Responsible Operation

We are always committed to the principle of “putting people, the environment, safety and quality first” and the goal of “zero injuries, zero pollution and zero accidents”. 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 construct an ecological civilization and develop a resource-saving and environmentally-friendly enterprise.
1. Strengthening HSE Management

We constantly improve our health, safety and environment (HSE) management system. We aim to foster an HSE culture, strengthen process risk control and upgrade our emergency response capability in order to enhance our overall competence in HSE management. The headquarters has signed Safety and Environmental Protection Accountability Letters with persons in charge of our affiliates to clarify HSE targets for each department, team, position and individual.

Improving HSE Management System

In 2013, we continued to improve the HSE management system and standardized its implementation, especially that of the HSE Management System Building and Upgrading Plan During the 12th Five-Year Plan. The HSE system was reviewed twice throughout the Company, and the system’s defects were identified and rectified. In accordance with the HSE system standard framework, more than 20 regulations and standards relating to operational safety, environmental protection, health management and performance examination were formulated and revised.

Strengthening Risk Control

In 2013, we implemented the HSE accountability system, built the graduated risk prevention and control system, set up full-time and part-time emergency rescue teams and improved the accident prevention & pre-warning mechanism. The HSE accountability system was revised in accordance with the requirement of “dual responsibilities for one position”. Inspection of safety risks was conducted, and specific control measures were developed for more than 800 potential risks. We enhanced our emergency capacity, and carried out emergency response drills for major hazardous chemical transportation accidents together with the State Administration of Work Safety and the People’s Government of the Xinjiang Uygur Autonomous Region. We also increased our offshore emergency rescue facilities, and improved the emergency capacity of our offshore emergency response center. We also held three video conferences for case study, which were watched by a total of 150,000 employees.

2. Improving Operational Safety

The petroleum & petrochemical industry is a high-risk industry, facing HSE challenges in every aspect of production and operation. Safety and environmental protection are always at the top of our agenda and are integrated in our operations and the entire industry chain. In 2013, we further improved our HSE performance, through consolidating fundamental work, standardizing the management of contractors, and strengthening safety measures in offshore and overseas operations.

Consolidating Safety and Environmental Protection

Fostering HSE culture: Improvement of HSE training, HSE awareness for all employees is the key to realizing the intrinsic safety of an enterprise. In 2013, we organized training on HSE management for safety managers; carried out the “December 23rd Kaixian County blowout accident” warning campaign to provide knowledge on production safety; and launched the “operational safety month” campaign and the publicity campaign for the Law on Prevention and Control of Occupational Diseases, in order to publicize the principle of “putting people, the environment, safety and quality first” among all employees and help them change from thinking safety is a mere requirement to a necessity.
Strengthening Operational Safety: We have promoted the application of risk governance and control tools such as HAZOP analysis, “two-document-one-table”, work license, pre-work safety analysis and log out/tag out in order to improve behavior and process safety. We launched HAZOP analysis at newly built, renovated and expanded projects, and key plants currently in service. All projects under construction strictly followed safety and environmental reviews, pre-evaluation, design review, commissioning file and completion acceptance of safety and environmental facilities. Safe driving guides for large passenger and transportation vehicles were developed and an investigation was conducted on the current status of our transport vehicles.

Governing Potential Hazards: Identification of a potential risk is equal to the prevention of an accident. CNPC has improved this awareness in all its subsidiaries. We have identified and eliminated potential hazards in operational and management activities, and institutionalized and standardized the identification of potential hazards. In 2013, we eliminated 1,713 hidden hazards, and made progress in the treatment of abandoned wells in oilfields and sheds in fueling stations.

Conducting Work Safety Inspection: In 2013, in accordance with the requirement of “full coverage, zero tolerance, strict enforcement, and high effect”, inspections were intensified throughout the Company to identify various hidden hazards. As a result, more than 3,000 problems and hidden hazards were identified in all our domestic and overseas projects. The problems were recorded in a timely manner, so that the progress in correcting them could be monitored at any time.

Supply Chain Safety
The company’s operation relies on cooperation with and the participation of suppliers and contractors. Business partners' safety management is not only an important guarantee of safety, but also an integral part of our HSE management. Source control and process supervision are key to our safety management. We implement strict process control in the admission and examination of suppliers and contractors. With regard to suppliers, we added specific requirements on safety standards and specifications, made great efforts to prevent and eliminate safety risks, enhanced awareness of supply chain risk control, and extended risk control to upstream suppliers. For contractors, we issued the Implementation Rules on Annual Evaluation of Construction Contractors, in order to further standardize contractor management. We also implemented whole-process safety supervision, to ensure that the operation of contractors complies with our HSE standards.

Case Study

Learning Lessons to Improve Work Safety

2013 marks 10 years since the blowout accident in Kaixian County, Chongqing, on December 23, 2003. We launched the Safety Warning Month Campaign to improve the safety awareness of all employees.

On December 23, 2003, a grave blowout accident occurred at Well 16H in Luoja, Kaixian County, Chongqing, resulting in deaths and serious injuries. The accident was caused by workplace negligence and the absence of an emergency response system. In order to prevent the recurrence of similar accidents, we must strengthen crisis awareness, implement stricter safety standards, and improve our management system and responsibility performance.

On November 1, 2013, we launched the “December 23rd Safety Warning Month Campaign” to fully identify risks and hidden hazards, and clarify safety responsibilities, in order to ensure safe and smooth operation, production and construction activities. In the campaign, which lasted for two months, the affiliated enterprises carried out accident case studies, risk inspection, emergency response drills, HSE thesis appraisals, and a video-based education conference.

The campaign urged affiliated enterprises to shift their focus from accident-driven management to risk-driven management, and inspired their initiative in strengthening risk control. This further improved the risk control capabilities of the Company.
Overseas Security and HSE Management

In 2013, facing complex situations and severe challenges caused by armed conflicts, terrorism and religious issues in several local areas and host countries, we strengthened security and HSE risk management to ensure personnel security, and managed to deal with several threats and emergencies. There were no fatal accidents or fatalities resulting from production, traffic or security, and no major environmental pollution accidents or kidnapping accidents in our overseas projects in 2013.

Improving security system. CNPC issues security management manuals and procedures, and implements them through campaigns and training. By strengthening information collection, risk assessment and communication with the government and communities, we strive to achieve whole-process social risk prevention. We organized 10 teams to inspect security and HSE management at oil and gas investment projects, exploration, drilling & production of crude oil & LPG, and engineering, design, construction & maintenance of associated facilities. From Oman Muscat PC 112 Ruwi to Chad, we strengthened security and HSE management, and operates an Occupational Health and Safety Management System which complies with the requirements of BS OHSAS 18001:2007 Accreditation.

In the Halfaya project in Iraq, Det Norske Veritas (DNV) was invited to perform HSE audits in 591 aspects according to the requirements of the International Safety Rating System (ISRS). Meanwhile, we continued to promote the application of the STOP card, risk identification card, job safety analysis and other HSE management tools in overseas projects. In the Rumaila project in Iraq, we applied the PMS system to maintain equipment integrity in strict accordance with BP’s requirements, and trained employees on HSE management tools such as PTW, STOP card and JSA. As a result, employees’ overall quality was enhanced, and our performance won BP’s recognition.

Strengthening environmental protection management. We strictly implement safety and environmental measures in overseas operations. In our projects in Ecuador, we adopted whole-process environmental protection management to eliminate pollution. We monitored the ecological environment before drilling new wells or building new temporary camps, in order to provide standards for ecological restoration after operation. Additionally, the geographic information system was used to effectively reduce the impact of field development on the environment and communities. In Iraq’s Al-Ahbab project, we introduced the harmless mud treatment process, with the quality of the treated mud reaching the safe standard. In Chad, we immediately initiated the emergency response system after a mud pit pollution accident, and cleaned up residual oil and restored the ecological environment at the well site. We also hired a professional environmental protection company to continuously monitor well-site soil and groundwater.

In the meantime, we looked into the management process and responsibility implementation, and amended our environmental protection regulations according to Chad’s laws and international standards, in order to avoid the reoccurrence of similar environmental pollution accidents.

Case Study  
Putting Employees’ Safety Above Everything

In December 2013, an armed clash occurred in South Sudan. The Company responded rapidly to the situation and evacuated 642 employees. In addition, we also actively assisted the evacuation of 225 international employees and local employees of other enterprises.
3. Implementing Green Development

We strictly complied with all national laws, regulations, guidelines and policies on resource conservation and environmental protection such as the Action Plan for Prevention and Control of Atmospheric Pollution and the Implementation Rules of the Action Plan against Air Pollution in Beijing, Tianjin, Hebei and Surrounding Areas. Through innovations in concepts, technologies, management and mechanisms, we further improved energy efficiency and reduced pollution. We continued to carry out the 10 Energy Saving Projects and the 10 Pollutant Reduction Projects, in an effort to minimize the environmental impact of our operations.

Throughout the year, there were no major accidents resulting in environmental pollution or ecological damage. The COD of major pollutants and the emissions of ammonia nitrogen, SO₂, and NOₓ were reduced by 6.05%, 11.27%, 9.4% and 6.12% respectively. We saved energy equivalent to 1.18 million tons of standard coal and 24.4 million cubic meters of water.

Energy Efficiency

Promoting new energy-saving technologies. In 2013, we strengthened the development of demonstration projects for energy-saving technologies and intensified energy efficiency evaluation and standardization. We invested RMB 1.571 billion in 65 key energy-saving projects. Great efforts were made in the application of mature and applicable new energy-saving products and technologies. In the refinery energy system optimization project launched in 2008, through the development of supporting technologies and the construction of six demonstration projects, we built our own energy system optimization technologies and talent team, and provided strong support for improving energy efficiency.

Implementing EPC management. We regard the promotion of EPC management as an important way to improve technologies and mechanism for energy saving. In 2013, through EPC management, CNPC Xibu Drilling Engineering Company Limited implemented the “substituting electricity for oil” project at 25 drilling rigs, replacing 12,000 tons of diesel oil and saving energy equivalent to 12,200 tons of standard coal.

### 10 Energy-Saving Projects

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Improvement Area</th>
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<tr>
<td>Improving energy efficiency of equipment</td>
<td>Continuous improvement of energy efficiency</td>
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<tr>
<td>Improving operation of heating systems</td>
<td>Integrated use of water resources</td>
</tr>
<tr>
<td>Energy conservation for electric motors and power systems</td>
<td>Utilization of new energy and renewable energy</td>
</tr>
<tr>
<td>Recovery of associated gas</td>
<td>Measurement and monitoring of energy</td>
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<tr>
<td>Reducing losses of oil and gas</td>
<td>Alternatives to oil for self-use</td>
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### 10 Pollutant-Reduction Projects

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Emissions Reduction Area</th>
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<tbody>
<tr>
<td>Desulfurization and denitrification of power plant</td>
<td>Desulfurization of recycled flue gas by FCC</td>
</tr>
<tr>
<td>Pollution reduction statistical monitoring and assessment system</td>
<td>Advanced treatment and reuse of refining sewage</td>
</tr>
<tr>
<td>Field sewage treatment and auxiliary pipeline network reconstruction</td>
<td>Greenhouse gas control, substitution with clean fuel</td>
</tr>
<tr>
<td>Demonstration of circular economy</td>
<td>Using clean energy sources</td>
</tr>
<tr>
<td>Meeting the criteria for wastewater drainage</td>
<td>Meeting the criteria for waste gas emissions</td>
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Increasing energy-saving awareness. In 2013, we continued to carry out the energy-saving publicity week campaign. We improved all employees awareness of energy saving and emission reduction by promoting the study of relevant laws, regulations and policies such as the Law of the People's Republic of China on Conserving Energy, providing books and information, carrying out energy-saving knowledge training and other activities.

Pollution and Emission Reduction

In 2013, by optimizing the production structure, energy mix and emission-reduction projects, and strengthening the management of environmental protection facilities, we realized the overall process management of pollution control and emission reduction. We issued management measures to standardize online monitoring and management of pollution sources. Online monitoring equipment was installed at 71 waste water monitoring sites and 101 waste gas monitoring sites, in order to realize real-time monitoring of major pollutant sources.

We actively promoted clean production, implemented systematic emission reduction measures, and continuously carried forward the 10 major emission reduction projects. In 2013, we implemented 78 emission reduction measures, and put nine FCC desulfurization projects and 11 refinery waste water treatment projects into operation. By the end of 2013, a total of 622 sets of energy-saving & emission-reducing facilities were installed in our drilling enterprises, saving 124,000 tons of diesel oil, and reducing carbon emissions and nitrogen oxide emissions by 103,100 tons and 1,318 tons respectively. The desulfurization project for thermal power plant generating units at Daqing Oilfield can increase desulfurization efficiency to more than 90% and reduce carbon dioxide emissions by more than 5,500 tons annually.
Ecological Protection

In 2013, we implemented whole-process environmental management in our major construction projects, and carried out pilot pre-construction environmental assessments. Environmental impact assessments at eight projects, including the Third Daqing-Tieling Pipeline, were approved by the Ministry of Environmental Protection. The ecological environment was protected during the construction of six projects, including the refining and ethylene facility renovation project at Dushanzi Petrochemical, and farmland and grassland was restored following construction. Thanks to these efforts, these projects passed the acceptance inspection of the Ministry of Environmental Protection. In addition, a total of 882,000m² of ecological wetland was built in the Shixi Operation Area of Xinjiang Oilfield at the center of the Gurbantunggut Desert, raising the greening rate in the operational area to 62.5%.

Case Study: Restoring Marine Environment and Fishery Resources

In 2012, we initiated and completed the Shenzhen-Hong Kong subsea pipeline of the Second West-East Gas Pipeline, which connects Hong Kong with the West-East Gas Pipeline Networks. Before project construction, we carried out a marine environmental impact assessment in an effort to minimize marine environmental pollution. During construction, we set up the EPIC (Engineering, Procurement, Installation, Construction) Project Department with Shengli Petroleum and Chemical Construction Corporation of Shengli Oilfield, to enhance quality control and environmental protection in all links, and ensure compliance with the operating specifications. The project has reached the highest quality standards for oil & gas pipeline construction projects in China.

In May 2013, we launched the marine environment and fishery resources restoration project for the Shenzhen-Hong Kong subsea pipeline of the Second West-East Gas Pipeline. We returned 2 million young black sea bream to the sea, which will effectively improve the marine ecological environment and aquatic life.
4. Addressing Climate Change

It is our corporate strategy to pursue green and sustainable development, and therefore we are proactively adapting to global low-carbon trends. In an effort to cut greenhouse gas emissions and make our due contribution to slowing global warming, we have taken a number of measures, such as restructuring businesses, developing clean energy, improving energy efficiency, strengthening R&D of low-carbon technologies and promoting carbon sequestration.

Developing Clean Energy

One of the most effective ways to alleviate global warming is to develop clean energy to substitute for oil and coal. We work hard to promote the development and utilization of both conventional and unconventional natural gas, as well as the substitution of natural gas for oil and coal in urban domestic use, power generation, chemical production, buses and taxis, in order to control emissions of greenhouse gas at the source (See Page 13 “Developing and Utilizing Clean Energy”).

Controlling Carbon Emissions in Production

We continue to increase our efforts to develop and utilize wind, solar and geothermal energy to reduce carbon emissions throughout the production process. We also closed small-sized refineries and energy-intensive but inefficient facilities to reduce emissions from the source. In 2013, we applied highly efficient Concentrating Solar Power (CSP) technology in the heavy oil recovery demonstration project in Xinjiang Oilfield, substituting solar power for natural gas as the fuel for the thermal recovery boiler, further reducing carbon dioxide emissions in operations. Huabei Oilfield promoted geothermal power generation, and realized the continuous development and utilization of geothermal resources. In addition, Huabei Oilfield cooperated with Tianjin University, Xi’an Jiaotong University and Guangzhou Energy Institute under the Chinese Academy of Sciences to study technologies for medium/low-temperature geothermal power generation.

Low Carbon Technology R&D

We attach great importance to the application of technologies to control greenhouse gas emissions and address climate change. In 2013, we continued to support low-carbon technical innovation, and further developed low-carbon technologies such as CO2 flooding and underground storage technologies, in order to reduce carbon emissions in operations. The research project led by CNPC on CO2 EOR and underground storage technology under the National 863 Program passed the national acceptance inspection. The CO2 flooding and underground storage test carried out in Jilin Oilfield progressed steadily, and as a result, 150,000 tons of carbon dioxide can be stored every year.

Promoting Carbon Emission Reductions in Society

To promote energy saving and emission reduction, we actively participate in the establishment of a marketization mechanism for carbon transactions in China. In November 2013, we completed the first Chinese Certified Emission Reduction (CCER) transaction in China at Beijing Environment Exchange. In addition, through our holding institute, Tianjin Climate Exchange, we set up the platform for enterprises to participate in energy saving and emission reduction. By December 2013, a total of 114 enterprises in Tianjin, whose energy consumption accounts for more than 40% of the total energy consumption in Tianjin, have been included in the pilot experiment for carbon transactions.

In 2013, the Clean Development Mechanism (CDM) Project of Daqing Oilfield was successfully registered with the United Nations, and 400,000 tons of carbon dioxide emission reductions are expected to be sold every year.

Implementing Large-Scale Forestry Carbon Sequestration

Promoting afforestation, and protecting and improving the ecological environment are important aspects of our social responsibility practice. We continue our efforts in afforestation and forestry carbon sequestration activities. In 2013, we invested RMB 29 million in afforestation for public welfare, and planted 700,000 trees. The construction of 66,670 hectares of carbon sequestration forest in Longdong Area of Changqing Oilfield, which was initiated in 2008, progressed smoothly. By the end of 2013, Changqing Oilfield launched the construction of carbon sequestration forests in Zhouzhuling Mountain and the Jiaozichuan Drainage Area in Qingcheng County, and Nanliang Town in Huachi County. The carbon sequestration forests can absorb more than 2.3 million tons of carbon dioxide every year.
5. Improving Product, Engineering and Service Quality

We adhere to the quality principle of “honesty and perfectionism”, and follow the guidelines of quality, measurement and safety to pursue the goal of “zero accidents, zero defects, leading domestically and first class internationally”. We implemented the Quality Development Program (2011-2020) issued by the State Council and honored the quality commitment. Following the principle of putting quality and people first, we strengthened the quality management system and improved quality inspection to create brand products. In addition, we encouraged consumption to be conducted in a more sustainable way and continued to improve product, project and service quality.

Promoting the Establishment of a Quality Management System. We issued and implemented the Implementation Guidelines for the Quality Development Program and the Quality Indicators of Product, Engineering and Service, in order to standardize and institutionalize quality management. We pressed ahead with the formation and certification of a quality management system, and carried out a review of the quality management system. By the end of 2013, 99.19% of all affiliated units had set up the quality management system, among which 83.87% had been certified. All the affiliated enterprises in the fields of exploration & production, refining & chemicals, marketing, gas & pipelines, engineering technology, engineering construction and equipment manufacturing have set up the quality management system, among which 85.7% have been certified. A total of 123 affiliated enterprises have completed the first round review of the quality management system.

Participating in the Quality Month Campaign. In 2013, we carried out a series of activities during the Quality Month Campaign, including publicity and training, quality management system construction, pilot infrastructure construction, brand building, quality rectification, project quality supervision and mass engagement. Approximately 600,000 employees from 140 affiliated units were involved.

Strengthening Measurement Management and Production & Engineering Quality Supervision. We improved the measurement and testing system, and enhanced the upgrading of metering instruments. We formulated standards for the management system, among which 85.7% have been certified. A total of 123 affiliated enterprises have completed the first round review of the quality management system.
Responsible Operation

allocation of metering instruments, and clarified the principles and requirements for the allocation of metering instruments for various businesses; we improved the tracing system, and steadily advanced the construction of five natural gas metering inspection stations; we intensified the management of oil/gas transfer metering, and standardized transfer metering behavior. In addition, we intensified the supervision of product quality, and implemented the quality recognition system for chemicals. We increased sampling inspection of the quality of our products year by year, and the qualification rate rose steadily. We enhanced the supervision of project quality, organized sampling and patrolling inspection and implemented remote supervision, and witnessed a steady improvement in project quality. Our 1 Mt/a Zinder refinery in Niger won the Luban Prize, and 10 projects, including the N’Djamena refinery project in Chad, were awarded the National Quality Project Award.

Providing Quality Products and Services

Providing Quality Products. We strengthened the upgrading of products and the optimization of the product structure, to provide society with high-quality and environmentally-friendly products. In 2013, we steadily promoted the oil product upgrading project, with all our gasoline products reaching the National IV Standard and diesel products reaching the National III Standard. As a result, the proportion of high-grade gasoline was 99.67%.

Improving Supporting Service Standards. In order to provide consumers with more convenient service, 704 new fueling stations were built in 31 provinces (municipalities and autonomous regions) and the Hong Kong SAR. Supporting services were promoted, focusing on the fuel card business.

Improving Product and Service Quality. By taking measures such as soliciting opinions from customers and surveying customer satisfaction, we continuously improved service quality, and provided considerate services for customers in sales and after-sales service. By carrying out campaigns and activities, we imparted our philosophy of “Quality First” to consumers, and answered customers’ questions, in order to protect their rights and interests, and improve service quality. We also launched campaigns and activities at our service stations to create a pleasant customer experience. 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, the satisfaction index of our service stations increased by 8.1 in 2013 year-on-year.
Increasing Natural Gas Supply

Strengthening Exploration and Development: In 2013, we continued to strengthen the development and construction of gas fields, and produced 88.8 billion cubic meters of natural gas in China, a year-on-year growth of 11.2%. We provided sufficient gas to downstream users, with the total annual gas supply exceeding 110.6 billion cubic meters. In addition, we attached importance to the development of unconventional natural gas resources, focusing on the production of shale gas, tight gas and deep-seated gas, and the optimization of resource allocation and production organization. In August 2013, gas was produced from Well Ning 210, the first coal-bed gas well in the Southwest Oil and Gas Field. This marks a breakthrough in the Company’s development of unconventional natural gas.

Diversifying resource import channels: In 2013, we continued to promote the construction of transnational oil/gas pipelines and LNG terminals, and expanded resource import channels. The construction and operation of the Tangshan LNG Terminal Project has helped form an offshore import channel for natural gas, ensuring stable gas supply to the Yangtze River Delta, Northeast China and North China. Construction of Line C of the Central Asia-China Gas Pipeline and Phase-II of the Kazakhstan-China Gas Pipeline Project were advanced as scheduled.

Promoting End Use: In 2013, we put more efforts into promoting the use of natural gas instead of coal and oil in fields such as urban heating, power generation, chemical engineering, and urban public transportation. We continued to promote projects to convert coal-fired boilers into gas boilers to improve urban air quality. For example, in August 2013, we initiated a conversion project in Xinjiang which will further reduce air pollution in the area. Construction of the demonstration conversion project in Lanzhou also commenced. Supplied...
with CNPC’s light hydrocarbon gas for heating, the project will help Lanzhou achieve the “blue sky project” as early as possible. In addition, since 2010, we have signed agreements with more than 10 provinces (municipalities and autonomous regions) including Beijing, Henan, Jilin, Xinjiang, Jiangsu and Shanxi, to promote the utilization of natural gas, and boost the transition from the “Black Gold Era” dominated by coal to the “Blue Gold Era” dominated by natural gas.

Upgrading the Quality of Oil Products

In response to the smog, we actively committed ourselves to upgrading oil products both in terms of technology and equipment.

Ensuring the quality of oil products: In 2013, all our gasoline products for motor vehicles were upgraded to the National IV standard. In May 2013, the gasoline upgrading project of Dalian Petrochemical was put into operation, capable of producing gasoline products of the National V standard.

We actively promoted the oil product upgrading project. As a result, all of our motor gasoline and diesel products have met the National III standard. The proportion of No.95 and No. 97 gasoline was increased by 1.2% from the previous year, and the production of No.97 gasoline was increased by 10.8% from the previous year. We supported the requirements of the Beijing municipal government for upgrading oil products and improving the urban atmospheric environment, and completed the replacement of Beijing V oil products for 10 oil depots and 187 fueling stations in Beijing. Jinzhou Petrochemical, Huabei Petrochemical and Liaoyang Petrochemical cumulatively produced a total of more than 1.079 million tons of Beijing V oil products (See Page 29 for “Providing Quality Products and Services”).

Optimizing Production Technologies: We continuously optimized the technological process, and made technical breakthroughs in oil product upgrading. The selective hydrodesulfurization of catalytic gasoline technology independently developed by CNPC was applied in the 700 Kt/a catalytic gasoline hydrodesulfurization facility of Qingyang Petrochemical, so that the sulfur content of gasoline was reduced from 108 mg/kg to less than 10 mg/kg and met the National V Standard.

GARDES hydrogenation technology, with CNPC’s proprietary intellectual property rights, was applied in the 1.2 Mt/a gasoline hydrogenation facility of Ningxia Petrochemical. The gasoline products met the National V Standard, with their sulfur content decreasing from 80 mg/kg to 10 mg/kg. By applying the main technologies independently developed by us for upgrading gasoline quality to the National V Standard, we have further accelerated the upgrading of our oil products.

By providing society with a sustained and reliable supply of natural gas as well as higher quality oil products, we fulfill our environmental responsibility, and strive to construct an ecological civilization and create a “beautiful China” together with all of society.