	Open and voluntary, competition and selection; small quantity but high quality, mutual benefits and win-win; dynamic management and resource sharing
Management mechanism	Unified management; layered responsibility; authorized procurement; separation of supervision and execution
Operating mechanism	Operating mechanism: centralized procurement, separate operation, joint participation and effective supervision

Management Measures

Centralized and two-level management

- The headquarters is responsible for managing of material suppliers within the Class-I materials directory.
- The procurement departments of affiliates are in charge of managing the rest.

System construction

- Build a supplier management system framework to regulate supplier evaluation, graded and classified supplier management, and supplier examination
- ¤ The formulation of Supplier Management Measures and other regulations

Strict access and dynamic management

Establish
performance
appraisal system,
and implement
"survival of the
fittest" and dynamic
management
to weed out
unqualified
suppliers.

Unified resource sharing base

m Apply procurement management information system, to realize supplier resource sharing and computer-based whole-process management.



Employee

Development

- ☑ Employees' Rights and Interests
- ☑ Career Development Platform
- ☑ Localization and Diversification
- ☑ Physical and Psychological Health
- ✓ Caring for Employees

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

Employees' Rights and Interests

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

Employment Policies

CNPC always puts people first and values and safeguards the lawful rights and interests of the employees. We strictly comply with the Labor Law of the People's Republic of China, the Labor Contract Law of the People's Republic of China and the Trade Union Law of the People's Republic of China, relevant international conventions approved by the Chinese Government, and relevant laws, regulations of the host countries. We promote the employment policies of equality and non-discrimination, and provide equal opportunities and fair treatment to all employees regardless of nationality, race, gender, religion or cultural background; resolutely prohibit child labor and forced labor; and always aim to promote the employment of women and ethnic minorities. Specifically, we strictly implement the regulations on pregnancy, maternity and parental leave for female employees, and guarantee that the female employees enjoy equal compensation and benefits and career development opportunities. As of the end of 2016, the Company had 61 female senior executives and 2,066 female middle-level managers.

Gender composition of the workforce by the end of 2016

65.82%

Female

34.18

Proportion of minority nationalities employees in the workforce

6.21%

Democratic Participation

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

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

Compensation and Incentives

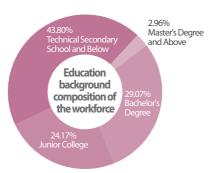
We intensified our efforts to reform the remuneration system, improving policies and regulations on enterprise annuity and supplementary medical insurance, and improving the performance-based wage and benefit system. The remuneration system, highlighting on-the-post contribution of employees was put in place. Besides, we pay special attention, in terms of income, to staff in grassroots units and in key positions with harsh working environments in an efforts to give full play to the vale of each staff.

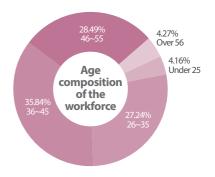
The coverage rate of collective contract signing is 100%

100%

the coverage rate of social insurance is 100%

100%





Career Development Platform

Training program 2016

There are altogether 32 training centers throughout the company by 2016

training centers

Training expenditure

1.49 billion RMB

1,090,000 employees participated in various training programs

1,090,000

100% senior skilled staff, key post operators, and grassroots employees received training in various forms in 2016

100%

We believe that the Company's development is underpinned by our employees' growth. We endeavor to inspire employees' creativity and help them fulfill their personal value through staff training, career promotion and an improved incentive mechanism.

Education and Training

We continuously improve the construction of our training centers and networks, and provide flexible training program for employees such as knowledge training, professional training, on-job training, off-job training and spare-time training to create a learning culture for the growth of both the company and individuals. In 2016, more than RMB 1.49 billion training funds were invested, with 1,090,000 trainees in various training programs.



Career Development

We attach great importance to career planning of employees and support the career development of technical staff to realize their self-value. In 2016, we continued to promote the reform of technical rank-based career development for technical staff at R&D institutions, and stayed firm in fair competition and performance-based evaluation, selection and promotion of technical staff in an effort to provide technical people with clear, transparent and stable career path. For the career development of skilled operators, we organized training programs for outstanding operators, worked out promotion policy

based on technical competence, and developed program for improving innovation and profit generating capabilities, as well as for the petroleum craftsman development. We also worked out program for cultivating petroleum scientists and training outstanding young technicians. By the end of 2016, we have set up 54 Skilled Expert Studios, including 14 National Skilled Expert Studios. We have 451 senior technical experts, 328 skilled experts, 18 academicians (including Chinese Academy of Sciences & Chinese Academy of Engineering) and 451 experts entitled to government special allowances in the company.



Petroleum Craftsman Development Program

Along with China's economic transition, we believe it is prominent to foster skilled workers craftsmanship throughout the company to provide customized and flexible services. In particular, training and motivating skilled workers and operators are extremely important against the backdrop of falling oil prices.

The Petroleum Craftsman Development Program is designed to select and cultivate three to five outstanding skilled operators working in key positions to be the role model to lead the quality improvement of skilled workers throughout the company.

Candidates for the program have more chance to participate in relevant training programs and projects for further skill improvement. Outstanding candidates will then be enrolled in R&D programs, and in selection of role model workers and special allowance awardees, and the China Skills Award appraisal. The Company continuously increases inputs for Skill Expert Studios which serve as networking platform for frontline employees. Multi-media is applied to encourage and promote the craftsmanship among all skilled workers, and create a learning environment with craftsman being the role model for best performance in workplace.



Employees and Collectives Granted National Awards in 2016

National May 1st Labor Medal

9

National May 1st Labor Certificate

2

National Youth Civilization Title

11

National Technical Expert

8

Rewards and Incentives

We encourage and motivate employees through various means. Model workers, outstanding workers, technical experts and academic leaders are selected and awarded spiritually and materially. In 2016, we initiated a number of activities to encourage innovation and creativity among all employees, established a rewarding mechanism to encourage innovation-orientated practices. We attach great importance to the career development of technical staff, and provide opportunities for outstanding young researchers in key domestic and overseas projects and research centers to enroll in national or CNPC-level R&D programs. In 2016, two of our employees were listed in the national "Ten Thousand Talent Program". The IAU's Committee on Small Body Nomenclature (CSBN) approved the naming of minor planet No.210231 as Wang Demin, an academician of the Chinese Academy of Engineering and the pioneer of stratified development and chemical flooding technology, for his great contribution to the petroleum industry.

The 8 th Petroleum And Petrochemical System Vocational Skill Competition	First prize winner as a group and an individual
The 2 nd National Competition for Hazardous Chemical Incidents Rescue Skills	First prize winner as a group and an individual
The 4 th Hoisting Competition	First prize winner as an individual
National Vocational Skill Competition for Young Employees	First prize winner as an individual



Localization and Diversification

Localization and Training of Overseas Employees

Middle East:Halfaya project in Iraq invests USD 5 million each year to train local employees. With international staff from 37 countries, the localization rate at the project has reached 79%.

79,

Asia: By the end of 2016, the localization rate of South-East Asia Pipeline Company Limited (SEAP) in Myanmar reached 72%, and 78 person-times of local employees won "excellent employee" award.

72 %

We initiate respectful, open and inclusive culture, and are committed to the localization, professionalization and marketization of overseas talent. We constantly improve the employee cultivation mechanism and endeavor to promote employee localization and talent internalization. By the end of 2016, the localization rate of our overseas employees reached 82%.

Local employment

We continuously improve the localization of our workforce, attach great importance to attracting and retaining excellent local talents, enhance the local employee training, and increase the proportion of local employees in important technical and management posts. Our employee localization policy not only enables the local employees play a more important role in the Company's development, but also helps to build a talent pool for the sustainable development of local petroleum industry. CNPC International(Indonesia)believes that local employment is a guarantee for its long-term success in local market. The company continuously improves local staff welfare and promotes outstanding local employees to management positions. Its local employment rate reached 98.6%, among which 70% in management positions.

Javier Aguirre is a local employee who has worked for Andes Petroleum for 18 years. As an IT engineer, he now serves as the supervisor of hardware base structure of the IT department.

I was very young when I joined the company in 1997, and I still remember the total number of employees both in the production field and office was less than 75 at the time. The company has grown into a big international company in the last more than ten years. Cultural diversity and inclusiveness have provided us with an opportunity to learn from each other and make the company one of the best among its peers.

— Javier Aguirre



Respect for Cultural Diversity

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

CCASE

Lectures on Iraqi Culture at Halfaya Project

In order to help international staff better understand Iraq and its people, Halfaya project hosted series of lectures on Iraqi culture & heritages. The lectures, covering from local customs and culture to Mesopotamian civilization, attracted a great number of international employees and contractors.

The lecturers were local Iraqi employees working at the Halfaya project for a long time, and see themselves as cultural ambassadors for Iraq with great responsibilities.

The Company seeks to promote the Chinese and Sudanese cultural exchanges. We worked with the Confucius Institute of University of Khartoum(CIUK) to set up the "CNPC Annual Award for Individuals for **Excellent Chinese Language Learning** and Cross Culture Communication" to encourage the local employees. In 2016, we awarded ten outstanding Sudanese students jointly with Khartoum University. CNPC was granted the "China-Sudan Friendship and Culture Award" by the Sudanese oil minister at the first "China-Sudan Friendship and Culture Week".



In 2016, CNPC's subsidiary in America participated in the 16th Houston Dragon Boat Festival and won the fifth place. The event promoted cultural communication and team building between Chinese and foreign employees, helped the company to better integrate into local society and strengthen exchanges with local energy enterprises.



Physical and Psychological Health

Rate of workplaces occupational hazards inspection

98+

Occupational health archives were set up for 100% employees

100%



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

Occupational Health

We provide the same health and labor protection for all participants. We have carried out research on occupational health management, consolidated the health management of production frontlines, especially at the field construction sites, and enhanced the risk prevention and control of occupational disease hazards and health monitoring. Additionally, we investigate the occupational history of employees exposed to toxic and harmful gas and employees transferred to other posts, improve the employee occupational health monitoring archives, and guarantee the employees' safety and health. In 2016, we released "Occupational Health Management Measures" to improve the management of occupational health. We also issued the "Guideline on Assessment of Occupational Disease Hazards and Medical Staff Competency in Overseas Projects", and set up an industry-leading quantitative assessment system on occupational disease hazards covering nine indicators and six categories, and the deployment matrix of medical staff in overseas projects. We conducted special programs to address and control occupational illnesses caused by dust and promoted the use of video monitors at workplaces in order to eradicate occupational disease hazards. Facilitates were installed to enable doctors sitting in hospitals in Beijing, CNPC Central Hospital and overseas projects to conduct joint consultations at the same time. We also organized training sessions on occupational health for relevant management staff of our overseas subsidiaries.

Workplaces below emission standards

^{II} Take technical, engineering and management measures to meet the occupational exposure limit (OEL) requirement



Workplaces seriously below emission standards

- ¤ Apply remote monitoring technology for unattended posts vulnerable to hazards
- ¤ Shut down facilities that still below standards after treatment

Fundamentally improve the working environment

Mental Health

We took measures to continuously improve the employee vacation system. We implemented the Employee Assistance Program (EAP), set up hotlines and website for psychological consultation, and carried out various forms of training on mental health improvement, in order to build a positive and healthy mindset for employees. In 2016, the company continued to implement mental health service projects overseas such as hotlines and face-to-face consultation, and saw a substantial increase in hotline services. We sent psychological experts to projects in countries, such as Mongolia, Sudan, South Sudan and Myanmar to carry out training and provide consultation services. In addition, we employed consultants to deliver lectures on self stress release for employees working in harsh natural environments.

CASE

CNPC won the 2016"International EAP Quality Award"



"International EAP Quality Award" granted by EAPA

The Employee Assistance Program Association (EAPA) is the world's largest and oldest EAP association, and represents the highest standards of international EAP implementation. In 2016, CNPC won EAPA's "International EAP Quality Award", the highest honor won by Chinese enterprises in the field of EAP.

Since launched in 2008, CNPC's overseas EAP has been promoted actively in terms of its service contents, its service forms, and its international perspective, and now the program covers over 20,000 employees in Africa, the Middle East, Central Asia and Latin America and their family members. CNPC is the first oil and gas company in China to set up a psychological health hotline. Additionally, based on the mental health status and adaptive capability of the employees and their family members, we provided on-site training, consultation

and intervention, and established a web platform where employees can receive help either directly online, or get advice from other resources. Since 2010, experts were sent frequently to our projects in many countries, such as Iraq and Iran, to provide psychological services.

According to EAPA, CNPC's overseas EAP is in line with international EAP standards and principles, with clear logic, strict management, and an efficient quality improvement strategy and actions. The program has achieved great success in meeting the demands of both employers and employees, especially in suicide prevention. This indicates that Chinese enterprises have reached the highest international level in terms of employee care, psychological management and EAP.

Causes of psychological problems for overseas staff

- $\ensuremath{\text{\textbf{p}}}$ Far away from home
- ¤ Heavy working pressure
- Ineffective communication with their families

Customized solutions

- ¤ Remote psychological counseling hotline
- ¤ On-site counseling by experts sent overseas
- Exclusive overseas online platform for employees

Outcomes

- ¤ Employees capable of easing psychological stress
- ¤ Improved psychological status
- ¤ Improved work efficiency



In 2016, we provided 1,034 hours hotline service and 256 hours of face-to-face consultation.



Psychological experts were sent to 15 overseas subsidiaries giving 87 training sessions and lectures.

Caring for Employees

We advocate a good work-life balance and make great efforts to create a healthy and comfortable living environment for our employees. We continuously push forward the market-oriented reforms on service of staff communities and improve the poverty alleviation and aid mechanism, in order to improve the employees' life quality.

Around **460,000** people joined the voluntary tree planting programs in 2016 and planted **2.6** million trees.

with green coverage at the residential areas reaching **42.86%**

the total green zones at our staff communities have reached **285** million square meters

Community Service

Our staff communities are located in more than a dozen provinces (municipalities and autonomous regions). In coordination with the local governments and relying on social resources, we actively establish a comprehensive service system, integrating community service, governmental public service, social professional service, and resident volunteer service.

We stick to the strategy of building livable communities by increasing efforts in tree planting in workplace, living quarters and shelterforest areas. The ecological environment has been improved continuously with the workplace and the living areas are surrounded by parks and greenbelts, and shielded by the shelter-forests. By the end of 2016, the total green zones at staff communities have reached 285 million square meters, with green coverage of 42.86% at the living areas. Around 460,000 people took part in the voluntary tree planting activities in 2016 and planted 2.6 million trees.

Helping Employees

The Company continuously carried out employee help and support activities, focusing on the settlement of life difficulties of the employees, including retirees, employees' family members and family dependants of the deceased. In 2016, we helped 120,000 person-times via campaigns such as "donating tuition fees for the new semester", "one-on-one assistance", and "hand-in-hand activity".

Recreational Activities

In 2016, we organized activities, such as sports meetings for Chinese and foreign employees, fitness walking competitions, basketball finals, ping-pong games, and tug-of-war championships, in order to enrich the spare-time life of the employees.



Landscape of a staff community at Daging Oilfield



Public Welfare

- ✓ Poverty alleviation

- ☑ Humanistic Care
- ☑ Construction of overseas communities

We are committed to sharing our business achievements and development opportunities with local communities where we operate in the pursuit of mutually beneficial sustainable development. To this end, we attach great importance to activities promoting public welfare and social progress, in order to facilitate community and socioeconomic development.

At the "2016 Experience Exchanges of

Enterprise Participation in Targeted

Poverty Alleviation & the Launch

of the Blue Paper" sponsored by

the China Foundation for Poverty

Alleviation(CFPA), CNPC was awarded the title of "Excellent Case of Enterprise

Poverty Alleviation".

Poverty Alleviation

Poverty alleviation is an important topic in global sustainable development and also one of our key concerns. We have responded positively to the initiatives of the UN's 2030 Agenda for Sustainable Development, and to policies of the Chinese Government on poverty alleviation. Focusing on improving the intellectual level, industrial development, medical service and livelihood of local people, we integrate our business strengths with local resources and market advantages, take targeted measures in poverty alleviation and promote the local self-development capacity in innovative ways.

In 2016,we continued to carry out fixed-point poverty alleviation and aid programs, with an investment of RMB 75.99 million on over 40 projects, including infrastructure reconstruction, education & training, and healthcare in 13 counties and districts of seven provinces (municipalities and autonomous regions) in China, namely Xinjiang, Tibet, Qinghai, Chongqing, Henan, Jiangxi and Guizhou, benefiting tens of thousands of people.

unicipalities ______,
Jiangxi and

To enhance the ability of the seconded officials to take targeted measures in poverty alleviation, we provided training for over 20 officials for fixed-point poverty alleviation and aid programs throughout the year.

 $20_{\text{officials}}$

In Shuanghu County, Tibet, we invested RMB 20 million in livelihood projects including the maintenance and expansion of PV power stations in townships, reconstruction of primary schools, and the development of an integrated market for poverty alleviation.

20 million

We invested RMB 6 million on photovoltaic power generation projects, which provide RMB 3,000 for each of the 884 people from the 260 destitute households in Taiqian County, Henan Province.

6 million

We helped build roads in Nantianmen Village, Niba Township, Xishui County, Guizhou Province, solving transport difficulties for nearly 2,800 people.

2.800 people

We helped build the safflower plantation project in QapqalXibe Autonomous County, Xinjiang, promoting the development of its economy with local characteristics and providing 900 impoverished people with jobs.

900 people

In Barkol Kazak Autonomous County, Xinjiang, we carried out poverty alleviation activities, granting loans to 1,000 households and benefiting more than 3,000 people.

3.000 people

In Nilka County and Qinghe County, Xinjiang, we helped build irrigation projects covering nearly 670 hectares of arable land, and helped more than 3,200 people increase their incomes and shake off poverty.

3,200 people

We sent medical experts to Jeminay County and Qinghe County in Xinjiang, Lenghu in Tibet, and Xishui in Guizhou to provide medical diagnosis and treatment for more than 2,800 patients.

2,800 people



Gas supply



A glimpse of the agricultural plantation project in Lenghu County

A Selection of CNPC's Targeted Poverty Alleviation Projects and Achievements in 2016

Project Name	Start Time	Location	Partner	Project Details	Achievements
Tongzhou Health Poverty Alleviation Project	October, 2016	Hengfeng County, Jiangxi	China Foundation for Poverty Alleviation	In 2016, to mitigate the re-occurrence of disease-related poverty and improve medical conditions in Hengfeng County, we established a special relief fund of RMB 1 million to subsidize the treatment of critical illness and rehabilitation for impoverished people. The project is mainly intended for poverty-stricken patients aged 18-50 who are suffering from critical illnesses. In addition, an "Angel Home" will be established in Hengfeng County People's Hospital to pool social resources for patients suffering from critical illnesses through multiple channels and reduce their burden of medical care. We also provide psychological counseling for patients to help them build up confidence and improve the efficacy of treatment.	By the end of 2016, 13 local households were helped.
Agricultural Plantation Project in Lenghu County	2016	Lenghu County, Qinghai		The project was officially launched on August 1, 2015. With a total investment of RMB 22.58 million and a construction area of 4,200 square meters, the project mainly consists of the construction of 1,000 square meters of green planting areas and 3,200 square meters of vegetable planting areas.	Professional teams are employed to provide planting management and technologies for greenhouses with intelligent facilities. As a result, more than 10 varieties of pollution-free seasonal vegetables can be planted simultaneously, with an annual output of 75 tons.
Project of "Women Returning Homeland to Work"	2016	10 national level poverty- stricken counties in Xinjiang, Henan, Guizhou and Jiangxi	China Foundation for Poverty Alleviation, Tencent 99 Charity Platform	Combining infrastructure construction and industrial development, development of cooperatives and management of tourism, as well as "red tourism" and the home stay economy, this project is designed to develop villages with unique characteristics and stimulate economic development in the recipient areas. It mainly supports labor-intensive village cooperatives with a high employment rate of women, helps migrant women to return home for work, cultivates and develops the collective economy of impoverished villages, and alleviates social problems like left-behind children and empty-nest elderly.	The project has provided job opportunities for housewives, promoted economic development in povertystricken areas, and reduced the number of left-behind children.
Drinking Water Safety Project for Urban and Rural Areas in Central and Southern Ningxia	November, 2012	Central and Southern Ningxia		CNPC helped build the project with an investment of RMB 150 million. The project addresses drinking water safety issues for 1.1353 million urban and rural residents in 603 administrative villages in 44 towns and townships of four counties (districts) (Yuanzhou, Pengyang, Xiji and Haiyuan) in the central and southern regions, in order to improve their basic living conditions and promote regional economic development.	The project has been put fully into operation, providing clean and safe water for 1.1353 million urban and rural residents.

CASE

"Hand in Hand with CNPC", Public Welfare Dream for **Ordinary People**

Partner





Program Nature

Mobile client platform for public welfare

Program Purpose

To help ordinary people realize their public welfare dreams, and spread the concept of people's public welfare

Actions of CNPC

To set up the platform, donate special funds to China Foundation for Poverty Alleviation, and explore and fund innovative, feasible public welfare initiatives with social influence

Program Achievements

In 2016, a total of 17 sessions of collection and assessment of public welfare ideas were completed via the platform, with 221 initiatives collected and 173 funded. These initiatives were contributed by college students, community residents, NGOs, industry associations and other groups in 24 provinces, cities and autonomous regions including Beijing, Inner Mongolia, Gansu, Sichuan, Guizhou, Guangdong and Fujian. They covered a wide range of areas, including youth education, services for the elderly, community development, and heritage protection. We launched "Hand in Hand with CNPC for Public Welfare", a two-month special fund program for students in 43 Chinese universities and colleges. With 100 initiatives funded, this program has been well received by students.

Ways of Public Participation

Processes such as 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 ideas and download the "Hand in Hand with CNPC for Public Welfare" mobile app to view and vote for these ideas and communicate with others





Subscribe the wechat official account

Scale of Public Participation

The mobile app of the platform has been downloaded by more than 76,000 users (75% under 24 years old) in 34 provinces, municipalities and autonomous regions. A total of 1.89 million votes have been cast and nearly 46,000 comments given. It is becoming a platform for the public to demonstrate their creativity, exchange ideas, realize dreams, and spread positive energy.

Welfare Initiative: Traveling with Sanitation Workers

In February 2016, "Traveling with Sanitation Workers", a public welfare initiative proposed by the Henan Xinxiang Volunteers Association, was officially launched on the platform, attracting many netizens. With 50,000 votes, this initiative stood out for the funding of CNPC.

On May 1, 2016, 14 sanitation workers in Xinxiang City, Henan Province, started a three-day trip to Beijing, paying visits to the Forbidden City, the Great Wall, Nanluogu Xiang and the Temple of Heaven, which has left them with good memories. To ensure smooth implementation of the initiative, the team brought along a doctor, two volunteers to deal with emergencies, and three professionals to record the entire journey.

Gone are the days when I had to take a rest on the edge of the road. CNPC, thanks a lot!

A local sanitation worker

CNPC's funding and netizens' warm praise have made this long-awaited public welfare dream come true. It is hoped that through this program, we will arouse public respect and care for sanitation workers, a special group in our society. Now, more and more people start to pay attention to them.

> ---Liu Fupeng, initiator of the "Traveling with Sanitation Workers" program

Fulfilling the dream of public welfare is just the first step. Through the Internet, the programs on the platform are attracting more attention. More dreams of public welfare will be gathered, exchanged and shared here.

> —Wen Yong, executive of the "Hand in Hand with CNPC for Public Welfare" platform

"Internet Plus" is profoundly changing traditional public welfare. The "Hand in Hand with CNPC for Public Welfare" platform has promoted the value of public welfare, linked sponsors, recipients, public welfare organizations and donors together through the Internet, and communicated positive messages with the society.

-Li Wen, advocate of public welfare

Supporting Education

Since its inception in 2002, we have granted CNPC scholarships to 11,047 outstanding students (including 4,207 impoverished students), worth a total of RMB 49.7 million

11,047

Total grants

49.7 million RMB

Teachers trained

500 person-times

Supporting education is one of our focuses in fulfilling social responsibilities. We try to help youths to enjoy equal education opportunities. We continue to carry out the ongoing education programs, including scholarships, bursaries, aiding students from poor families, and supporting contests. In 2016, we granted CNPC Scholarships worth a total of RMB 3.99 million to 635 students. We have sponsored the Kunlun Lubricant Formula Student China (FSC) program for six consecutive years, aiming to create a cooperation platform for the government, enterprises, colleges and universities, research institutes and users, to nurture talents for the automobile industry. In addition, we explore new modes to support education, and call on the public to focus on and work together to achieve educational equality. For instance, CNPC and the China Foundation for Poverty Alleviation (CFPA) co-sponsored the "Xuhang" Program, a public welfare platform enabling the Company and drivers to help senior high school students from poor families complete their studies. Through the "Teacher Training Program," we introduced advanced teaching ideas and methods to poverty-stricken areas, improving the quality and skills of local teachers.

CASE

Teacher Training Program

The Teacher Training Program was launched jointly by CNPC and China Foundation for Poverty Alleviation (CFPA) to improve the quality of teaching and compulsory education in the recipient areas. Under the program, outstanding teachers in developed areas are assigned to poverty-stricken areas in Xinjiang, Henan, Jiangxi, and Guizhou for academic exchanges, while outstanding young teachers in poverty-stricken areas are sent to developed regions for advanced studies.

In June 2016, we invited prestigious teachers from the High School Affiliated to Renmin University of China and Beijing No.171 High School to provide training for teachers in poverty-stricken counties in Xinjiang, Henan, Jiangxi, and Guizhou. Previously in 2015, we selected 12 outstanding young teachers from poverty-stricken counties for a semester of training at Beijing No.171 High School. In December 2016, in partnership with the Education Group of Experimental High School Attached to Beijing Normal University, we held training sessions for middle school managers, which were attended by 40 principals and educational administrators from Henan, Guizhou, Jiangxi and Qinghai.

Since its implementation, relying on superior educational resources in prestigious schools throughout China, the program has conducted training for nearly 500 person-times.



CASE

CNPC's Xuhang Educational Program

The Xuhang Program is a public welfare project launched in 2015 jointly by CNPC and China Foundation for Poverty Alleviation (CFPA) to provide studying and living support to impoverished senior high school students from underdeveloped areas for them to complete studies and access equal educational opportunities.

CNPC had invested RMB 4 million to support 1,000 improverished students in Sichuan and Henan provinces by the end of 2016. Among the 400 high school graduates supported by the program, more than 300 had their university dreams come true, with a RMB 5,000 enrollment scholarship for each of them. Hundreds of young volunteers from CNPC and over 5 million people from the society took part in the initiative.



The Xuhang program helped the students to complete ¤ Based on 80 service stations in Chengdu and Zhengzhou, CNPC donated RMB 0.01 for every liter of its sold gasoline to support the students from poor families to complete their studies. Offline ¤ A volunteer team composed of caring people, Activities consumers, employees and media came to the campus and interacted with the students, witnessing the differences the program brought to the students. **Online** ¤ With the help of online platforms, the project got **Activities** the support of 12378 netizens, and raised RMB 100,000.

Care for the Growth and Development of Students Support for Work-study • students to take the program college entrance Oil Experience examination **Day in CNPC** We provided shuttle buses and We organized 60 students set up studentin Henan and Sichuan service stations provinces to visit CNPC for nearly 10,000 marketing companies, examinees in to get a sense of the oil

the poverty-

stricken counties

in Sichuan and

Henan.

We provided part-time jobs at our service stations for over 70 high school or college students in Henan and Sichuan under the "Xuhang Program", so as to enhance their capabilities, and reduce the financial burden on their families.

We not only provide material assistance to the impoverished students, but also help them strengthen communication with the society, develop positive and healthy attitudes, expand horizons and improve their overall quality through service station experience and work-study programs.

-An Executive of the "Xuhang" Program



The "Xuhang" Program has truly provided timely assistance for impoverished students to be admitted to universities. This generous educational program will benefit future generations.

culture and have their first

professional experience.

---- Feng Chun, Deputy Director of Tongjiang County Education Bureau

We are deeply touched and encouraged by CNPC's moves to provide donations to impoverished students, organize young volunteers to set up student-service stations, and fund the leasing of shuttle buses for the college entrance examination. These good deeds have demonstrated the Company's efforts to communicate positive messages to the society as a state-owned enterprise.

——Principal of Xinxian County High School

The "Xuhang" Program has provided me with a great deal of care and love. I will redouble my efforts to study, in order to give back with actions to those who have helped me.

-A student from Tongjiang County Middle School

Although a penny does not mean much on its own, when accumulated, they can help impoverished students achieve their educational dreams and move forward.

——Henan Channel of People's Daily

Local Development



E-commerce training for local villagers

The company's development owns much to the understanding and support of the government, communities and the general public. While providing stable energy for socioeconomic development, we expand, in the upstream, midstream and downstream sectors, our joint-venture cooperation with local capital, develop local suppliers and contractors, increase job opportunities and boost the development of related industries based on the principle of open cooperation for mutual benefit.

In 2016, Fushun Petrochemical supported local government in attracting investments and building the industrial park. It provided 10 enterprises in Fushun High-tech Development Zone, including Qilong Chemical Co., Ltd., with C5 and C9 fraction from ethylene cracking, ethylene tar and other feedstock, and transported these materials for relevant supporting enterprises through mutual supply pipelines, promoting the development of deep processing enterprises in the industrial park. As a result, five industrial clusters (organic chemicals, fine chemicals, carbon fiber, synthetic rubber, and plastic wax) have taken shape, creating economic value and job opportunities.

We paid RMB 4.23 billion tax and fees, provided 131,953 jobs and newly recruited 1,894 local employees in 2016

4.23 billion

billion RMB

Xinjiang

We paid RMB 200 million tax and fees, provided 1,287 jobs, of which 62% are provided to minorities

200 million RMB

Tibet

We paid RMB 4.6 million tax and fees, provided 21,448 jobs

4.6 million RMB

Qinghai Tibetan area We paid RMB 35.35 million tax and fees, provided 596 jobs

35,35 million RMB

Sichuan Tibetan area

We paid RMB 4.27 million tax and fees

4.27 million RMB

Yunnan Tibetan area

We paid RMB 12.42 million tax and fees

12,42 million RMB

Gansu Tibetan area

Humanistic Care

In CNPC, we attach great importance to public welfare and encourage our employees to take part in volunteer activities. We advocate civilized practices, assist the disadvantaged groups, and contribute to cultural progress.



giving volunteer medical consultation



Visiting the handicaped children

Voluntary activities

We advocate volunteerism, and encourage and support the employees' participation in volunteer activities to serve the community and the society. In 2016, we had over 184,000 young volunteers in 6,892 teams, serving altogether 421,000 hours and benefiting about 1.7 million people. Specifically, our employees were actively committed to various activities including donating to the disadvantaged groups, donating blood without payment, afforestation, rescue of wild animals and plants, and protection of natural and cultural heritages. Thanks to its outstanding performance in voluntary activities, Jilin Petrochemical won the Outstanding Organization Award of China Youth Volunteers.

The "Blue Sky Volunteer Association" of Daging Oilfield launched the "Blue Sky Life Bracelet" campaign, a voluntary activity to assist the old, weak, sick and disabled, and other vulnerable groups including those suffering from depression and Alzheimer's disease. In 2016, we distributed bracelets to 700 elderly people without family and autistic children in Songyuan City, and set up emergency teams to provide timely help for those wearing the bracelets. The youth volunteer service team of Changging Oilfield is devoted to tree planting together with local people, covering a cumulative area of 20,600 square meters in Jingbian County, which effectively curbed land desertification.

Helping Migrant Workers Return Home

TThe Spring Festival in 2017 marks the sixth consecutive year for us to provide free food and gasoline for migrant workers at the Company's 65 service stations along national and provincial highways in Fujian, Jiangxi, Hunan and Hubei provinces. And we extended the activity from two days to ten days.

Free Services

A CNPC "love station" is situated every 50-100km to ensure free supply for migrant workers every 1-2 hours along their journey



According to incomplete statistics, the "Helping Migrant Workers Return Home" campaign has helped a total of 130,000 person-times over the past six years.

130,000 person-times

Development of Overseas Communities

We respect the culture and customs of host countries in which we operate, as part of our efforts to develop long-term stable relationship and promote their socioeconomic development.

In 2016, thanks to our excellent performance in localized operation, we were granted the award for honoring our commitment to the contribution of localized operation in 2015 by the Indonesian government. In recognition of our outstanding contributions to enhancing oil and gas cooperation between China and Kazakhstan, promoting green and sustainable socioeconomic development in Kazakhstan and friendship between the two peoples, we were awarded the national level-two "Medal of Friendship" of the Republic of Kazakhstan by Kazakh President Nursultan Nazarbayev.

Management of Business Impact on Community

	Potential Positive Impacts	Potential Negative Impacts
Indigenous people	¤ Job opportunity	¤ Land requisition, resettlement ¤ Environmental impact
Capability building of local enterprise and industry	¤ Business cooperation opportunity ¤ Capacity improvement ¤ Technology transfer	¤ Possibly neglect local products and services, and lack of sharing of advanced technology with the locals
Community consulting and participation	¤ The local residents have fair opportunities to express their concerns and know the impacts of the project	¤ Possibly neglect of concerns of the local people
Social investment	Preliminary negotiation with the community members helps meet the locals' requirements and bring long- term benefits	¤ Planning and execution of the social investment may not be practical and may not bring long- term benefits



Strengthen Communication with Local Communities

We have set up departments of environmental protection and community relations coordination in many places to promote cooperation with local governments, NGOs and community representatives. By holding conferences, issuing reports and paying visits, we have strengthened communication and coordination for a win-win situation in cooperation. In Iraq, we launched safety education campaigns for 18 schools in the oilfields and surrounding communities. In the implementation of the project of Kazakhstan-China Gas Pipeline, in order to meet the employment needs of local residents, we gave preference to hire local people if production allowed. We also celebrated traditional festivals such as Eid al-Adha and Nowruz with the communities, and provided help to poor villagers.

Measures to Reduce Potential Risks

- ¤ 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, culture heritage, involuntary resettlement, etc, and try our best to protect all the lawful rights and interests of the indigenous people.
- ^{III} In Myanmar, we protect the reasonable interests of local residents by soliciting their opinions, and stick to standard operation for land compensation. The compensation program was formulated based on the opinions of the local government, our cooperating partners and the villagers, and compensation was made before land use. At the same time, the land compensation information was released timely to guarantee transparency.
- ^{II} In the Andes Project in South America, we implement strict safety and environmental protection procedures, and establish the environmental protection management system with stakeholders' participation. We carry out whole-process environmental impact monitoring, and restore the ground surface in the shortest possible time after operation, in order to minimize the influence of our operation on the local ecology.
- ¤ On Maday Island in Myanmar, we preferentially recruit the indigenous people, and help them receive skill trainings, participate in the project construction and operation, and enjoy higher incomes.
- ^{II} Giving priority to local products and services in our procurement, we strengthen cooperation with local enterprises in technical services, in order to boost the development of local SMEs.
- ^x We support the personnel training program for the oil industry of the host countries. In Sudan, we provided training for the Ministry of Petroleum, local oil companies and petroleum colleges and universities, and the trainees have grown to be key technical and managerial staff in their relevant fields.
- ^{II} We have set up cordination departments for environmental protection and community relations in overseas projects, so as to promote communication with local governments, NGOs, and community representatives, by holding conferences, issuing reports and paying visits, etc.
- ¤ In Iraq, we have established the Community Contribution Committee for Al-Ahdab Oilfield Communities. We provide assistance of public welfare to community residents through the committee, and supervise the implementation of such welfare projects.
- ¤ In the Andes Project in South America, we have established the joint mechanism (joint committees with the local government, local communities and employees respectively), in order to enhance communication with the stakeholders.
- $^{\rm m}$ We make social investment plans based on the local social and economic development planning and requirement of the community residents in the host countries.

Community Engagement

We took an active role to help improve the living conditions of local people, and conduct education, healthcare and other public welfare programs in order to build up harmonious relations with them. At the same time, we provided training opportunities for people in the countries where we operate, in order to cultivate skills in the local petroleum industry.

Country	Persons Trained	Person-Times	Amount invested
Sudan	Personnel from the Ministry of Petroleum & Gas and companies under the Ministry Short-term technical training for 256 person-times, and master's degree training for 12 person-times		USD 3.67 million
South Sudan	Personnel from the Ministry for Oil and Mining and related companies	Short-term oil training for 60 persons in 2012-2013, undergraduate degree training at China University of Petroleum for 16 persons. Short-term training on petroleum technology and management will be provided for 60 person-times in 2016-2018.	USD 2.33 million
Cuba	Technical and management personnel from departments and subsidiaries of CUPET	Short-term training for 40 person- times in 2015-2016	USD 400,000



water supply to local community

Sudan, South Sudan

- Each year, we donate a total of USD 150,000 in Red Sea State and White Nile State along the pipelines of Block 3/7 to offer clean drinking water to local residents
- We donated 600 sets of desks and chairs and USD 25,000 worth of sports goods to 10 schools in Jabalein
- We helped build hospitals and clinics, sent medical staff and medicines, and provided free medical treatment for local residents
- We trained 30 local midwives and 80 nurses in first aid, delivery, and diagnosis of common diseases

Ecuado

- ¤ We built roads for villages in Nueva Froutera
- We provided school buses in Tarapoa and surrounding communities
- m We funded the construction of 200 "Millennium Schools", building classrooms and libraries, jointly with the Chinese government
- m We built two hospitals to provide the surrounding communities with free medical assistance
- We provided technical training and employment opportunities for local residents
- ¤ We joined in earthquake relief efforts

United States

¤ We organized a

volunteer team to produce peanut butter in peanut butter plant of Jesus Christ of Latterday Saints Church in Houston for the local relief food warehouse. This organization provides food for 1.8 million person-times in 18 counties in Texas through its food distribution points every year.

Kazakhstan

- We provided USD
 95.08 million for
 the establishment
 of the National
 Dance Academy of
 Kazakhstan
- Financial support for local children to join in summer camps
- m We provided RMB 1.684 million in 2016 through the North Buzachi Project to improve the dwelling conditions and living standards of local residents
- m We entered into an MOU with the Aktobe government to help build a Youth Palace in the city's Presidential Park, with a capacity of 15,000 people

In 2016, our project company TTGPB presented gifts and festive blessings to children at an International School in Abad District in Tajikistan.



"For our foundation, the Asia Gas Pipeline Limited Liability Partnership has achieved three very important tasks: First, it is the first joint venture to make donations to the foundation. Second, the donations cover a broad range of recipients. More than 20 veterans of World War II have been included in the aid programs, solving the problems facing the foundation in a timely manner. Third, the donation process has been highly efficient. It took just over one month for us to receive donations from the day the initiative was launched."

Zbarhanov, President of the Kazakhstan WWII Veterans Foundation



Letter of acknowledgment to Trans-Asia Gas Pipeline Company from the KazakhstanWorld War II Veterans Council



Protect Local Environment

We stress the importance of striking a balance between business development and environmental protection. Therefore, we strictly comply with local laws and international standards on environmental protection where we operate, protect ecological environment and strive to eliminate our footprints on the environment.

^m We improved the environmental protection system, with continued efforts in its establishment and auditing. In our projects such as PK and MMG, we developed certification review programs for the environmental protection system at the beginning of each year, and conducted comprehensive auditing of the ISO14001 environmental system according to the annual plan.

^{II} We carried out environmental impact assessment and risk control. In key areas such as refineries, oilfields, oil depots and pipelines, we regularly conducted risk assessment and hazard monitoring and control. For new, renovation and expansion projects, we took measures such as environmental impact assessments and design program optimization in strict accordance with laws and regulations. Environmental protection facilities were designed, built and commissioned together with the main project. Our Aktobe Project monitored and controlled polluted soil and entered into treatment contracts with professional companies by regions, in order to ensure the full implementation of the treatment schemes for oil-contaminated soil. PK Project established a dedicated environmental protection database based on relevant environmental factors and their influence.

¤We increased investment to promote the construction of environmental protection projects. The project for integrated utilization of natural gas in Kazakhstan was completed and put into operation, setting the benchmark for natural gas processing in the region.

Trans-Asia Gas Pipeline Company Limited

CNPC

International in

- ¤ Southern Kazakhstan project: Since April 2015, we have been maintaining a
 reasonable level of investment in sand stabilization along the pipeline. To beautify
 and protect the environment, we would carry out forestation after the construction
 of stations is completed.
- ¤ Uzbekistan-China Gas Pipeline: waste heat boilers were used in the six compressor stations along the pipeline in winter as the main source of heat.

CASE



Award for Zero Exploration Accident from the Indonesian Ministry of Employment



Award for Zero Operational Accidents from the Indonesian Ministry of Employment In Indonesia, in strict accordance with the requirements of the environmental assessment documents (EIA/UKL-UPL), we spared no efforts to control air and water pollution, treat hazardous and toxic waste, and prevented environmental damage in all types of production activities, particularly in oil and gas exploitation. In 2016, our performance in HSE was recognized by the local government and international professional organizations. We were granted the award for zero exploration accidents and the award for zero operational accidents by the Ministry of Employment, the "Certificate of Appreciation of Occupational Safety and Health Management System (SMK3)" by the Minister of Employment, and the ISO 14001 certificate by Sucofindo International Certification Services.



"Certificate of
Appreciation of
Occupational
Safety and Health
Management
System (SMK3)"
from the Indonesian
Minister of

ISO 14001 Certificate (Environmental Management Systems) issued by Sucofindo International Certification Services



In Block 3/7 in South Sudan

80%

Share of local suppliers

51⁺ million USD

Local procurement in 2016

Boost Local Economy

We implemented localization strategy, preferentially purchased and used local products and services, gave opportunities to local contractors and service providers to participate in our projects, and supported the development of local SMEs and start-up businesses to create more jobs. In 2016, we completed localization targets in Kazakhstan in the implementation of the Aktobe Project. When technical requirement permitted, we gave priority to Kazakh manufacturers, with whom we signed material supply contracts, and provided local manufacturers and service providers with reasonable prices. In Block 3/7 in South Sudan, local suppliers accounted for more than 80% of the total, and the amount of local procurement contracts exceeded USD 51 million in 2016.

CASE

Al-Ahdab Oilfield helped local area take on a new look

In June 2011, the first barrel of commercial crude oil was produced in Al-Ahdab Oilfield, which was the first oilfield put into operation with new capacity in post-war lraq. Over the past five years, the project has brought about significant changes in the area.

Promoting local development

The oilfield was put into operation three years ahead of schedule with an annual output of seven million tons of oil, contributing an additional USD 10 billion in revenue to the Iraqi government over the expected amount in the contract.

The Iraqi government stipulates that for each barrel of oil produced, a certain share of funds will be allocated to the production area. These funds have promoted economic development in Wasit Governorate, where the oilfield is situated, resulting in its transition from an agricultural to an oilproducing province.

The project has met local energy needs. Al-Ahdab Oilfield supplies fuel to Zubaydiah power plant, the largest newly built power plant in Iraq. The power plant can thereby provide sufficient electricity to Wasit Governorate, and accounts for 60% of power supply to Baghdad, the capital of Iraq. Meanwhile, the oilfield supplies 500 cubic meters of LPG per day, benefiting more than 300,000 households in Wasit Governorate and residents in Baghdad and Karbala.

Promoting localized operation

Since its development and construction, Al-Ahdab Oilfield has provided more than 5,000 jobs for local people.

The project gives top priority to cooperation with local enterprises. Through promoting the establishment of international standard construction and operation systems among local contractors, the project has played an indispensable role in boosting the development of the oil industry in Iraq.

Al-Ahdab Oilfield has provided more than 5,000 local employment opportunities



Transparent Tax Payment

We strictly comply with the laws and regulations in the countries where we operate, make lawful and transparent tax payments and due contributions to local economic development. In countries where the EITI (Extractive Industries Transparency Initiative) standard is implemented, such as Iraq and Mongolia, our companies actively participate in the multi-stakeholder groups and publish information on our projects and tax payments, exceeding EITI's minimum disclosure requirements. We support and respond to the Base Erosion and Profit Shifting (BEPS) initiative and the "CNPC Tax Policy", and pledge to pay tax according to the law in areas where we operate and create value, in order to ensure our sustainable development and make due contributions to socioeconomic development.

CNPC TAX POLICY

CNPC tax policy is consistent with its corporate strategies. CNPC 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 contributing to local economic growth and sustainable development of the company.

CNPC carries out tax planning in support of its business strategy and in compliance with international tax agreements and principles, as well as tax laws of host countries. CNPC opposes to aggressive tax planning to avoid potential risks and negative impacts on the company's reputation and sustainability.

CNPC 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.

CNPC advocates tax transparency, and ensures the accuracy and completeness of tax information disclosure in line with requirements of tax authorities.

CNPC manages tax risks through its effective internal control system and engages with tax authorities and external advisors in case of different interpretation of tax laws and regulations for professional judgment.

CNPC carries out intercompany transactions based on arm's length principle and not for the purposes of eroding tax base and shifting profits.

CNPC 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.

Respect Rights and Interests of Indigenous People

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

CASE

Localized Operation in Indonesia

In 2016, on behalf of the Government of Indonesia, the Ministry of Energy and Mineral Resources granted CNPC International (Indonesia) the award for honoring the commitment to the share of localized operation in 2015. The award aims to encourage upstream oil and gas companies engaged in cooperation in Indonesia to use local materials and equipment, and human and technical resources. It recognizes oil companies' outstanding performance in honoring the commitment to localized operation in Indonesia.

In response to low oil prices, CNPC International (Indonesia) has taken measures to deepen corporate management, strengthen cost control, ensure effective economic evaluation and cost sharing, and minimize expenditure.

By the end of 2016, the company had provided local communities with over 3,300 direct jobs and over 10,000 indirect jobs, with a localization rate of 98.6%. In addition, the company tried to procure local equipments/materials and technical services as many as possible. The local content of technical services was 90%.

CASE

CNPC in Niger: Promoting Local Economic and Social Development through Full-industry Chain Cooperation



CNPC started oil and gas investment in Niger in 2003. In 2011, the Agadem upstream-downstream integrated project was completed and put into operation, marking the success achieved by CNPC and Niger in cooperating in the fulll industry chain. This mode of cooperation has effectively boosted local socioeconomic development and achieved mutual benefits and win-win results.

Promoting industrial development. The project has put in place a complete oil industry integrating the upstream, midstream and downstream sectors in Niger, and promoted the rapid development of transportation, communication and other industries. Specifically,

the demand for the construction of on-site communications facilities has stimulated the rapid development of the local communications industry, and made modern communications service available to local residents. Thus, the oil industry has become a pillar of Niger's national economy and an important engine of its social development.

Creating jobs. We have directly created a total of more than 7,000 jobs, provided more than 3,000 local employees with training on medium and long-term work skills, and assigned nearly 200 outstanding local employees to China and other countries for professional training.

Serving community building. We actively contributed to local economic development and supported community building. We helped build roads for oil transportation and improve the national road network. To meet the water needs of local residents, we drilled 29 wells and set up more than 40 water supply points in the villages near the oilfield and pipelines. We funded the construction of clinics and assigned physicians to provide free medical treatment for local residents. We supported local cultural development, providing funds for the celebration of the Women's Day, Children's Carnival, and Wrestling Festival, and sponsored local governments and public organizations including the Ministry of Water Resources, the Ministry of Youth, Sport and Culture, Mariama University, National Museum of Niger, and the Islamic Association. In support of education, we joined forces with service companies and partners to donate to the construction of 38 schools, and provide desks and school supplies to students in Agadez, Diffa, Zinderand Njimi. In the wake of floods and wars, we helped post-disaster reconstruction through donating money, food and medicine to the disaster-stricken areas.

Our presence has been welcomed and recognized by the local community. In 2015, Mohamed Bazoum, Minister of Foreign Affairs of Niger, spoke highly of the oil and gas cooperation between CNPC and Niger, saying "It is China that helps Niger to succeed in extracting oil, which fulfills the oil dream of the Nigerian people!"

We have directly created an accumulative total of more than 7,000 jobs

7000 + jobs

provided more than 3,000 local employees with training on middle

3000 + employees

Performance **Data**

Performance indicators	2012	2013	2014	2015	2016
Finances and operations					
Total assets (RMB billion)	3,409.4	3,757.4	3,938.4	4,034.1	4,069.8
Owner's equity attributable to parent company (RMB billion)	1,636.2	1,787.5	1,978.4	2,079.4	2,098.0
Operating revenues (RMB billion)	2,683.5	2,759.3	2,730.0	2,016.8	1,871.9
Taxes and fees paid (foreign taxes and fees inclusive)(RMB billion)	451.3	464.8	458.9	375.7	349.7
Newly-added proved oil reserves (million tons)	111.206	115.629	99.543	75.739	78.81
Newly-added proved gas reserves (billion cubic meters)	176.06	310.32	212.69	276.49	135.1
Crude oil production (including overseas equity output) (million tons)	151.88	159.81	164.17	166.57	162.98
Natural gas production (including overseas equity output) (billion cubic meters)	93.5	103.9	113.9	116.7	121.3
Crude runs (including overseas) (million tons)	191.45	188.55	196.98	195.24	191.67
Refined products output (million tons)	127.30	128.09	131.04	135.80	131.32
Ethylene output (million tons)	3.69	3.98	4.98	5.03	5.59
Lubricant output (million tons)	1.84	1.89	1.58	1.21	1.16
Marketing volume of refined products (domestic) (million tons)	116.62	118.33	117.02	116.25	113.03
Number of service stations (domestic)	19,840	20,272	20,386	20,714	20,895
Mileage of crude pipelines (km)	16,369	17,640	18,132	18,917	18,897
Mileage of refined products pipelines (km)	9,437	9,534	10,086	10,091	10,560
Mileage of natural gas pipelines (km)	40,995	45,704	50,836	50,928	51,734
Safety					
Total number of accidents	148	197	215	237	270
Fatality rate (person/million working hours)	0.003	0.0047	0.005	0.003	0.0025
Fatality rate (person/million working hours)- employee	0.003	0.0028	0.0045	0.0029	0.0024
Fatality rate (person/million working hours)-contractor	0.003	0.0144	0.0078	0.0033	0.0026
Fatality rate per thousand vehicles in traffic accidents (%)	0.085	0.046	0.103	0.046	0.085
Environment					
COD emissions (metric tons)			31,300	28,800	*
NH ₃ -N emissions (metric tons)			12,500	11,700	*
SO ₂ emissions (metric tons)			197,300	142,400	*
NO _x emissions (metric tons)			177,900	148,700	*
Energy saved (million tons of TCE)	1.31	1.18	1.26	1.16	0.95
Water conserved (million cubic meters)	24.35	24.40	24.62	20.61	13.39
Land saved (hectares)	1,200	1,225	1,232	1,200	1,135

Outlook for 2017

In 2017, the world economy will experience a difficult recovery amid twists and turns, whereas China's economy will have a bumpy road ahead while making steady progress. With slowing down growth in oil and gas demand, the Company will still face great challenges in its development. However, as the Chinese government is providing unprecedented support for the reform and development of state-owned enterprises and the industry remains prospective, the company still enjoys a solid foundation and advantages for growth. In this context, by looking into opportunities and challenges, we are committed to continuously implement our strategies of resources, markets, internationalization and innovation, and keep a balance between seeking progress and maintaining stability.

We will continue to take targeted measures for reform and restructuring, and focus on innovation-driven development as well as quality and efficiency improvement. We are devoted to push ahead with corporate image promotion and corporate culture enriched by the Oil Spirit to ensure stable and steady development of the company.

We will enhance quality and efficiency, and promote the development of our core businesses in a coordinated manner. According to the business orientation of "preferential, effective, accelerated and coordinated development", we will continue to strengthen the connection among production, refining, transportation, marketing, storage and trading, make good use of both domestic and international markets and resources, and optimize the organization of production and resource allocation, to maximize overall effectiveness.

We will stick to law-based corporate governance and improvement of regulation & control system to achieve compliance management throughout the company. More efforts will be made in the quantitative verification of the HSE management system, risk prevention and control, major hidden hazard management, and energy conservation and emissions reduction. Special programs on quality improvement will be implemented in order to achieve excellent QHSE performance.

Putting people first, we will strengthen the cultivation of innovative talents, push ahead with major programs on talent development, safeguard the legitimate rights and interests of employees, set up platforms for career development, improve work and living conditions, to ensure all employees benefit from the Company's growth.

We will be committed to fulfill social responsibilities including educational donations, poverty alleviation, disaster relief and staff voluntary activities. Through our construction projects, we will help local employment, and support economic and social development.

2017 is an important year for us to implement the "13th Five-year Plan", tackle bottlenecks in reform and push forward innovation-driven development. We will firmly build up and implement new concepts on development, pool the wisdom, deepen reform and innovation, and promote steady development with concerted efforts of all employees, in an effort to build a world-class integrated international energy company, and to make new contributions to steady and sound economic development and social harmony and stability of China.

Performance Data (continued)

Staff					
Number of employees in service	1,539,300	1,534,000	1,500,200	1,518,200	1,463,700
Occupational health examination ratio (%)	93.5	94	97	98	98
Investment in Public welfare					
Total contribution (RMB million)	936.45	850.89	1007.60	1,366.03	621.41
- Poverty alleviation (RMB million)	263.41	227.44	206.87	341.10	197.67
- Disaster-relief (RMB million)	24.87	74.87	168.66	5.88	1.92
- Education (RMB million)	196.48	253.65	128.17	238.03	89.56
- Charity donation (RMB million)	286.74	163.40	395.26	632.03	239.85
- Environmental charity (RMB million)	164.95	131.53	108.64	148.99	92.41

^{*}As of the date the report released, the statistics of COD, NH_3 -N, SO_2 and NO_x emissions of the Company in 2016 are under review of the Ministry of Environmental Protection of PRC (MEP), which will be publicized once verified. The verified statistics for the year 2015 shall be published in this report next year.

Glossary

Proven reserves	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 ±20%.
Proved reserves	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.
Reserve replacement ratio	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.
Recovery ratio	The percentage of oil/gas in place that is recoverable from underground.
Horizontal well	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.
Liquefied natural gas (LNG)	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.
New energy	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.
Low-carbon economy	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.
Greenhouse gas (GHG)	Greenhouse gases are gases in an atmosphere that absorb solar radiation from the surface and then emit radiation, such as water vapor, CO ₂ , and most refrigerants. Their effect is making the Earth's surface warmer, as the "greenhouse effect" sequestrates solar radiation and increases the temperature of the air. Greenhouse gases in the Earth's atmosphere mainly include CO ₂ , CH ₄ , N ₂ O, HFCS, PFCS and SF ₆ .
Carbon sequestration	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 sequestrated in biological forms in plants and the soil through forestation, forest management, and other forest carbon sequestration measures.
HSE management system	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.

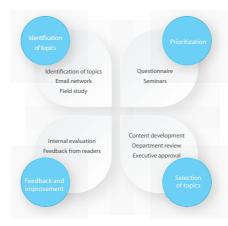
Oils (mineral oil)	Compounds of hydrocarbons in wastewater. These include all substances collected by certain solvents, as well as all substances extracted by solvents from acidified samples, which remained fixed during the extracting process.	
Chemical oxygen demand (COD)	Chemical oxygen demand is the 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.	
Major accident	Major accidents refer to accidents that cause deaths above 10 but below 30, or grievous harm to people numbering above 5 but below 100, or economic losses worth above RMB 50 million but below RMB 100 million.	
Emergency accidents	Emergency accidents refer to sudden emergent accidents which result in or may result in serious casualties, and/or damage t property, the environment, society and public safety. Emergency accidents faced by CNPC include four types, namely natural disasters, accidents, public health and social security.	
Occupational disease	Diseases caused by exposure to dust, radioactive substances and other toxic and hazardous substances to employees working for enterprises, institutions and private organizations.	
Occupational health surveillance	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.	
Occupational health examination	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 Items and Frequencies of Occupational Health Checks. These include checks before, during and at the end of a worker's assignment, as well as emergency checks.	
Occupational health examination ratio	The annual ratio between the number of workers exposed to occupational threats who have taken occupational health checks and the total number of workers who should receive such checks.	
Stakeholders	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-humar specifies that are directly or indirectly affected by corporate business activities.	
Production base	Generally this refers to mining zones recovered, being recovered or to be recovered. It includes several regions covering mine and open mines equipped with utilities like production processes, ground transportation, power supply, telecommunicatio scheduling, production management and living services.	
Community	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.	

Index of Global Reporting Initiative (GRI) and International Petroleum Industry Environmental Conservation Association / American Petroleum Institute (IPIECA/API)

Content	IPIECA/API2015	GRI4.0
About the Report		G4-3, G4-15, G4-16, G4-18, G4-19, G4-20, G4-21, G4-23, G4-28, G4-29, G4-30, G4-31, G4-33, G4-44, G4-45, G4-49
Chairman's Address	SE6	G4-1, G4-2, G4-EC1, G4-EC2, G4-EC8
About us	E2	G4-6, G4-13, G4-EC1, G4-EC8, G4-EN2, G4-EN6
Topic index		G4-4, G4-7, G4-9, G4-13
Figures in 2015		
Corporate Governance	SE11, SE12	G4-57, G4-58, G4-EC4, G4-1, G4-7, G4-16, G4-34, G4-35, G4-36, G4-37, G4-40, G4-41, G4-42, G4-43, G4-44, G4-45, G4-46, G4-47, G4-49, G4-5064-503, G4-504, G4-505, G4-507
Management and corporate Governance Contral System		G4-36, G4-37, G4-38, G4-39, G4-40, G4-41, G4-42, G4-43, G4-44, G4-46, G4-47, G4-48,
Communication with Stakeholders	SE4, SE5, SE7	25, G4-26, G4-27, G4-37, G4-EC3, G4-EC7, G4-EC9, G4-EN32, G4-LA14, G4-EN33
Sustainable Energy Supply		
Energy and Future Development		G4-8
Technological and Managerial Innovation		G4-8
Clean Energy	E3	G4-8, G4-EN27, G4-EC7
Energy Cooperation		G4-8
Responsible Operation		
Safe Operation	E8, HS2, SE16, SE10, HS4, HS5	G4-EN24, G4-EN29, G4-LA8, G4-HR7
Environmental Protection	E4, E5, E6, E7, E8, E11	G4-14, G4-EN24, G4-EN29, G4-EN33, G4-LA15, G4-SO9, G4-SO10
Climate Change	E1, E2, E4, E5, E6, E7, E9, SE1	G4-EN8, G4-EN10, G4-EN11, G4-EN12, G4-EN13, G4-EN15, G4-EN17, G4-EN18, G4-EN19, G4-EN20, G4-EN21, G4-EN22, G4-EN26, G4-EN27, G4-EN31
Products and Services	E1, E2, E3, E4, HS4	G4-EN6
Supply Chain Management		
Employee Development		
Employees' Rights and Interests	SE13, SE15, SE16	G4-11, G4-15, G4-51, G4-58, G4-EC1, G4-EC3, G4-EC5, G4-LA1, G4-LA12
Career Development Platform	SE17	G4-10, G4-LA9, G4-LA10, G4-LA11
Localization and Diversification	HS2, SE5, SE6, SE15	G4-EC6, G4-LA5, G4-HR4, G4-LA11, G4-LA12
Physical and Psychological Health	HS1, HS2, HS3, SE10, SE16	G4-LA5, G4-LA6, G4-LA8
Caring for Employees		
Public Welfare		
Poverty alleviation		
Supporting education	SE4	
Local development	SE1, SE5	
Humanistic Care		
Construction of overseas communities	SE1, SE2, SE3, SE4, SE5, SE7, SE15	G4-SO1, G4-HR8
Performance Data	E2, E6, E7, HS2, HS3, SE4, SE6	G4-22, G4-EC1
Outlook for 2016		G4-1, G4-2
Approach to Reporting		
Approach to Reporting		

Approach to Reporting

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 the social responsibility initiatives and standards proposed by NGOs for topic selection. These include ISO26000 (Guidance on Social Responsibility).
- 4. Topics are selected based on the comprehensive assessment of stakeholders' concerns and their impact on the Company's strategies. The time span and the scope of impact for each specific topic are clearly defined to ensure the accuracy of the information disclosed.



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