

SUSTAINABILITY REPORT



2018



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BSI (British Standards Institution) Assurance Statement



Editing Principles

About this Report

CPC Corporation, Taiwan started its Corporate Sustainability Report (CSR) in 2007, and this 2018 CSR Report is our tenth publication of the Report. This is to not only demonstrate to the general public and all the stakeholders our determination to continue our fulfillment of our corporate social responsibility and the pursuit of sustainable development, but also share CPC's achievements in sustainable management and development. With our management philosophy of "Quality First, Service First, Greatest Contribution" and our core values of "Integrity, Innovation, Talent Development, Safety and Security, Environment Care, Empowerment", we aim at increasing communication with our shareholders through the combination of our corporate culture and the concept of sustainability. The five Chapters of this Report include "Authorization – Sustainable Management and Communication", "Integrity, Innovation, Quality – Accountability Management", "Environment care – Harmony and Sustainability", "Talent Development, Security – Workplace Wellbeing", and "Service, Contribution – A Friendly Society". In addition, our Special Columns cover reports of "CPC – the First Domestic Production Enterprise Issuing Green Bonds", "Construction of CPC Smart Green Gas Stations – Integrated Community Green Energy Supply Center", "Reuse of Wastewater – Membrane bioreactor, (MBR)", "Gender Equality – Woman Power at CPC", and "CPC Supports You – Assistance in the Marketing of Agricultural Products" to disclose our efforts and achievements in aspects of economy, product liability, environment protection, social engagement, labor care, concern for human rights and are with related data and detailed description.

For the general public and stakeholders to have better understanding of and diverse communication channels with CPC's CSR-related activities, we have established the "CSR" section on our official website for the download of the CSR Report, and information of the objectives, strategies. Achievement of CPC's sustainable development is regularly updated. CSR issues of the public's concern and major news related to CPC will be immediately reported and responded to on our official website.

In this report, CPC Corporation, Taiwan is simplified as CPC. The monetary units are based on NTD (foreign currency is to be clearly stated in this report). All the critical wording, phrases, abbreviations, or proper nouns are described in notes shown in the corresponding page.

Scope of the Report and Statistics Basis

This report covers CPC's corporate social responsibility effort and achievements from Jan. 1, 2017 to Dec. 31, 2017. Some of the contents cover information before and after 2017, and part of the contents cover our future policies, goals and plans. The scope of the report covers CPC Headquarters and the related operation system and activities. The information related to environmental aspect is mostly the work of Taoyuan, Dalin, and Kaohsiung Refineries and Linyuan Petrochemical Complex. For the data and items not presented in this Report, please visit CPC's official website for more information.

Most of the statistical data for this report come from CPC's internal data collection, research and inquisition. For the financial data, it is public information audited and verified by KPMG. Some of the statistical data are




cited from public information from government websites, such as Environmental Protection Administration, and Ministry of Labor, both under the Executive Yuan. All the numbers are presented in the most common way of description. Data of greenhouse gas emission, ISO 14001 and OHSAS 18001 are checked and verified by Bureau of Standards, Metrology and Inspections, Ministry of Economic Affairs. Compared to 2017 CSR Report, there is no noticeable difference between the baseline number and data boundary in CPC's 2018 CSR Report.


Referred Guidelines and Principles

2018 CSR Report was compiled in accordance with the GRI (Global Reporting Initiative) Standards and Article 4 of the Taiwan Stock Exchange Corporation Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies stipulating that listed companies within the chemical industry shall reinforce disclosure items, and the stakeholders' issues of concern were identified through the model of materiality analysis for the determination of the priorities. The major sustainability issues, relevant strategies, goals and management policies to be disclosed in this Report were analyzed and compiled in accordance with the reporting principles and requirements while referring to the following guidelines and initiatives.

-  AA1000 Accountability

-  ISO 26000 Guidance on Social Responsibility

-  UN Global Compact

-  UN Sustainable Development Goals (SDGs)

The Editing, Review and Authorizing Procedure, and Verification of this Report

CSR Editing Group:

To finish the editing of the report, "2018 CSR Special Editing Group" has been formed with the vice president being the convener, the Department of Planning as the executive secretary, and the members include representatives from all business divisions, all research institutes, and all aide departments.

Review and Authorization Procedures:

Department of Planning is in charge of overall information and data collection, integration, and the editing of the preliminary draft of the report. According to their duty and expertise, members of the editing group proofread and revise the draft. Meanwhile, an independent third party was working on the external checking and auditing for the report. The revised edition was then sent back to the editing group for further



review and revision for the finalized edition. Finally, based on administrative procedures, the report was checked and approved for the final authorization before publication.

Verification of the Report:

To enhance the standard conformity of GRI Standards and AA1000 AS2008 and for the better comparability for the performance and the materiality of the Report so as to further use the CSR Report as an important tool for the Company to promote sustainable development management, all the information in this Report was verified by the world renowned British Standard Institution (BSI), and both the editing framework and procedure fitted the core items of GRI Standards and AA 1000 Accountability Principles Standard. BSI verification report can be found in the appendix and it is presented in international general index. Estimations are specified in the chapter notes.

Publishing Schedule:

CPC Corp. Taiwan annually publishes CSR Report from 2011.





Contact Information

We hope that this report can help the stakeholders have a better understanding of CPC's efforts for the promotion of sustainable management. Please contact us if you have any question or suggestion for this 2018 CPC Corporate Sustainability Report (CSR).

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You are more than welcome to download the complete CSR in PDF format from the CPC official website
<http://new.cpc.com.tw/csr/report/>



Work Together to Cherish the Earth
 The report was printed with environmental friendly Soy ink and recycled paper





Our Ultimate Commitment

Planning sustainable management embracing a better future



Chairperson

Chen Tai



President

Lee, Shem-chin



CPC Corporation, Taiwan has been established for more than seven decades. In addition to the fulfillment of our responsibility as a state-owned enterprise by stabilizing the prices of oil and gases by means of providing full supply of oil and gas products for domestic demand and assisting in the development of the midstream and downstream petrochemical industry, CPC is also committed to improving the quality of the environment, fulfilling our corporate social responsibility and maintaining harmonious social relations. Looking back on the past year, despite numerous challenges we faced, with the joint efforts made by all CPC employees and the strong support from all the stakeholders, we have seen great achievements in all aspects in sustainable development. Looking into the future, CPC will uphold the original intention to continue to commit itself to corporate sustainability and social co-prosperity. CPC therefore makes the following promises to all its stakeholders.

Sustainable Management and Communication

Since 2009, CPC historically issued of Corporate sustainability reports, all won the Taiwan Corporate sustainability Awards, showing that our efforts in sustainable management have been recognized and affirmed. In the future, the UN Sustainable Development Goals (SDGs) will be the cornerstone for CPC's sustainable development. We continue to focus on the promotion of sustainable management through the Sustainable Management Committee and disclose sustainable development related information through the social network and the CSR Report to strengthen effective communication with our stakeholders.

Accountability Management and Innovation Management

2017 was a fruitful year. Thanks to the efforts of all CPC employees and the support from our stakeholders, the profit before tax reached NTD 48.54 billion, a 37% increase compared with 2016. Looking into the future, there are still many uncertainties in the international crude oil prices, and climate change will continue to affect the global energy system as well as the industrial development model. Types of domestic energy development are at the transformation stage, which may have impacts on the Company's operations and can also be seen as an opportunity for the transformation of the Company. CPC will continue to cooperate with the government's policies of "Transformation of Petrochemical Industry and Circular Economy" and "Promoting Clean Energy and Expanding the Use of Natural Gas" to actively develop a high value-added petrochemical industry and renewable resources and construct the third LNG receiving terminal to cope with the growing demand in LNG. Meanwhile, to respond to the government's goal of promoting electronic vehicles, CPC is currently actively establishing charging/exchange stations, working on manufacturing CPC-owned brand battery and transforming conventional gas stations into smart green ones, aiming at creating a life community of environment, energy, safety and security with the surrounding communities.

Pursuing Zero-incident in terms of Occupational Safety

In 2017, CPC went through the 815 power cut incident. After the special investigation by the Executive Yuan and the self-review of CPC, various improvement measures have been proposed and are detailed as follows. In terms of the management mechanism, risk management assessment and the safety assessment of key maintenance operations are carried out for enhanced improvement; regular review of the SOPs and WI as well as management of necessary changes are conducted; contractor management in accordance with the SOP is conducted. In terms of strengthening supervision, graded checks and maintenance of occupational safety disciplines are inspected without prior notice and relevant regulations will be asked. As for the personnel training, the occupational safety training and advocacy are conducted in small classes, and professional training of occupational safety is also organized.



Facilitating Environmental Harmony

In 2017, CPC issued NTD 2.8 billion of 10-year green bonds, making it the first domestic production enterprise issuing green bonds. The funds collected will be used for green investment projects of climate, environmental protection, energy conservation and carbon reduction, adding momentum to the green finance. Over the past few years, CPC has made effective improvement in terms of environmental protection through improvement of the sources, exhaust gas recovery, end-of-pipe treatment and improvement of process operations, reducing the GHG emission from 11.58 million tons in 2005 to an average of 7.84 million tons in the last three years, reducing carbon emission by over 30%. In addition, the emissions of air pollutants from all factories are far better than those prescribed in regulations. What is more, CPC has planned the Membrane bioreactors and Reverse osmosis membrane (MBR+RO) wastewater reclamation project to reduce the impact of wastewater on the environment. In the future, we will continue to cooperate with the policy of Enhancing Energy Conservation Management and Improving Energy Efficiency and actively research and develop "circular economy "related technologies to implement pollution prevention and improvement, striving to be an environmentally friendly enterprise.

Employee Safety and Development

In 2017, CPC conducted a total of 309 sessions of disaster relief drills, 7 emergency response drills without warning and 4 large-scale emergency response drills. In addition to conducting regular monitoring of the operating environment and organizing various occupational health related activities, OHSAS 18001 system was established and Taiwan Occupational Safety and Health Management System (TOSHMS) was also introduced. Up to the end of 2017, a total of 34 business units have completed the establishment and verification of TOSHMS certification. In terms of manpower training, the average training hours of employees reached 53 hours. In addition to the proper planning of human resources utilization and deployment, we also continue the promotion of knowledge management and various training programs to effectively pass on professional skills and experience, cultivate the depth and breadth of the employees' career, reduce the impact of manpower shortages and optimize our human resources.

Fulfillment of CPC's Corporate Social Responsibility

As of the end of 2017, CPC had employed 514 part-time workers with disabilities (accounting for 18% of all part-time workers at CPC) in charge of refueling or car washing. In 2017, nearly 3,700 elementary school students participated in the "Green Dragon Creativity Summer Camp" to experience different environmental and energy education. Moreover, CPC also helped farmers with the secondary agricultural product marketing activities, gathered the strength from our employees to support 203 children to receive education and donated more than 3 million c.c. of blood. In the future, we will continue the promotion of good-neighborly activities, assist local development, care for the disadvantaged groups, promote the energy education and biological conservation, and foster outstanding national athletes in an attempt to fulfill our corporate social responsibility.

This 2018 CSR Report is CPC's 10th publication of CSR Report. In addition to continuously disclosing our achievement of sustainable operations in economic, environmental and social aspects of the stakeholders' concern, our practices of SDGs are also disclosed. The five Special Columns in this Report detail our actions in green bonds, smart green gas stations, the Membrane bioreactors and Reverse osmosis membrane (MBR+RO) wastewater reclamation technology, gender equality and assistance in agricultural products marketing, hoping that the stakeholders can better understand CPC's strategies and actions for sustainable development. CPC was awarded TCSA's Taiwan Corporate Sustainability Awards-Gold Award of the Corporate Sustainability Report in the Energy Industry Category and Climate Leadership Award in Corporate Sustainability Performance last year. With the affirmation and recognition, we will continue the long-term efforts for sustainable development and work together with our stakeholders to create a new future for coexistence with the environment and for social integration and prosperity.



2017 Sustainability Achievements and Recognitions



Reader's Digest Trusted Brand Platinum Award, for 17 consecutive years



1st place in gas station of "Consumers Ideal Brand", for 13 consecutive years.

For 13 years in a row, CPC has been ranked No. 1 in the gas station industry, with as high as 75.75% of the consumer heart share.

Two gas stations were certified diamond level of green building by Construction and Planning Agency, Ministry of Interior.

Taiwan Oil Field Exhibition Hall was certified as environmental education facility by EPA.

Awarded the OSH Five-star Award by Ministry of Labor.

Issued green bonds, the first state-owned enterprise to sell such bonds in the local market.

Awarded the 26th ROC Enterprise Environmental Protection Award Silver Award in the Non-Manufacturing Sector.

Awarded TCSA's Taiwan Corporate Sustainability Awards-Gold Award of the Corporate Sustainability Report in the Energy Industry Category.

Awarded TCSA's Taiwan Corporate Sustainability Awards- Climate Leadership Award in Corporate Sustainability Performance.

Awarded BSI's corporate Sustainability Excellence Award.

Awarded the 14th National Innovation Award for the green plasticizers developed.

Awarded the 17th Public Construction Golden Quality Award.



Sustainable Development Goals and Sustainability Assessment

Economy			
Material topic	Goals for 2018	Goals for 2017	Description of target achievement status in 2017
<p>Economic Performance</p>	To reach the budget target approved by the Legislative Yuan.	Reached the budget target for 2017 approved by the Legislative Yuan, with the revenue of NTD 744.2 billion and a surplus of 8.25 billion.	The operating revenue of CPC amounted to NTD 896.6 billion, an increase of 17.3% compared with 2016. The earnings before tax reached NTD 48.5 billion, a 37% increase compared with 2016. The financial contribution to the country was NTD 126.4 billion, a 5.6% increase compared with 2016.
<p>Indirect Economic Impacts</p>	To ensure stable supply of domestic oil products, implement the principle of users charge, reflect costs at a reasonable price and return to normal market competition.	To ensure stable supply of domestic oil products, implement the principle of users charge, reflect costs at a reasonable price and return to normal market competition.	The prices of gasoline, diesel, fuel oil, LPG and LNG were all calculated in accordance with relevant price formula approved by the government. All the price information was announced on CPC's official website.
<p>Anti-corruption</p> <p>Anti-competitive Behavior</p>	<ol style="list-style-type: none"> To continue the promulgation of anti-corruption and disciplines through appropriate meetings or large project advocacy seminars to enhance the internal employees' awareness and concepts of anti-corruption. To hold social participation activities and make use of the opportunity to reach to the public or students, aiming at enhancing the public's support for the government's anti-corruption work. To convene CPC's Anti-corruption Briefing to examine the performance of anti-corruption work. 	<ol style="list-style-type: none"> To comply with laws and regulations, improve the corporate governance structure, honest disclosure, and enhance information transparency. To continue the promulgation of anti-corruption and disciplines through appropriate meetings or large project advocacy seminars to enhance the internal employees' awareness and concepts of anti-corruption. 	<ol style="list-style-type: none"> The commercial behavior of CPC and other state-owned enterprises is subject to the Government Procurement Act. Organized the education of anti-corruption (including 35 sessions of large events), with a total of 185 sessions and 7 sessions of Law and Discipline Promotion. CPC convened 19 Anti-corruption Briefings, and the records of the briefings kept in the Head Office were also disclosed on CPC's official website. CPC conducted 3 ad hoc audits in total, and even recovered the Company's overpaid payment from one case.




Economy

 Anti-corruption

 Anti-competitive Behavior





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| <ul style="list-style-type: none"> 4. To conduct ad hoc audits and target the audits of high-risk businesses to assist the business units to prevent corruption and increase benefits. 5. To propose suggestions for corruption cases so as to prevent similar incidents from happening again and to improve the overall anti-corruption efficiency. | <ul style="list-style-type: none"> 3. To convene CPC's Anti-corruption Briefing to examine the performance of anti-corruption work. 4. To conduct ad hoc audits and target the audits of high-risk businesses to assist the business units to prevent corruption and increase benefits. | <ul style="list-style-type: none"> 5. There were one early-warning report as the special report and three anti-corruption reports , and the overall anti-corruption performance was enhanced. 6. We continued the floating pricing mechanism for the adjustment of domestic gasoline and diesel prices. Private gas stations operators can set their own retail prices for their gasoline and diesel prices to maintain healthy competition in the market. |
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Environment

Material topic	Goals for 2018	Goals for 2017	Description of target achievement status in 2017
<p> Energy</p> <p> Emission</p>	<ul style="list-style-type: none"> 1. To reduce the Company's total GHG emission by 1% per year. 2. To replace all the lights in our operations bases with LED lamps to cooperate in line with the energy conservation plan for government agencies. 3. To promote the preparation of third LNG receiving terminal and expand LNG applications to cooperate in line with the government policy. 4. To use clean fuel for all boilers in the factory. 	<ul style="list-style-type: none"> 1. To reduce the Company's total GHG emission by 1% per year. 2. Preliminary company-wide inventory of the facilities apt to climate risks for the adaptation of climate change. 3. Reconfirmation of the company-wide inventory, the management planning and evaluation of the internal carbon rights. 4. To promote the establishment of solar PV demonstration system. 5. To promote the integration of energy and resources to improve the energy efficiency of the entire plant. 	<ul style="list-style-type: none"> 1. The company-wide inventory of the facilities apt to climate risks was conducted. 2. As of the end of 2017, the installation of the solar PV systems was completed in 32 gas stations. 3. Established the task force for the CPC Smart Green Power Station Project to plan the solar energy storage facilities and set up the charging/exchange stations for electric vehicles to integrate them into a green energy supply center.






Environment

Material topic	Goals for 2018	Goals for 2017	Description of target achievement status in 2017
<p> Energy</p> <p> Emission</p>	<ol style="list-style-type: none"> To promote the integration of energy and resources to improve the energy efficiency of the entire plant. To promote the green energy technology research such as renewable energy and biomass materials. To continue environmental audits of all units at least once a month, and follow up the deficiency until improvement is completed. 	<ol style="list-style-type: none"> To promote the green energy technology research such as renewable energy and biomass materials. To continue environmental audits of all units at least once a month, and follow up the deficiency until improvement is completed. 	<ol style="list-style-type: none"> The canopy lights and CIS lights in all the Company owned gas stations were replaced by LED lamps or energy saving lamps, saving approximately 2.06 million kw/h, reducing 1.07 million kilograms of CO₂ emission.
<p> Water</p> <p> Effluents and Waste</p>	<ol style="list-style-type: none"> Water rationing and water shortage response plans. Promote the green building labels for gas stations, and reuse of wastewater and carwash water. Management of water conservation in the factories and improve the recycling efficiency of process wastewater. To meet the emission allowance prescribed by environmental regulations. Improve the reuse rate of the process wastewater in the factories. Recycling and reuse of various waste resources. 	<p>Water rationing and water shortage response plans</p> <ol style="list-style-type: none"> Promote the green building labels for gas stations, and reuse of wastewater and carwash water. Management of water conservation in the factories and improve the recycling efficiency of process waste water. Reduction of effluent and waste. Recycling and reuse of process wastewater and various waste. 	<ol style="list-style-type: none"> We have proposed water shortage response plans for all units. As of the end of 2017, a total of 37 CPC- owned gas stations obtained the Green Building Labels, including 11 diamond grade level, 4 gold grade level, 4 silver grade level and 3 bronze grade level, 15 qualified level and another 3 gas stations are in the process of application. The monitoring values of the effluent in CPC's 4 factories all met the discharge standards. The total amount of wastewater discharged reduced by 7.6% compared with 2016. The wastewater recovery rate of the refineries and petrochemical plants reached 67.11%. The items for waste recycling and reuse in the refineries and petrochemical plants included RDS waste catalyst (including nickel), residue fluidized catalytic cracking (RFCC), and waste activated carbon, with the reuse rate of 100%.





Environment

Material topic	Goals for 2018	Goals for 2017	Description of target achievement status in 2017
 <p>Environmental Compliance</p>	<ol style="list-style-type: none"> To carry out environmental impact assessment (EIA), actively promote it and conduct environmental audits to enhance the environmental protection performance of all units to response to stringent laws and regulations. To increase the sessions of contingency drills & exercises to reduce the impact of disaster damage and environmental impact. 	<p>Compliance with laws and regulations.</p>	<ol style="list-style-type: none"> The average quality of annual flue gas emission of the refineries met the current national standards. The average quarterly monitoring value of discharge water of the refineries met the national effluent standards. Audits of 17 units were completed according to the audit schedule. 313 contingency drills & exercises were carried out in all the factories of the company. Among all the investment plans, changes in 7 plans were submitted to the Environmental Protection Agency (Bureau) for EIA, and changes in 5 plans were reviewed and approved.
 <p>Biodiversity</p>	<ol style="list-style-type: none"> To carry out EIA of the development projects, including the biodiversity survey. To continuously monitor the water quality of the sea areas in each region our facilities are located in. Conducted an ecological survey of the sea area in Guantang, Taoyuan. 	<ol style="list-style-type: none"> To publish CPC's Beauty of Ecology and promote the book online. To carry out EIA of the development projects, including the biodiversity survey. To continuously monitor the water quality of the sea areas in each region our facilities are located in. 	<ol style="list-style-type: none"> Published CPC's Beauty of Ecology- Traces of Birds, and the e-book has been available on CPC's official website. All plants performed the environmental monitoring in accordance with the EIA commitments to know the changes in the environmental quality during operation.
 <p>Materials Alternatives to Fossil Fuels</p>	<ol style="list-style-type: none"> To promote energy diversification and the use of LNG. To improve energy use efficiency and develop energy-saving technologies. 	<ol style="list-style-type: none"> To promote energy diversification and the use of LNG. To improve energy use efficiency and develop energy-saving technologies. 	<ol style="list-style-type: none"> The green plasticizers developed by the Refining & Manufacturing Research Institute won the 14th National Innovation Award. As of 2017, the electricity generated by the solar PV system of the CPC-owned gas stations reached 987,000 kWh.



Environment

Material topic	Goals for 2018	Goals for 2017	Description of target achievement status in 2017
 <p>Materials Alternatives to Fossil Fuels</p>	<ol style="list-style-type: none"> To integrate the R&D energy and develop reduction technologies and clean energy. To promote green innovative chemical materials that focus on low pollution and low-carbon cycle. 	<ol style="list-style-type: none"> To integrate the R&D energy and develop reduction technologies and clean energy. To promote green innovative chemical materials that focus on low pollution and low-carbon cycle. 	

Society

Material topic	Goals for 2018	Goals for 2017	Description of target achievement status in 2017
 <p>Employment and Labor Relations</p>	<ol style="list-style-type: none"> To have smooth communication channels between the labor and management. The labor-management conference is held monthly in order to coordinate and deal with disputes in a reasonable and systematic way to develop consensus between labor and management. In compliance with the relevant laws and regulations, such as the Labor Standards Act. Continue to convene a labor-management conference for a smooth channel for coordination between the two parties. 	<ol style="list-style-type: none"> Keep hiring aborigines and people with disabilities for appropriate vacancies in accordance with the Labor Standards Act and related regulations. To provide smooth communication channels between the two sides of labor and management and hold a variety of forums in order to coordinate and deal with disputes in a reasonable and systematic way to develop consensus between labor and management. 	<ol style="list-style-type: none"> The Company complies with the Labor Standard Act and relevant laws and regulations. However, in the past three years, there have been few different legal opinions on the content of wages between the competent authorities and the labor authorities. The Company will actively ask the competent authorities to coordinate and resolve the relevant disputes. The hire of the aborigines and people with disabilities has exceeded the requirements in the regulation.
 <p>Labor/ Management Relations</p>			
 <p>Education and Training</p>			






Society

Material topic	Goals for 2018	Goals for 2017	Description of target achievement status in 2017
<p>Employment and Labor Relations</p> <p>Labor/ Management Relations</p> <p>Education and Training</p>	<p>4. Examine the gap of professional functions of all personnel, formulate relevant training plans, strengthen the orientation and training of new recruits, and plan professional core technology courses.</p>	<p>3. To plan the employment of core manpower in advance, cultivate new staff functions, develop core business capabilities, enhance management functions, improve work experience and core knowledge training, pass down expertise and experience through knowledge management and training programs to reduce the impact of labor shortage.</p>	<p>3. Convened 24 labor-management conferences throughout the Company, and the ad hoc communication teams were set up for specific issues to maintain good interaction with the employees.</p> <p>4. 1,932 professional core training courses, 163 training courses for second expertise education and 39 supervisors training courses were held to improve employees' skills.</p>
<p>Local Communities</p>	<p>1. To establish friendly relations with local governments to assist in various public constructions that can benefit the residents.</p> <p>2. To invite residents in neighboring areas and disadvantaged children to participate in the free green propaganda, environmental protection-related activities to make the goodwill and let the green concept grow.</p> <p>3. To continue to use the land to promote large-scale greening combined with graphic and e-media advocacy so as to increase exposure significantly.</p>	<p>1. To establish friendly relations with local governments to assist in various public constructions that can benefit the residents.</p> <p>2. To invite residents in neighboring areas and disadvantaged children to participate in the free green propaganda, environmental protection-related activities to make the goodwill and let the green concept grow.</p> <p>3. To continue to use the land to promote large-scale greening.</p>	<p>1. CPC's neighbourhood grants amounted to NTD 39.5 million, including expenses in culture and education, scholarship, emergency aid, low income family support, benefits for the elderly and physically challenged, and other charity events.</p> <p>2. The 13 locations in the Suao oil Supply Center have used headworks, check dam-ground sill, geogrid earth anchor and vegetative stabilization, detention ponds (ecological methods) and wicker-work (vegetation) to achieve the effects of flood control and ecological conservator. The reported typhoons have not caused the earthflows and the destruction of ecological environment.</p>





Society

Material topic	Goals for 2018	Goals for 2017	Description of target achievement status in 2017
<p> Customer Health and Safety</p> <p> Marketing and Labeling</p> <p> Customer Privacy</p>	<ol style="list-style-type: none"> 1. To strengthen the marketing of CPC's major policies and corporate image issues. 2. To strengthen marketing and label management, continuously monitor market dynamics and safeguard the Company's goodwill and interests. 	<ol style="list-style-type: none"> 1. To score 85 points in the annual customer satisfaction survey and in the overall implementation of annual customer experience management (CEM). 2. To improve the handling capacity of gas station management staff: to enrich customer site information and case sharing to help the first-line managers to deal with customers' problems immediately; to optimize the processing procedures: to establish the same company operating process and increase the automatic texting function. 3. To enhance the service concept of filling staff. 4. To strengthen the detection of VOC leakage concentration. 	<ol style="list-style-type: none"> 1. There was no violations against product labelling, marketing communication regulations and voluntary regulations within CPC. 2. According to the results of customer satisfaction survey of businesses under MOEA conducted by E-Strategy Marketing Research Survey Center Co., entrusted by State-owned Enterprise Commission, CPC got an average score of 95.17 points of all the survey items. 3. 120 gas stations were chosen to introduce CEM (Customer Experience Management) to provide satisfactory services. The overall implementation result of CEM was 92.1 points, showing progress compared to the 91.6 points in 2016. 4. The development of customer service evaluation system that has automatic texting function, and the texting record can automatically connect to the case. Meanwhile, query and statistics functions are also provided. This system was promoted to all units for use. 5. Set up the "Handling Procedures for Cases Sending to Customer Service" which prescribe the deadline for handling cases and the authority for reviewing cases to improve efficiency of customer complaint processing procedures and to safeguard customers' privacy. 6. Set up personal data protection manual that regulates the protection and management of personal data. 7. Purchase a simple VOC tester for self-testing, and increase the replacement and repair ratio of equipment components that have generated leaks.



Society

Material topic	Goals for 2018	Goals for 2017	Description of target achievement status in 2017
<p>Socioeconomic Compliance</p>	<ol style="list-style-type: none"> To comply with the requirements of laws and regulations and to improve the corporate governance structure. Honest disclosure and enhancement of information transparency. To continue to promote CNS 15506 and introduce ISO 45001 in the future to work in line with the changing trend of Occupational Safety and Health Management System. 	<ol style="list-style-type: none"> To comply with the requirements of laws and regulations and to improve the corporate governance structure. Honest disclosure and enhancement of information transparency. 	<ol style="list-style-type: none"> There was no legal proceeding involving anti-competitive, antitrust and monopoly. Major news, Annual Report of the Shareholders' Meeting, financial information and non-financial information were all publicly announced on the Market Observation Post System (MOPs) and CPC's official website. Set up the Corporate Governance Area and Corporate Social Responsibility Area on CPC's official website to disclose conditions of corporate governance, corporate social responsibility and sustainable operations.
<p>Occupational Health and Safety</p> <p>Assets Integrity and Safety Drills</p> <p>Emergency Prevention</p>	<ol style="list-style-type: none"> To continue to promote CNS 15506 and introduce ISO 45001 in the future to work in line with the changing trend of Occupational Safety and Health Management System. To continue to Assist key units in completing the establishment of process safety management system. To strengthen the accident learning, reporting and investigation and regularly check the implementation of the proposed matters. To implement a contractor safety performance appraisal system. To strengthen employee health protection system, including labor health protection matters like health management, occupational disease prevention and health promotion. 	<ol style="list-style-type: none"> To implement the Globally Harmonized system(GHS) and Chemical Control Banding(CCB) according to laws. To promote the establishment of CNS 15506 re-verification. To continue the transfer of professional knowledge of occupational safety and sharing knowledge repository. Continuously promote the contractors to implement the three-in-one training system targeting on the construction scaffold to prevent the accidents of falling. 	<ol style="list-style-type: none"> CPC has a total of 34 business units that completed the establishment and certification of Taiwan Occupational Safety and Health Management System (TOSHMS). We held a total of 113 sessions of occupational safety and health training, including license courses, credited classes and on-the-job training. Conducted the contractors' training of tube and coupler steel scaffolds, frame scaffolds and system scaffolds, and 624 people in total obtained the qualification. In 2017, CPC held 309 disaster prevention drills, 7 emergency response drills without warning and 4 large-scale emergency drills.

1.

Authorization - Sustainable Management and Communication

1.1 Sustainable Management and Promotion

1.2 Stakeholder Engagement



Energy Industry Category Gold Award

In 2017, awarded TCSA's Taiwan Corporate Sustainability Awards-Gold Award of the Corporate Sustainability Report in the Energy Industry Category.



Climate Leadership Award

In 2017, awarded TCSA's Taiwan Corporate Sustainability Awards- Climate Leadership Award in Corporate Sustainability Performance.



2017

Sustainable Management Performance



the Sustainability Excellence Award

In 2017, awarded the Sustainability Excellence Award by British Standards Institution (BSI) .



Communication with Stakeholders

In 2017, CPC conducted a questionnaire survey of the stakeholders' issues of concern and also distributed the Management Impact Questionnaire to the high-level management of CPC as reference for the setting of the priorities of the aspects. A total of 445 questionnaires were recovered.



Customer Service

A total of 204,744 inquiries were received from customers in 2017. 96.9% the inquiries were answered and handled by the Customer Service Center and Customer Service Office immediately.



Corporate Governance evaluation

Set up a corporate governance zone on the web and receive annual corporate governance evaluations from MOEA.



ISO Management System certification

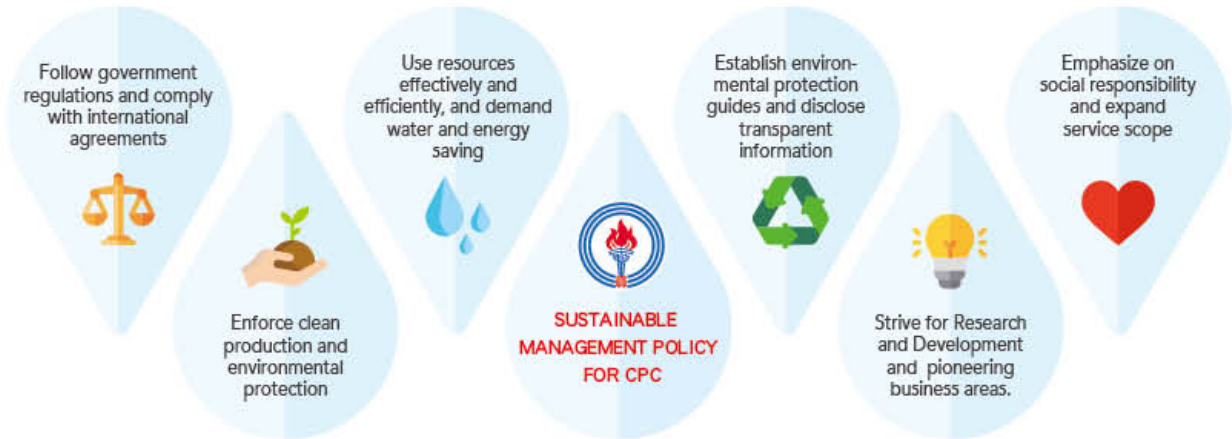
As of 2017, a total of 20 units established and passed the ISO 14001 Environmental Management System verification.



1.1 Sustainable Management and Promotion

🔥 Sustainable Management Policy for CPC

To cope with the global trend of environmental protection, CPC developed the following sustainable management policy at the end of 2003.



🔥 Sustainable Management Committee

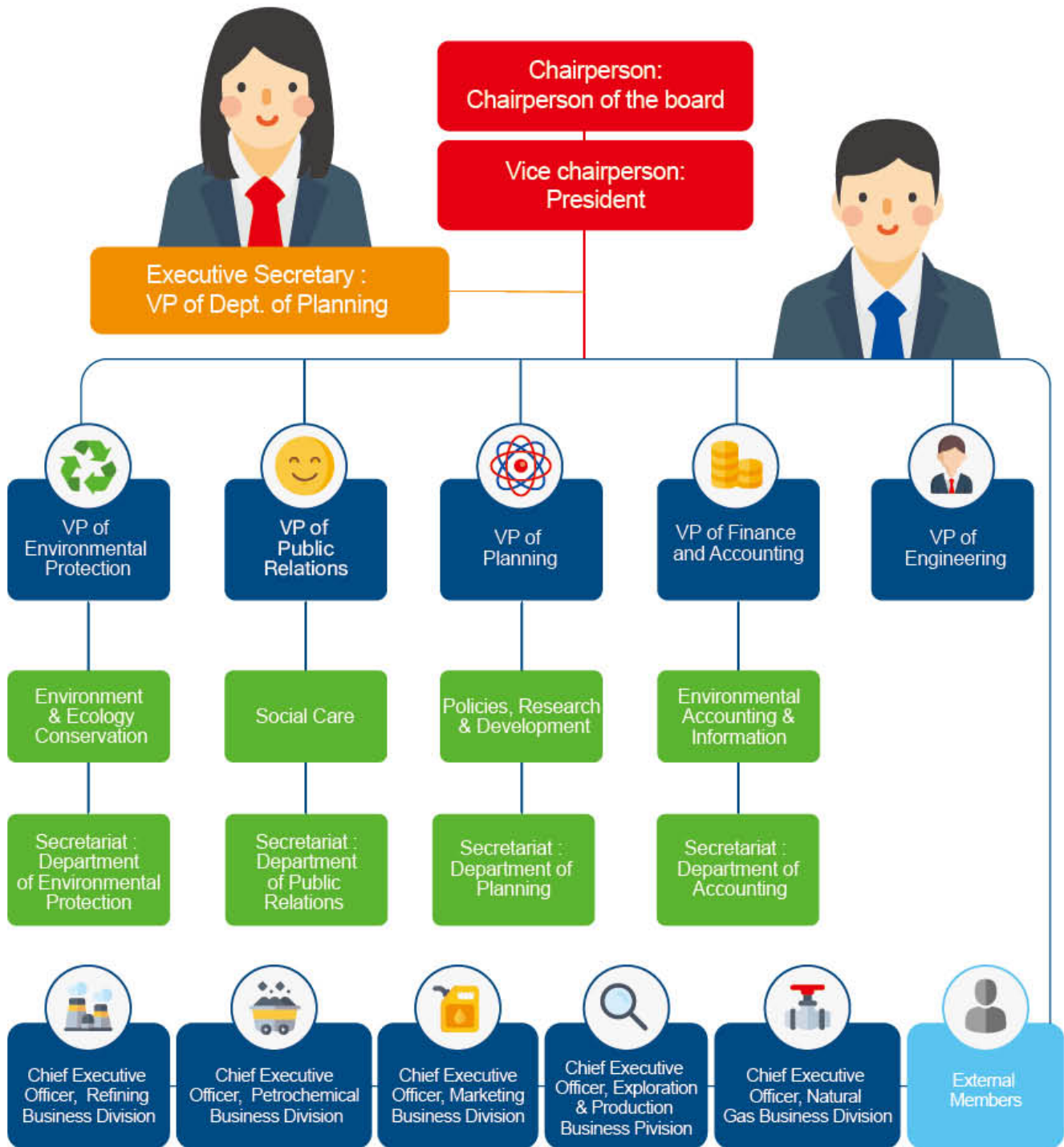
CPC established the Sustainable Management Committee in 2005 to focus on the promotion, strategy planning and target setting of sustainable management. Furthermore, sustainable management operations are also divided into four major areas, including “Environmental and Ecological Conservation”, “Social Care”, “Policy and R&D” and “Environmental Accounting and Information”. In 2007, the level of the Committee was raised, with the chairperson serving as the Committee Chairperson, the president as the Committee Vice Chairperson, one of the vice presidents as the Executive Secretary, and the vice presidents and CEOs of the five major businesses as the members of the Committee. In addition, starting from August, 2008, external scholars and experts were appointed as Committee members. Three Sustainable Management Committee meetings are convened annually to report to the chairperson and all committee members the follow-ups of the items in the resolutions in the previous meeting, and reports and proposals from each group will be discussed to grasp the social context, promote sustainability issues and follow up the implementation status, aiming at stepping toward sustainable management. Three Sustainable Management Committee meetings were respectively held on April 25, August 29, and December 19 in 2017.



Photos taken at the 3rd Sustainable Management Committee meeting on December 19, 2017

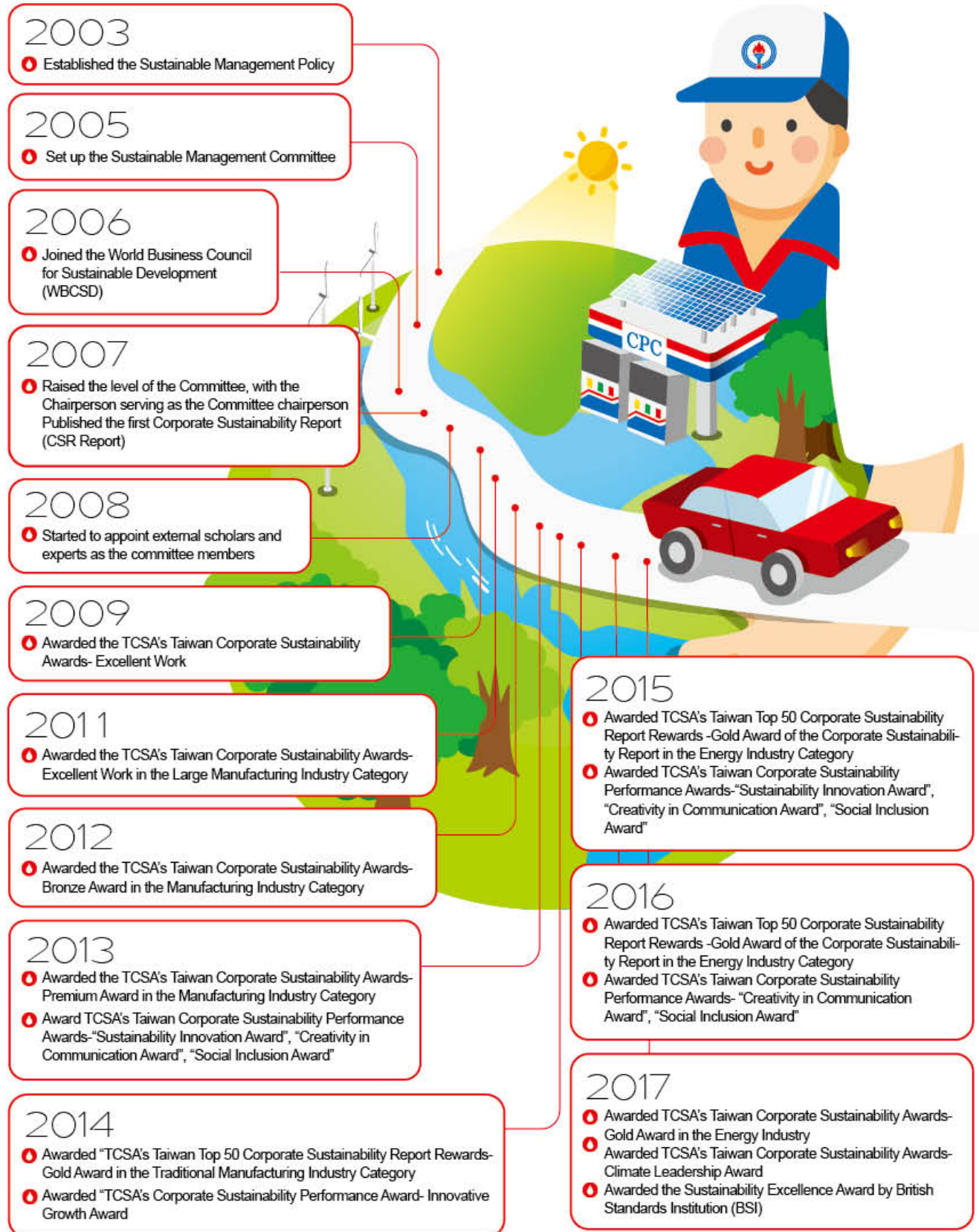


CPC's Sustainable Management Committee





CPC's Major Events in the Promotion of Sustainable Management





Practice of SDGs



Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development.
 17.14 Enhance policy coherence for sustainable development.

CPC joined the World Business Council for Sustainable Development (WBCSD), the most influential corporate alliance organization in 2006 to connect with the international communities and to fulfill our corporate social responsibility.

1.2 Stakeholder Engagement

1.2.1 Identification of and Communication with Stakeholders

CPC runs business to fulfill the promises we made to the stakeholders. We respect and maintain legal rights and interests of the stakeholders. We have many kinds of communication and grievance channels, and we adhere to the principles of honesty and respect to timely and positively handle each case.

Identification of Stakeholders

CPC's stakeholders are identified through internal discussions among executives in each department and with the reference to stakeholder groups identified by the same trade. CPC's stakeholders are identified based on the criteria of AA1000 Stakeholder Engagement Standards (AA 1000 SES) and can be classified into nine categories: (1) Stockholder(MOEA), (2) Government, (3) Elected Representatives, (4) Employees, (5) Clients and Customers, (6) Affiliated Partners, (7)Communities, (8) Non-profit and non-government organization (NPOs/NGOs), and (9) Media.

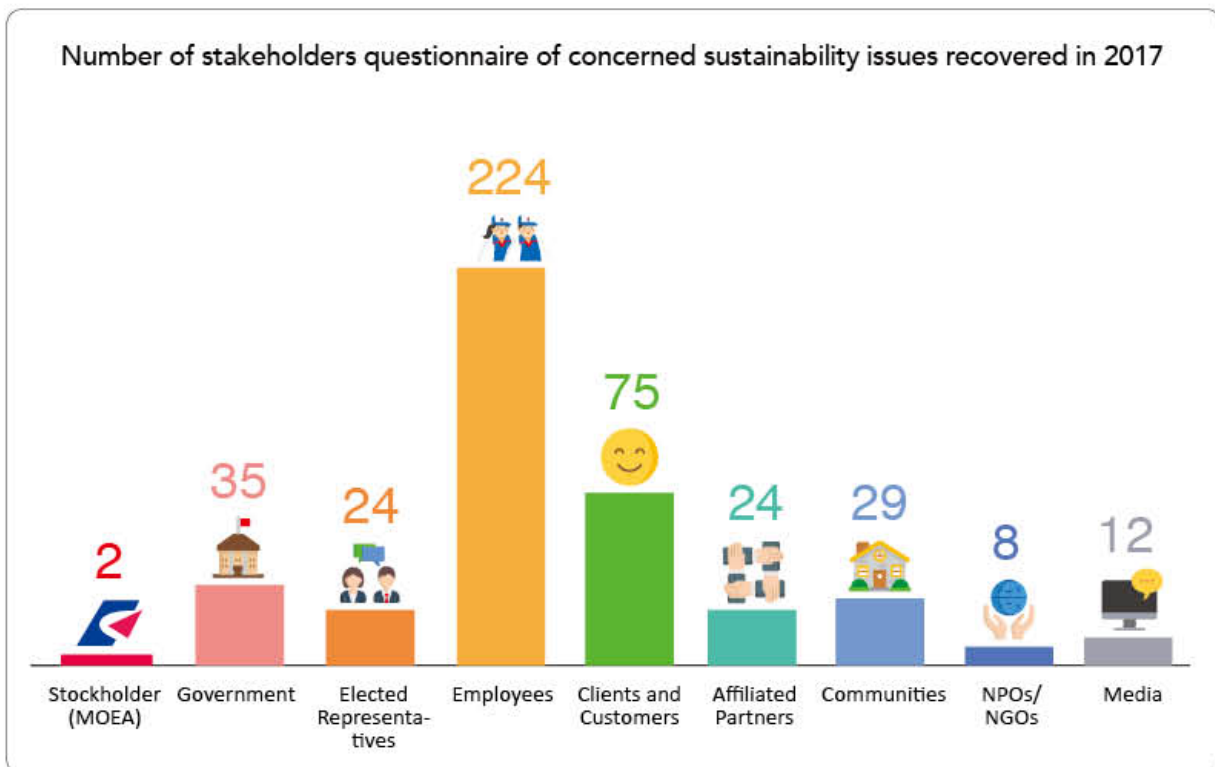
CPC's nine categories of stakeholders






Communication with Stakeholders

CPC understands the stakeholders' issues of concern through the establishment of multiple transparent and mutual communication channels and by analyzing the stakeholders' CSR questionnaire results to make prompt responses in an active and positive manner, and these data also serve as a reference for us to promote corporate social responsibility in the future. In 2017, CPC used the CSR stakeholders questionnaires to communicate with stakeholders in nine major categories, and 433 questionnaires were recovered and used for the identification of the major issues our stakeholders concern with.




Communication Channels with Stakeholders

Stakeholders	Topic of Concern	Communication Channels	Frequency
 Stockholder (MOEA)	Marketing and Labeling Effluents and Waste Socioeconomic Compliance Customer Privacy Customer Health and Safety Child Labor	CSR questionnaire survey, stockholder meeting or extraordinary stockholder meeting (According to the Company Act, the BOD is exercising the right on behalf of the stockholder meeting), participation in the public policy meeting, official documents	Yearly CSR questionnaire survey, at least 12 times of BOD meeting, and at least 12 times a year for others



Stakeholders	Topic of Concern	Communication Channels	Frequency
 Government	Emissions Effluents and Waste Environmental Compliance Emergency Prevention Involuntary resettlement Socioeconomic Compliance	CSR questionnaire survey, charity events, visits and subsidies (donations), participation in charity events and activities held by stakeholders, official documents, various communication meetings	Yearly CSR questionnaire survey, at least 12 times a year for others
 Elected Representatives	Effluents and Waste Customer Health and Safety Customer Privacy Local Communities Emergency Prevention Emissions	CSR questionnaire survey, project / program reports, on- site checking and inspection, coordination or negotiation meetings, personal visits, official documents, various communication meetings	Yearly CSR questionnaire survey, at least 12 times a year for others
 Employees	Emergency Prevention Labor/ Management Relations Involuntary resettlement Economic Performance Education and Training Occupational Health and Safety	CSR questionnaire survey, labor union representative in the Board, website special area and reporting hotlines, communication with the labor union, mail boxes of the chairperson and president, monthly publication of Oil Communication	Yearly CSR questionnaire survey, at least 30 times regularly or occasionally a year for others
 Clients and Customers	Emergency Prevention Involuntary resettlement Customer Privacy Effluents and Waste Socioeconomic Compliance Environmental Compliance	CSR questionnaire survey, customer service satisfaction survey, disclosure of the pricing mechanism and product service on the website, report the information of product quality, customer service hotline (1912 hotline)	Yearly CSR questionnaire survey, at least 1 time of customer service satisfaction survey, at least 10,000 times a year for others
 Affiliated Partners	Effluents and Waste Environmental Compliance Emissions Economic Performance Customer Health and Safety Water	CSR questionnaire survey, establishment of related management systems, meeting for contractors, meeting for suppliers	Yearly CSR questionnaire survey, at least 12 times regularly or occasionally a year for others
 Communities	Effluents and Waste Emissions Indirect Economic Impacts Customer Health and Safety Emergency Prevention Market Presence	CSR questionnaire survey, hold the good-neighborly activities, communities' communication meetings, and public service activities	Yearly CSR questionnaire survey, at least 12 times regularly or occasionally a year for others
 NPOs/ NGOs	Alternatives to Fossil Fuels Emergency Prevention Involuntary resettlement Customer Health and Safety Socioeconomic Compliance Emissions	CSR questionnaire survey, participation in external associations, participation in the symposiums or forums held by green groups, and listen to external voices and make good communications, irregularly invite green groups to attend the environmental or ecology seminars held by CPC.	Yearly CSR questionnaire survey, at least 12 times regularly or occasionally a year for others



Stakeholders	Topic of Concern	Communication Channels	Frequency
 Media	Emergency Prevention Effluents and Waste Emissions Involuntary resettlement Environmental Compliance Biodiversity	CSR questionnaire survey, through press releases and press conference to reply to media	Yearly CSR questionnaire survey, at least 30 times regularly or occasionally a year for others

Response Mechanism of Negative Information from Media

For negative information from media, CPC will immediately ask the supervisor of the responsible business unit for information and statement to set a consistent tone in the response. For other major issues that occur during non-business hours, the spokesperson of each unit and person in charge shall be reachable through their cell phones for immediate response of sudden events.

Immediately Responded Events in 2017

CPC also pays attention to negative reports from media or events the public is concerning or questioning. Through monitoring daily the public opinions, CPC will stand by the principles of "honestly facing, actively reviewing and aggressively examining and improving" and immediately respond to the report by press release. Related responses and replies will also be posted on the website. For details of immediately responded events in 2017, please refer to CPC's official website at <http://new.cpc.com.tw>.

CPC's supplementary explanation regarding the 815 power cut

Regarding the 815 power cut incident, CPC gave the following supplementary explanation to clear the doubts.

The on-site work is divided into routine and non-routine operations. For the operations by both the internal staff and by contractors, the head office of CPC has set up hazard identification and risk identification operation procedures in place, requiring all units to conduct assessment based on the extent of hazards and risks involved in their work. Standard Operation Procedures (SOPs) were also established for corresponding management measures. If the operation is of high complexity or if the risk is high, Work Instruction (WI) will be prepared for compliance to reduce potential hazards. The "LNG Operation Manual" of the Natural Gas Business Division sets forth the SOPs for the possible risks of gas transmission, gas supply, quality control, metering, operation and maintenance. It stipulates that when necessary operation changes and maintenance are carried out in the metering station, the control mode shall be changed to Local Control so that risks of gas supply interruption can be avoided. Therefore, no further work instructions concerning that have been established. In addition, considering the professionalism involved in the operations and construction, the contractors' contracts shall also require the establishment of SOPs for the contractors' maintenance operations.

CPC stresses that in order to respond to the increasing supply of LNG, the Natural Gas Business Division has to increase its manpower every year. The division was expanded last year to respond to the new Labor Standard Act and related management is strengthened. The Division will add about 150 additional staffs in 2018 to reinforce the safety of LNG storage and machine operation.



Communication Channels for Grievance

CPC takes the initiative to communicate and respond to the external world in a timely and reasonable manner through various channels, including media, website, trade union, related meetings and publication of Oil Communication. CPC's essential task is to work in line with national policies, and when that is different from what our stakeholders expect, we still work on a satisfactory plan to reduce disparities. In 2017 we received 200,187 inquiries, 2,464 proposals, 1,212 criticisms, 212 complaints and 669 others (including affirmation and recognition), with 204,744 cases in total. 96.9% cases were serviced and handled by the Customer Service Center and Customer Service Office immediately. Only 3.1% (6,352 cases) had to be referred to the units in charge for them to call (write) back to the customers, which averagely took 3-6 working days. Sometimes when it took a long time to handle the inquiry of the case or when the customers were unreachable, the processing time may exceed 6 working days. In 2017, there were 57 overdue cases, with the overdue rate of 0.03%. Among all the cases, 212 belonged to consumer disputes (customer complaints), and all such cases were not overdue and were all properly processed.

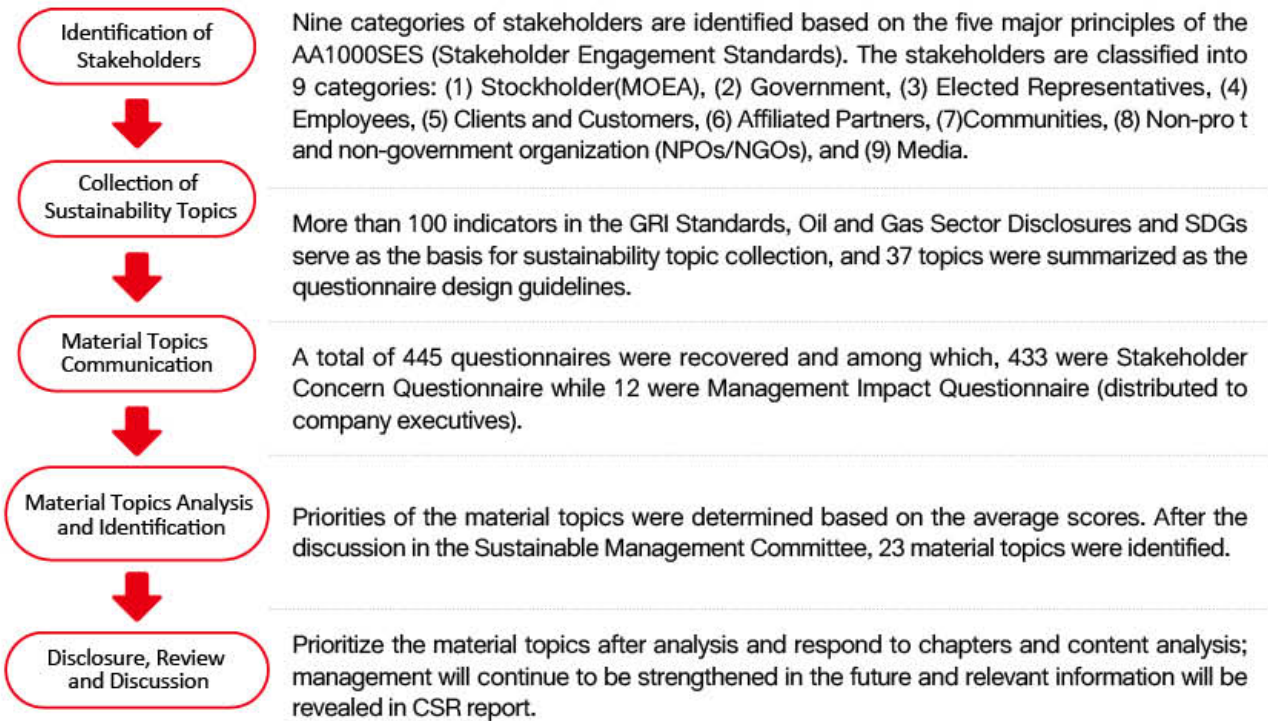
Communication Channels for Grievance	
Supervisor's Mailbox	It is for employees, shareholders and stakeholders to effectively communicate with supervisors. The mailbox can only be opened by supervisors and individual supervisor can decide the following action if needed.
Service Mailbox on the Website	The service mailbox is for the public, employees, shareholders and stakeholders to express their opinions, criticism and suggestions about the company business directly to the Chairperson, President, Ethics Office, and the competent business units.
Employee Grievance Handling Committee	Responsible for the counseling, communication, coordination and handling of employee grievance. Grievance Practices for CPC Staff is developed and CPC employees can propose claims concerning labor terms based on it.
Service Hotline	Service hotline and toll free number: 1912, 0800-036-188 (Toll free number provides 24 hours phone answering service and recording) Fax: (02)8789-9000
Social Network	CPC's FB page, CPC app

1.2.2 Material Topics Identification and Analysis

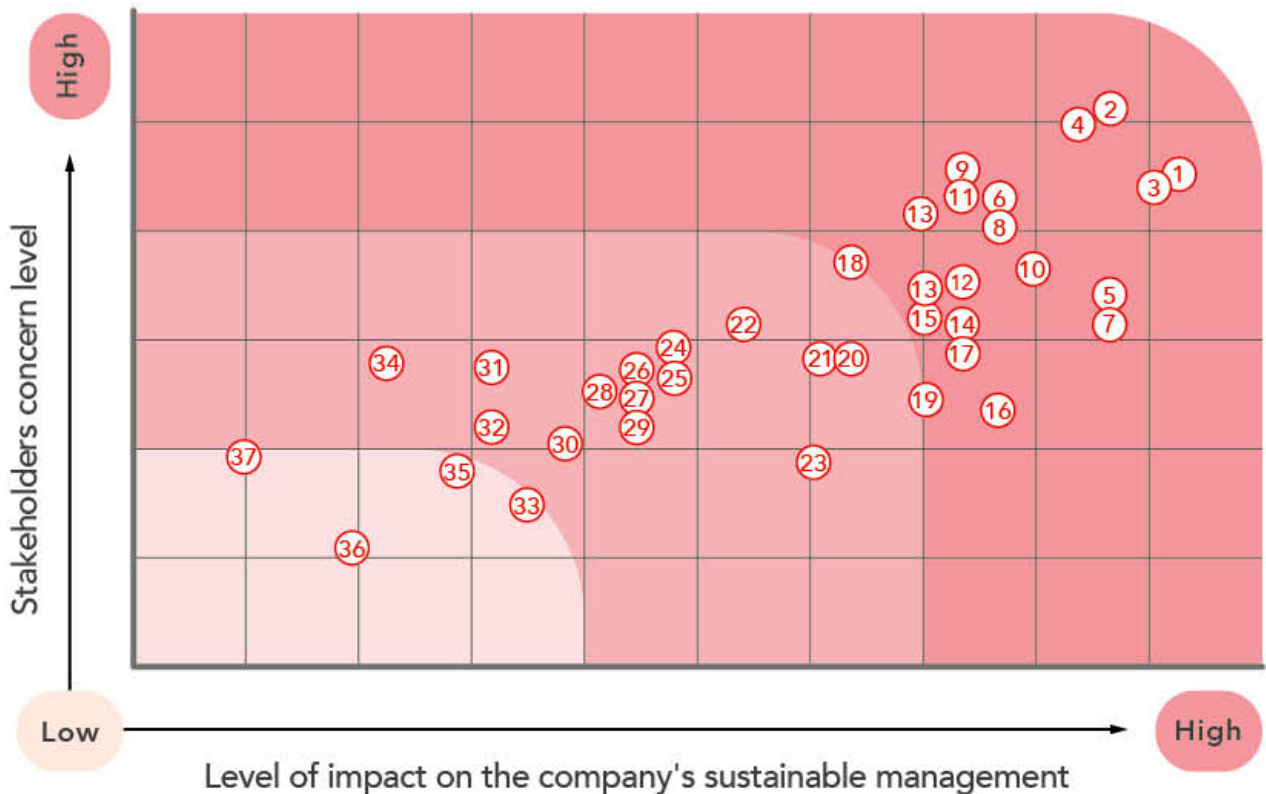
CPC introduces material analysis into its CSR Report in a hope to identify material issues the stakeholders concern with and those brought by sustainability through systemic analysis as a reference basis for information disclosure in this Report so that we can make effective communication with our stakeholders to continuously improve the operational sustainability performance.



Management Procedure of Material Topics



2017 Matrix of Materiality





2017 Material topic

1 Emissions	6 Environmental Compliance	11 Energy	16 Anti-corruption	21 Employment and Labor Relations
2 Effluents and Waste	7 Assets Integrity and Safety Drills	12 Indirect Economic Impacts	17 Customer Privacy	22 Anti-competitive Behavior
3 Customer Health and Safety	8 Alternatives to Fossil Fuels	13 Biodiversity	18 Education and Training	23 Materials
4 Emergency Prevention	9 Marketing and Labeling	14 Water	19 Labor/ Management Relations	
5 Local Communities	10 Socioeconomic Compliance	15 Occupational Health and Safety	20 Economic Performance	

2017 Sub-Topics

24 Involuntary Resettlement	27 Non- discrimination	30 Employee Diversity and Equal Opportunity	33 Security Practices	36 Procurement Practices
25 Supplier Environmental Assessment	28 Human Rights Assessment	31 Forced and Compulsory Labor	34 Child Labor	37 Public Policy
26 Supplier Social Assessment	29 Freedom of Association and Collective Bargaining	32 Indigenous Rights	35 Market Presence	

2017 Order of Material Topics and Determination of Border

Order	Material Topics	Within the Organization	Outside the Organization	Chapter and Section of Management Approach
1	Emissions	CPC	Communities	3.1 Sustainable Management Policy for Environmental Harmony
2	Effluents and Waste	CPC	Communities	3.1 Sustainable Management Policy for Environmental Harmony
3	Customer Health and Safety	CPC	Customers	5.1 Sustainable Management Policy for a Friendly Society
4	Emergency Prevention	CPC	Communities, Affiliated Partners	4.1 Sustainable Management Policy for a Happy Workplace
5	Local Communities	CPC	Communities	5.1 Sustainable Management Policy for a Friendly Society
6	Environmental Compliance	CPC	Affiliated Partners	3.1 Sustainable Management Policy for Environmental Harmony



2017 Order of Material Topics and Determination of Border				
Order	Material Topics	Within the Organization	Outside the Organization	Chapter and Section of Management Approach
7	Assets Integrity and Safety Drills	CPC	Communities, Affiliated Partners	4.1 Sustainable Management Policy for a Happy Workplace
8	Alternatives to Fossil Fuels	CPC	Customers	3.1 Sustainable Management Policy for Environmental Harmony
9	Marketing and Labeling	CPC	Customers	5.1 Sustainable Management Policy for a Friendly Society
10	Socioeconomic Compliance	CPC	Affiliated Partners	2.1 Sustainable Management Policy for Managing by Accountability
11	Energy	CPC	-	3.1 Sustainable Management Policy for Environmental Harmony
12	Indirect Economic Impacts	CPC	Communities	2.1 Sustainable Management Policy for Managing by Accountability
13	Biodiversity	CPC	Communities	3.1 Sustainable Management Policy for Environmental Harmony
14	Water	CPC	-	3.1 Sustainable Management Policy for Environmental Harmony
15	Occupational Health and Safety	CPC	Affiliated Partners	4.1 Sustainable Management Policy for a Happy Workplace
16	Anti-corruption	CPC	Affiliated Partners	2.1 Sustainable Management Policy for Managing by Accountability
17	Customer Privacy	CPC	Customers	5.1 Sustainable Management Policy for a Friendly Society
18	Education and Training	CPC	-	4.1 Sustainable Management Policy for a Happy Workplace
19	Labor/ Management Relations	CPC	Affiliated Partners	4.1 Sustainable Management Policy for a Happy Workplace
20	Economic Performance	CPC	-	2.1 Sustainable Management Policy for Managing by Accountability
21	Employment and Labor Relations	CPC	-	4.1 Sustainable Management Policy for a Happy Workplace
22	Anti-competitive Behavior	CPC	Customers	2.1 Sustainable Management Policy for Managing by Accountability
23	Materials	CPC	-	3.1 Sustainable Management Policy for Environmental Harmony



2.

Integrity, Innovation, Quality Accountability Management

- 2.1 Sustainable Management Approach for Managing by Accountability
- 2.2 CPC Current Status
- 2.3 Corporate Governance
- 2.4 Operational Achievement
- 2.5 Cooperate in Coordination of National Policies

2017

Sustainable Management Performance



Integrity Seminar on Procurement Risk

We conducted two sessions of Integrity Seminar on Procurement Risk in 2017 and invited a public prosecutor of the District Prosecutors Office or the Agency Against Corruption to be the keynote speaker. The Procurement Department and Department of Civil Service Ethics also made special reports on procurement business and integrity risk, and two-way exchange of opinions between the manufacturers and our employees was arranged. The total number of participants was 234 (including employees and manufacturers).



Solar PV systems

In 2017, CPC had the contractors for the installment of 120 solar PV system, and it is expected to set up 50 more solar PV systems in our gas stations in 2018. When completed (including the 9 self-built ones, the total number will be 179 gas stations with the solar PV system), the estimated annual total generating capacity is approximately 6 million kwh.



Purchased Green Power

In 2017, CPC purchased 8 million kwh, the highest among all state-owned enterprises. (the Green Power Certification No. 1061001570).



Anti-corruption education and Advocacy activities

In 2017, CPC held a total of 185 anti-corruption education and advocacy activities (including 35 large-scale campaigns), with over 10,000 participants. We also held 7 sessions of advocacy activities on “seeking profits while providing convenience to the public” and “newly recruited public servants” (in which 487 employees participated).



Set up charging/ battery exchange stations

CPC positively cooperates with the government policy in the planning of future deployment, and a total of 1,000 charging/battery exchange centers will be set up in a time span of 3 years from 2018.



Convenient Oil

Among the 2,490 gas stations nationwide, 615 are CPC-owned gas stations and 1,371 are franchised gas stations, with a total of 1,986 gas stations as of the end of December, 2017.



Issuing Green bonds

In 2017, CPC issued NTD 2.8 billion of 10-year green bonds, making it the first domestic production enterprise issuing green bonds.



Market share of Oil products

As of the end of December, 2017, the domestic market share of oil products reached more than 80%.



the Directors and Supervisors of Refresher course

In 2017, a total of 11 board meetings were convened. The directors and supervisors of CPC attended training courses on the regular basis and the total number of training hours in 2017 was 126 hours.



R&D achievements

In 2017, a total 31 patents were acquired, an increase of 3 patents compared with 2016; 302 papers were published, an increase of 10 articles compared with 2016; 117 new technologies were introduced, increased by 8 compared with 2016.



Revenue growth

The revenue of CPC in 2017 amounted to NTD 896.6 billion, a 17.3% increase compared with 2016.



Net Profit growth

The profit before tax reached NTD 48.5 billion, a 37% increase compared with 2016.



Financial contribution

The financial contributions to the government in 2017 amounted to NTD 126.4 billion, a 5.6% increase compared with 2016.



Fitch Ratings

Evaluation result from Fitch Ratings Taiwan in 2017: Domestic Long-Term Rating: AAA (tw), outlook stable; Long-Term Foreign Currency Issuer Default Rating (IDR): AA-, outlook stable.



Research and development effectiveness

In 2017, the initial estimate of the benefit generated by R&D is NT\$3.931 billion, an increase of 6.27% compared with 2016.



2.1 Sustainable Management Approach for Managing by Accountability

Related material topics Economic Performance, Indirect Economic Impacts, Anti-corruption, Anti-competitive Behavior, Socioeconomic Compliance

The importance and purpose of accountability management in sustainable management

CPC, as a state-owned enterprise, shoulders the mission of stabilizing energy supply, providing diversified services and pursuing sustainable development. The construction of mining facilities and factories has brought a lot of job opportunities and resources, having significant impact on local development. Sound corporate governance and continuous strong management have not only laid the cornerstone of CPC's sustainable development but also served as the requirements for CPC to fulfill its corporate social responsibility.

Management Strategies

- ④ To comply with government regulations and abide by international conventions.
- ④ To actively conduct research and development to create new business fields.
- ④ To develop joint-venture exploration project to establish self-sourced hydrocarbon resources.
- ④ To diversify energy sources to ensure stable supply.
- ④ To propel refining-chemical integration and develop high value-added products.
- ④ To make the most of the brand value and expand diversified businesses.
- ④ To integrate the storage and transportation of production and sales to drive business opportunities.
- ④ To be devoted to innovation, research and development for the pursuit of sustainable development.

Commitments and goals

Short-term Goals

- ④ To comply with the laws and regulations and improve the corporate governance structure.
- ④ To disclose information with honesty and enhance information transparency.
- ④ Reaching the annual budget target approved by the Legislative Yuan.
- ④ To comply with the policy of "Reinforcement of Gasoline Market Supply Security", we have a diverse crude oil sources policy with long and short-term contracts. We also actively seek domestic and foreign exploration and merger & acquisition opportunities to increase the proportion of our self-owned oil sources to ensure stable supply of domestic oil products.
- ④ To comply with the policy of "Stabilizing Commodity Prices for a Robust Market Mechanism and for the Promotion of Rationalization of Energy Prices", we implement the "users charge" principle so that the prices can reasonably reflect the operating costs that can increase incentives for energy conservation.

Medium-and Long-term Goals

- ④ To move toward a comprehensive international energy group with high tech competitiveness covering business of exploration, oil and gas and petrochemicals to operate as a high-quality energy company with sustainable development.
- ④ To comply with the policy of "Transformation of Petrochemical Industry and Circular Economy" and continue cooperation among the government, academia and industry to fully foster new talents in the fields, we work on reaching the goal of "high value and low carbon" in petrochemical industry. Moreover, we also actively develop the relevant technology of circular economy, taking into account of both the economic development and environmental protection.
- ④ To comply with the policy of "Promoting Clean Energy and Expanding the Use of Natural Gas", we accelerate the construction of the third LNG receiving terminal, expand and diversify sources of imported natural gas and work on the construction of natural gas storage tanks and pipelines, actively working on the expansion of natural gas application.
- ④ To comply with the policy of "Strengthening Energy Conservation and Improvement of Energy Efficiency", we introduce advanced energy technology and implement equipment maintenance and replacement of old equipment, continue the spontaneous inspection and improvement mechanisms to enhance energy efficiency.



Commitments and goals

Short-term Goals

Medium-and Long-term Goals

- ① To comply with the policy of "Promoting Enterprise Management of State-owned Enterprises and Enhancing Service Quality", we use customer-oriented management to provide high-quality products and fine services to improve customer satisfaction and maintain excellent corporate image.
- ① To comply with the policy of "Implementation of Occupational Safety and Health System" and "Improvement of Occupational Injury Prevention, Protection and Laborer Reconstruction", we implement standard operating procedures for implementation and inspections to prevent accidents from happening, continue to strengthen the industrial safety and environmental education and training for relevant drills so as to maintain work and environmental safety.

Responsible Units

CPC's Sustainable Management Committee
 Policies, Research & Development
 Department of Planning
 Department of Company Ethics
 Legal Affairs Office

Introduced management system

CPC sets up and implements the internal control and audit mechanism as prescribed, discloses its financial reports within the prescribed time limit, regularly compiles and publishes its Sustainability Report to the public, provides the overview of the operational profile and performance review reports to the State-owned Enterprise Commission, MOEA, and reports its annual performance and related review reports to the Executive Yuan.

Review and evaluation mechanism

- ① As prescribed in Article 17 of CPC's Articles of Incorporation, the "deliberation on the business policy" is within the power of the BOD. Therefore, the Company's business strategy and other general strategic directions are in the charge of the responsible units in accordance with the Company's hierarchy; the future business strategies, the Company's annual business planning, the Company's annual operational planning, the annual foreign oil exploration planning, the report of feasibility study on the investment business, the signing of the joint venture contract and the formulation of the Company's major business strategies must be approved by the BOD (or transferred to a higher authority).
- ① The Sustainable Management Committee is convened three times a year to discuss the reports and proposals of each group.

Practices of SDGs



Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors.

To comply with the government's guiding policy of "Concentrating on high value-added products with mass production globally", we promote the transformation and upgrading of the petrochemical industry, focusing on the development of high-value added products. The Company invests in the establishment of pilot production equipment and the linkage of the raw material chain with the product verification, certification, development and mass production of the downstream products to accelerate the innovative application of terminal industry and the schedule of product commercialization. In addition, in response to the globally emerging circular economy model, CPC promotes the use of low-pollution, low-carbon cycle and green innovative chemical materials, integrating the cross-disciplinary and cross-industry technology and verification requirements for domestic new materials. In addition, the main development focuses on the key materials needed by Taiwan's advantageous industries to gradually implement the policy goal of a high-value added petrochemical industry.



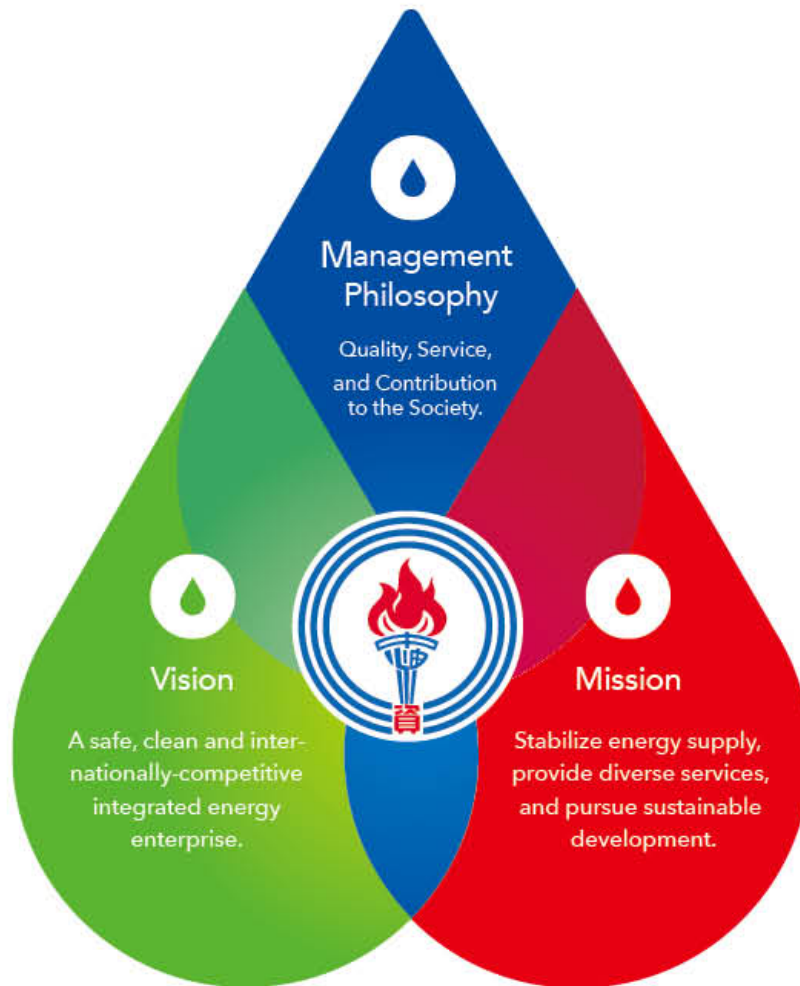
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

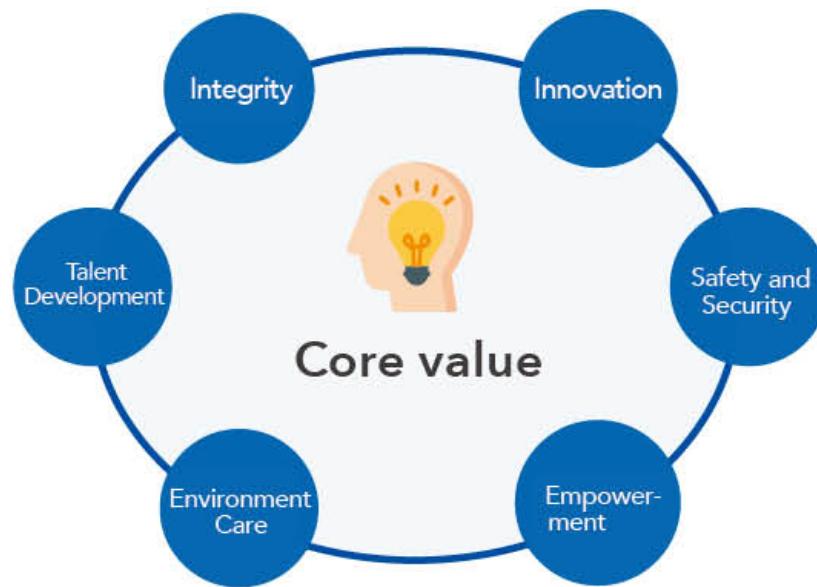
16.5 Substantially reduce corruption and bribery in all their forms.

In order to reach a consensus on anti-corruption with the vendors and to promote open and transparent procurement administration, CPC conducted two sessions of Integrity Seminar on Procurement Risk and invited a public prosecutor of the District Prosecutors Office or the Agency Against Corruption to be the keynote speaker, and two-way exchange of opinions between the manufacturers and our employees was arranged in the seminar. The total number of participants was 234 (including employees and manufacturers). It is hoped that the seminar can help the Procurement Department to review the hidden defects of the procurement operations, understand the crux of the problem and the lawlessness so as to brainstorm and explore specific corresponding movement or corrective measures. There were enthusiastic responses and interaction in the seminars which would help enhance the overall procurement probity of CPC.

2.2 CPC Current Status

2.2.1 Objectives and Visions





The management and core values of CPC have always been to adhere to the unwavering commitment and giving all CPC staff guidance to attain goals and achieve missions.

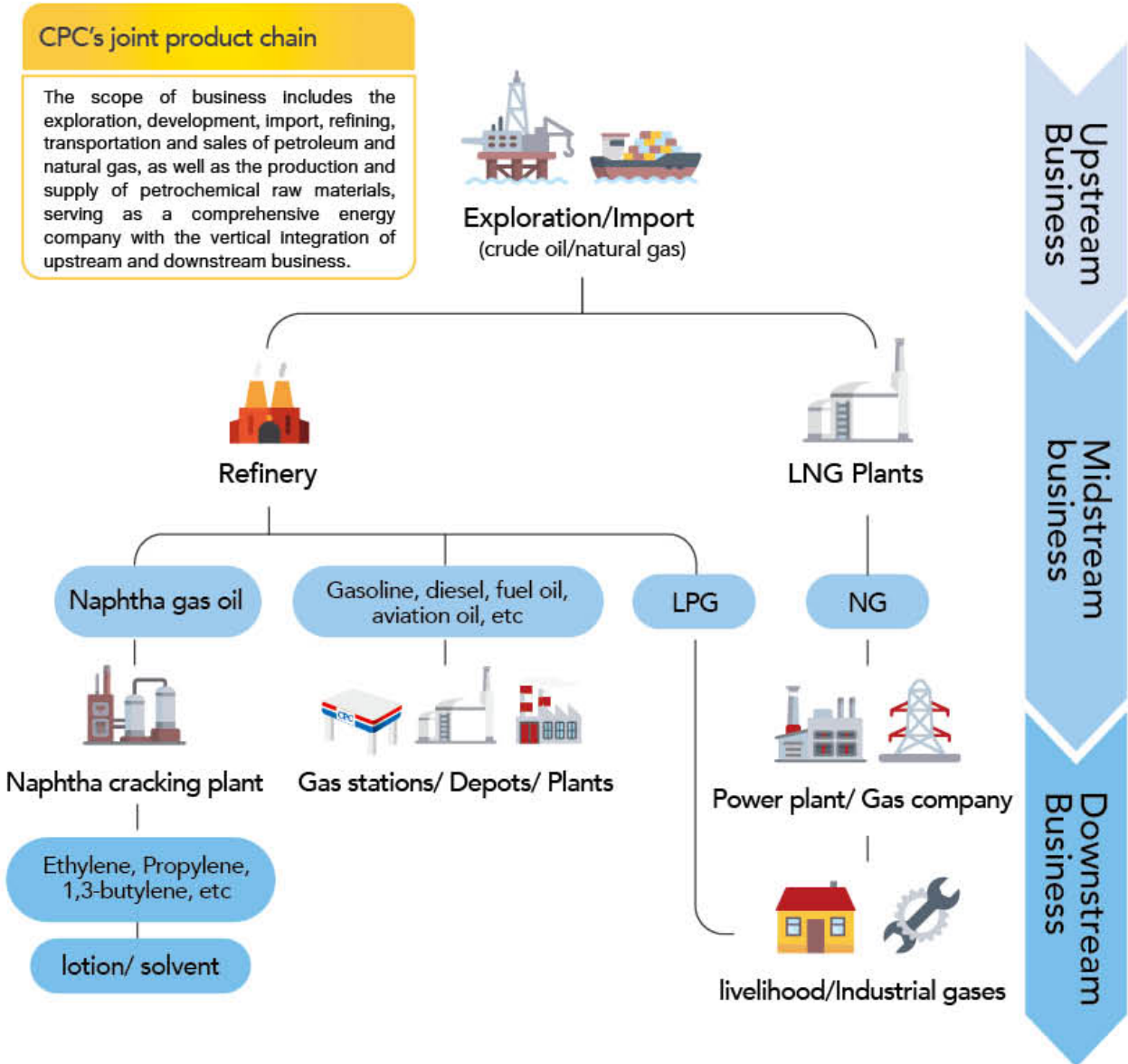
2.2.2 About CPC

CPC has been established for 72 years as of 2018, and the main scope of business includes the import and export, exploration, development, refining, storage and transportation and sales of oil and gas, as well as the production and supply of petrochemical materials, and the business facilities are distributed throughout Taiwan. In addition to enhancing the business performance, CPC also shoulders the arduous task to fully supply and develop national energy while striving to create the win-win-win situation of “environmental protection, economic development and social care”. CPC not only aims to be a comprehensive international energy group with high tech competitiveness covering business in exploration, oil, gas and petrochemicals but also to be an international enterprise setting a great example of fulfilling its corporate social responsibility.

Company Basic Information

Company Name	CPC Corporation, Taiwan
Date of Establishment	June 1, 1946
Ownership	State-owned enterprise (MOEA 100%)
Capital	NTD 130.1 billion
Revenue	NTD 896.6 billion, 2017
Chairperson	Tai Chien
President	Lee Shun-chin
Number of Employees	14,806 (2017/12/31)
HQ	No.2, Tso-Nan Rd., Nan-Tzu District, Kaohsiung City 811, Taiwan(R.O.C)

Major Brands, Business, and Products



Main products and services of each division

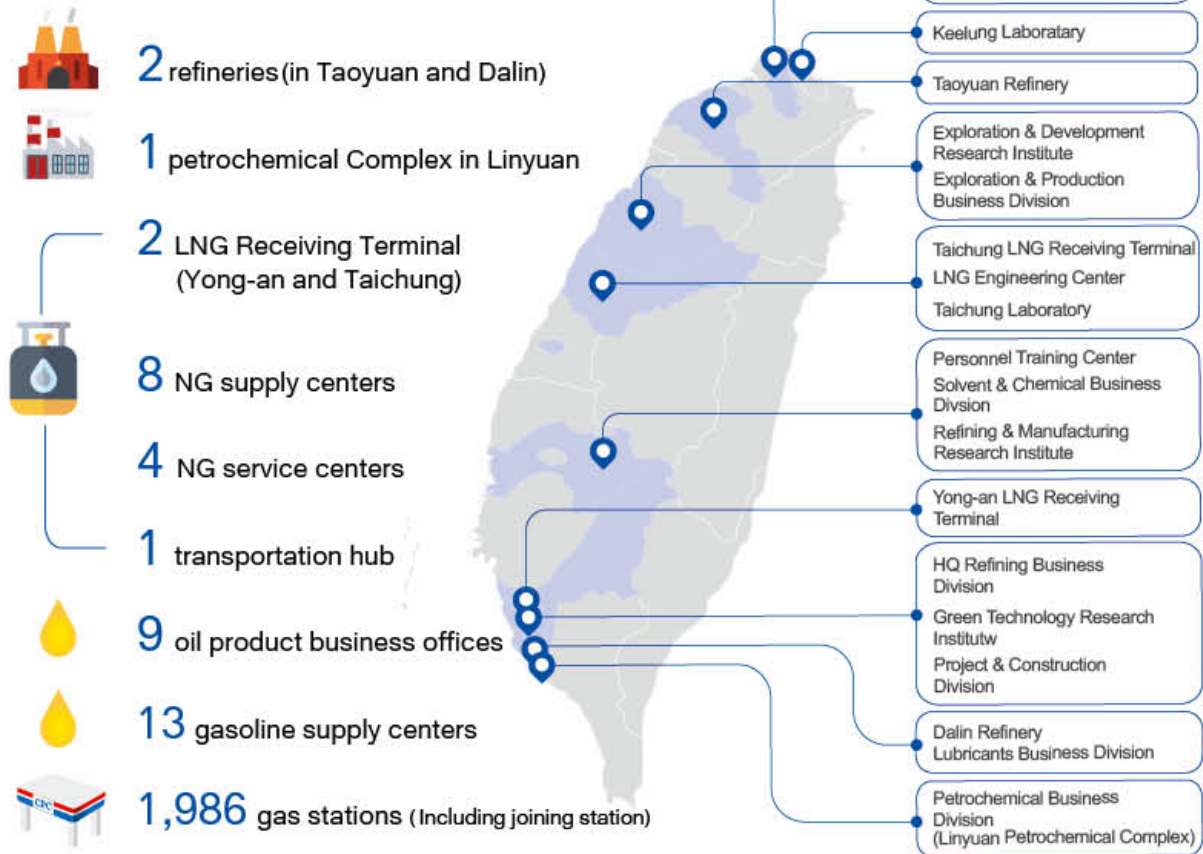
Exploration & Production Business Division	Exploration and development of oil and gas and geothermal resources of Taiwan's land area and sea areas as well as the foreign oil and gas resources and related engineering business.	Natural Gas Business Division	Operations of the import, gasification, storage and transport of natural gas as well as the distribution of self-produced gas.
Refining Business Division	Oil refine.	LPG Business Division	Sales and supply of propane, butane, LPG and related products.
Petrochemical Business Division	Operation of the production, storage and transport and sales of petrochemical products.	Solvent & Chemical Business Division	The production and sale of by-products such as solvents, asphalt, sulfur, petroleum coke and other special chemicals.
Marketing Business Division	Operation of the production, storage and transport and sales of petrochemical products.	Lubricants Business Division	Operations of the production, storage and transport and sales of lubricants.

Note: For detailed information of CPC's products and services, please visit CPC's official website at <https://new.cpc.com.tw/product/>.



2.2.3 Operation Locations

Major Operation Locations in Taiwan

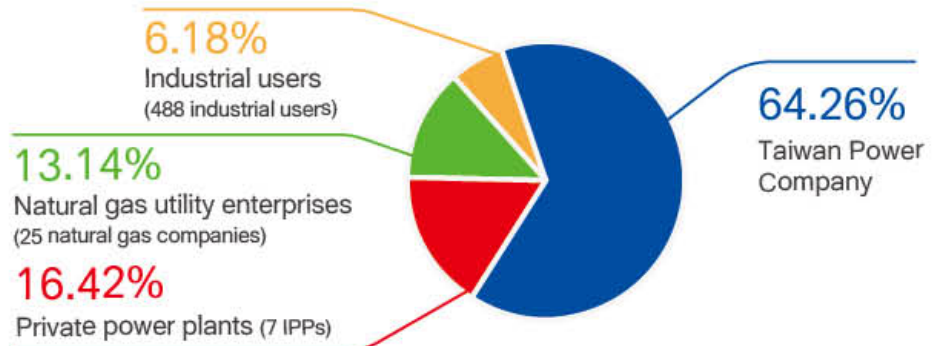


Currently CPC provides three categories of natural gas, including natural gas utilities, industrial natural gas and natural gas for electricity.

Power generation: Taiwan Power Company (5 power plants) and IPP (7 power plants), with a total of 12 power plant users.

Industrial users: 448 users in Steel Industry, Petrochemical Industry, Steam and Electricity Paragenesis and Electronic Industry.

Natural gas utilities (natural gas company): A total of 25 natural gas companies in the Greater Taipei Area, with 3.629 million of household users (including CPC-owned gas company).





CPC's Global Operation Locations

In 2017, the amount of oil products of about 30,000 hundred kiloliter is mainly sold to Southeast Asia such as Singapore, Indonesia, the Philippines and Malaysia while a small number is sold to mainland China, South Korea, Australia, Papua New Guinea and United Arab Emirates.



2.3 Corporate Governance

Corporate Governance and Integrity Management Principles

Corporate governance structure	Performance and results
The rationality of state ownership	The Company's special responsibilities and obligations to be fulfilled in order to achieve the social and public policy objectives are authorized and promoted in accordance with the law or the instructions of the competent authority and have been disclosed in the shareholders' annual report and our official website.
The government plays the role of all parties involved	<ol style="list-style-type: none"> 1. The company is 100% owned by the government and the members of the Board of Directors (BOD) are appointed by the MOEA to exercise the right to vote in the shareholders' meeting. 2. CPC provides monthly business briefing and performance review reports to State Enterprise Commission, MOEA and submits the performance and related review reports to the Executive Yuan each year.



Corporate governance structure	Performance and results
The role of state business in the market and fair competition	<ol style="list-style-type: none"> 1.CPC is committed to providing the convenience of use of gasoline and diesel for all the people in Taiwan (including the gas stations set in the backcountry which cannot be profitable). 2.The gasoline and diesel CPC sells competes with that of Formosa Petrochemical Corporation. The price of its gasoline and diesel is made based on the floating pricing mechanism approved by the government per week, while private gas station companies can set their own retail price, so that the market can maintain a healthy competition. 3.Because of the government policy, CPC has to play the role to make domestic prices of gasoline and diesel stable.
Fair treatment of shareholders and other investors	<ol style="list-style-type: none"> 1.CPC has developed and exposed relevant self-regulatory rules to prohibit insiders from using internal information to make profits. 2.CPC has developed the relevant specifications for obtaining or disposing of assets, lending of capitals or endorsements and guarantees.
Relationship with stakeholders and responsible business	<ol style="list-style-type: none"> 1.The Company actively promotes its social responsibility policy and regularly publishes the Corporate Sustainability Report. The relevant information and promotion results are disclosed in the CSR section on the Company's website. 2.The fairness of the employment, welfare and retirement system, working environment and safety of employees is implemented in accordance with the law and are appropriately disclosed. There are appropriate norms and mechanisms for the event of employees' illegal misconducts, improper business management and employee grievance. 3.CPC holds monthly reviews and improves environmental penalties and develops specific measures to reduce the negative effects of pollution on the environment.
Information transparency and information disclosure	<ol style="list-style-type: none"> 1.The Company shall disclose the financial report publicly within the prescribed time. The annual report of shareholders' meeting also discloses the duties, experience, part-time jobs, operation profile and remuneration of the directors, supervisors and senior executives and the relevant amount and nature of the relevant certified public accountants. 2.The Company regularly discloses the relevant regulations and important information of corporate governance on the Corporate Governance Section on the Company's website, such as the relevant meeting information of the BOD.
Responsibility of the board of directors of state - owned business	<ol style="list-style-type: none"> 1. There are 13 members of the BOD of CPC (including 1 female director). The directors specialize in chemical engineering, mechanical engineering, environmental engineering, law, business management and finance. In addition, there are three supervisors, including one female supervisor (one of whom is specialized in financial accounting). 2. In this current year, directors and supervisors have participated in the training courses for the directors and the supervisors held by institutions such as Taiwan Corporate Governance Association, Securities and Futures Institute, Chinese National Association of Industry and Commerce, Taiwan. 3. The average attendance rate of all directors is above 75%.
Internal control and audit system	<p>CPC has set up and implemented the internal control and audit system according to law (including the regular training of the inspectors required by law, the inspector general is appointed with the approval by the board of directors). The results of the audit are regularly reported by the inspector general at the supervisors' meeting and the meeting of the board of directors.</p>
Accounting system	<ol style="list-style-type: none"> 1.CPC assesses the independence and suitability of the appointed accountants annually and the appointment of the accountants is also approved by the BOD. 2.The accountants shall communicate financial statements with the supervisors on a regular basis to check the plan and the opinions and attend the meetings of the board of directors and supervisors to answer questions by the independent directors and supervisors with respect to the results of the audit report of the accountants.

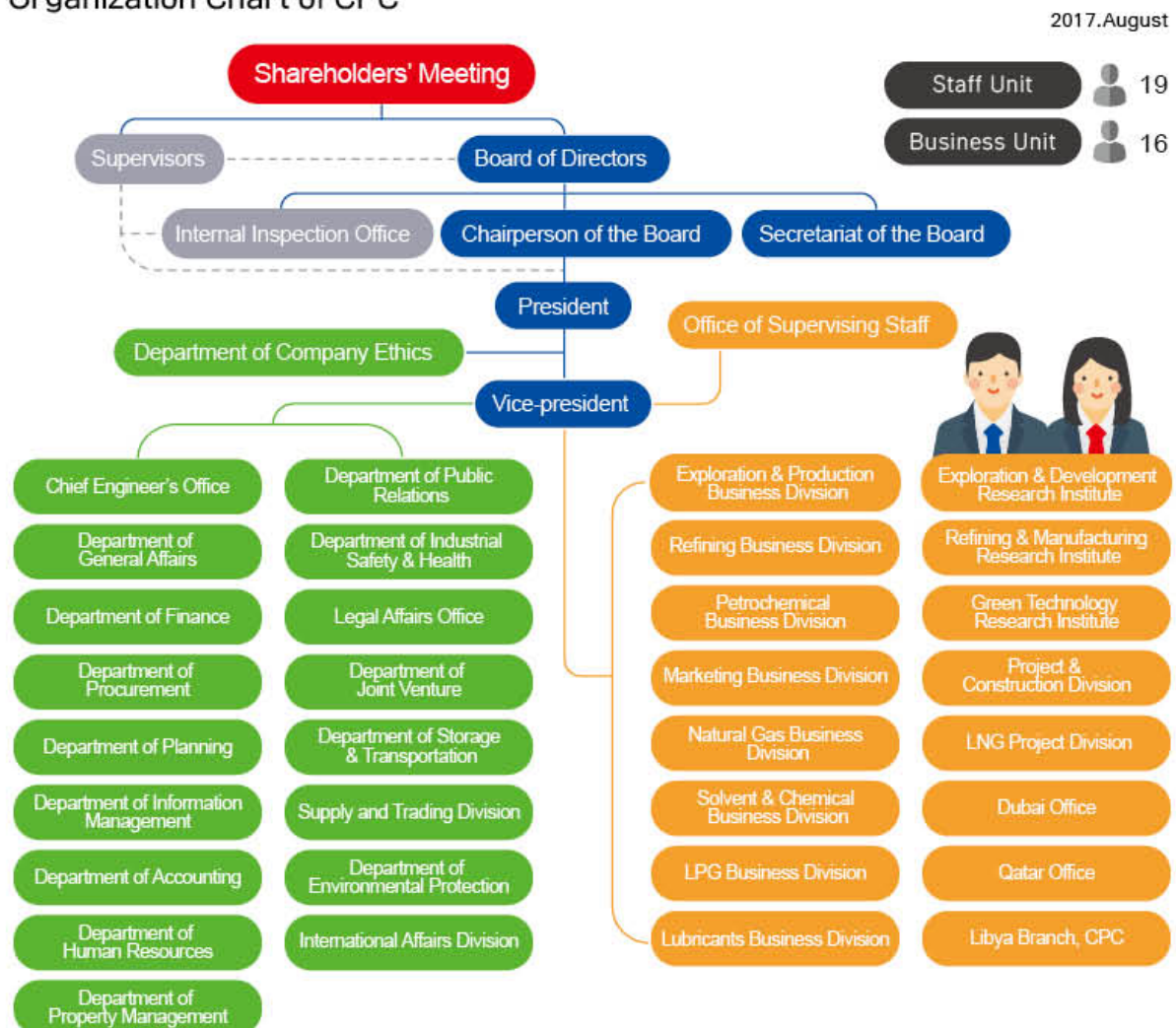


2.3.1 Corporate Governance Structure

Operations of the Board of Directors

The supreme governance unit of CPC is the Board of Directors, which looks over major business strategies and operating reports by each department, reviews the progress of the implementation of business strategies, assesses the performance of the operating teams to ensure the continuing growth of the company and meet the market demands. In order to fulfill its supervisory responsibility and to improve the efficiency and quality of proposals of CPC's BOD, the Procurement committee, Business Plan committee and Exploration committee were set up under BOD to overview CPC's strategic plans, major exploration and procurement projects before the board meeting and provide opinions to the BOD for reference. In 2017, 35 important strategic plans, exploration as well as procurement plans were made. The chairperson and president supervise the Sustainable Management Committee to set up and follow-up of strategies, plans and execution. The management team regularly reports to the BOD regarding the annual implementation of CSR relevant items, including risk and opportunity assessment, compliance with international standards and ethical practices.

Organization Chart of CPC





Composition of Board of Directors

The BOD of CPC consists of 13 directors and 3 supervisors (the age distribution of directors and supervisors is as follows: 1 person in range of 41~50 years old, 6 persons in 51~60, 9 persons in 61~70), all are appointed by the sole shareholder of MOEA (100% ownership), with a term of 2 years (the 32nd session is from June 12, 2017 to June 11, 2019). The chairperson and president are the executive directors, and there are 2 independent directors. The directors and supervisors of CPC are outstanding in professional competence, social experience and ethical standards and also have the professional competence, work experience or being a professor in the relevant discipline required by the business of the company. The directors and supervisors provide excellent guidance and counseling for operation, technique and finance and account for the company's strategy, operation and supervision. The meeting of the BOD is held monthly and a total of 11, and four temporary board meetings were held in 2017. The directors and supervisors of the company attend the relevant courses on a regular basis. The total number of training courses in 2017 is 126 hours. For details, please refer to CPC's 2017 Annual Report of Shareholders' Meeting.

Evaluation of the Board of Directors

The Ministry of Economic Affairs (MOEA) has set the "Management Points of Appointment of Directors, Supervisors and other Important Positions of MOEA and any of its Affiliates" to strengthen the assignment, management and the assessment of the directors, supervisors and other important positions of its affiliates. The assessment results shall serve as a reference for continuing appointment.

In addition, to implement corporate governance, to enhance the functions of the BOD and to set up performance goals to strengthen the efficiency of BOD, CPC specifically referred to the Corporate Governance Best Practice Principles for TWSE/TPEX Listed Companies and established the Performance Evaluation on Board Performance of CPC. The board performance of the current year is evaluated based on the prescribed assessment process and indicators at the end of each year. The evaluation results are reported to the BOD and are also disclosed on the website of CPC. In the future, the BOD will appoint a professional organization in charge of the assessment if necessary.

Procedures of Negotiation between the Board and Stakeholders

1. CPC sets "The List of Work Items that should be reported to the Board", which states clearly the authorization and responsibility between the Board and management team. The progress reports are made in light of the BOD resolutions for reference. When the BOD resolutions are unfeasible in implementation or call for adjustment, the management team should report to the Board for adjustment approval.
2. CPC has set "Operating Guidelines for Reporting Major Events to the Board and Supervisors", which includes category of major events, routine communications, and definition as well as the reporting process of unexpected major events.



2017 Major Consultation Events Authorized by the Board	
(1)	Approved the signing of the Agreement on Construction Commission between CPC and the Port of Kaohsiung, Taiwan International Ports Corporation, Ltd. and the payment of the construction handling fees.
(2)	Approved to terminate the land right contract of the Fengbito Section Land in Xiaogang District, Kaohsiung City signed between CPC and Taiwan Advanced Materials Co. through matters not attributable to both parties.
(3)	Approved the 2-year pollution improvement work for the soil pollution and the groundwater pollution control site outside the East Gate of Kaohsiung Refinery by the Refining Business Division and the compensation for the pollution damage and losses for tenants over the pollution dispute.
(4)	Approved to donate the balanced project funds of the four road projects in Linyuan Area and part of the unspent expenses to Kaohsiung City Government for its 7 additional projects, and the balance should be repaid.
(5)	Approved to lend part of the land in the oil plant in Nantzu District in Kaohsiung City to the City Government as the temporary parking area for the Oil Refinery Elementary Station (R18) of the Kaohsiung MRT for three years.
(6)	Approved to make compensation to the land owner for the losses occurred between July 1, 2003 and December 31, 2015 due to the contamination of land in the Linyaliao Storage Tank and Distribution Center at the rear of the 18-20 Pier of Kaohsiung Harbor.

Avoiding Conflicts of Interest

In Article 29, Norms of Board Meetings, in Corporate Governance Best-Practice Principles, it is stipulated that "For CPC directors, when they or the legal persons they represent encounter a conflict of interest, it shall be reported to the BOD. Individuals whose interests could run counter to the interest of the company shall present their views and answer questions and recuse themselves from discussing and voting on related issues, and shall not exercise that right to vote on behalf of other directors. In addition, if the cases reported to the BOD involve related-party transactions and members of the board, remarks should be given in the proposal as a reminder to avoid conflicts of interest." For the four cases concerning directors' avoiding conflicts of interest in 2017, please refer to CPC's 2017 Annual Report of Shareholders' Meeting.

Authentic Internal Audit

CPC respects the professionalism and independence of the Audit Office and the internal audit staff and fully authorizes the audits of regular and special projects. The auditing mechanism is as follows.

CPC's Auditing Mechanism	
Internal Audit	<ul style="list-style-type: none"> Set up the Audit Office that directly reports to the Board, and establish annual internal audit plan based on the risk evaluation results of the company operational targets. Regularly check and review pitfalls for internal control system and assess operational effectiveness and efficiency. The Audit Office would provide suggestions for weakness spotted and the improvement plan to the management and keep tracking until it is corrected.
External Supervision	<ul style="list-style-type: none"> Annually certified by public accountants and checked by Financial Supervisory Commission, Executive Yuan. Supervised by State-owned Enterprises Commission, MOEA and National Audit Office.



2.3.2 Adhering to Integrity and Ethical Values

CPC has established the "Ethics Personnel's Principles for Monitoring" and the Anomaly Information Reporting Platform of the Department of the Procurement and the Department of Ethics as the anti-corruption measures, aiming at the timely prevention of abuses in procurement and the benefits of open, fair, and transparent competition.

All of CPC's first-level units and their subordinate units with a dedicated Department of Ethics are all included in the scope of anti-corruption risk management. In 2017, 12 units conducted the anti-corruption risk assessment altogether and researched 21 cases of potential integrity risks, and none of the cases was "high integrity risk incidents. Among them, 14 of them were low-level integrity risk incidents (accounting for 66.67% of the total), such as the expense-account padding and the violations of the integrity ethical norms, etc. There were 7 moderate-level integrity risk incidents (accounting for 33.33% of all cases), such as the non-implementation of monitoring of labor procurement projects, suspicious of over-claims from vendors, and reported engagement in the bid rigging.

In 2017, 3 administrative punishments were imposed due to the employee's involvement in the corruption incidents, and two employees were fired. The Department of Ethics regularly compiles cases for employees' involvement in violations of the law or company regulations and advocates the anti-corruption concept and awareness to strengthen the early warning of anti-corruption. There were no incidents of major corruption, bid rigging, violation of fair competition, monopoly or political donations in 2017. The amount of fines for violations of relevant social and economic laws and regulations amounted NTD 6.32 million in 2017, of which 17 were industrial safety related tickets, amounted to NTD 1.24 million in total.

2017 Major conducts and Performance of Anti-corruption Activities

In 2017, CPC held a total of 185 anti-corruption education and advocacy activities (including 35 large-scale campaigns), with over 10,000 participants. We also held 7 sessions of advocacy activities on "seeking profits while providing convenience to the public" and "newly recruited public servants" (in which 487 employees participated). CPC also set up the Integrity Report, with the head of the office serving as the convener and the first-level directors of each unit as the members. Meetings are convened regularly every year for the discussion of integrity related issues to enhance the company's overall integrity and efficiency.





Corruption Exposition Channels

- ④ CPC's Ethics Unit Mailbox: Taipei Xinyi Post Office Postal Box #128-36. Tel: (02) 8725-8478 ; Fax: (02) 8789-9007.
- ④ Procurement Supervision Unit of MOEA Address: 15 Fu-Chou Street, Taipei, Taiwan, R.O.C Tel: (02) 2397-1592 ; Fax: (02) 2397-1593 ; Email: ps.unit@moea.gov.tw
- ④ Central Procurement Supervision Unit of Public Construction Commission, Executive Yuan Address: 9F., No.3, Songren Rd., Xinyi Dist., Taipei City Tel: (02)8789-7548; Fax: (02)8789-7554
- ④ Agency Against Corruption for Ministry of Justice Tel: 0800-286-586 Mailbox: Taipei Postal Box #14-153; Fax: (02) 2562-1156 ; Email: gechief-p@mail.moj.gov.tw 24-hour Report Center Address: 7F., No.318, Songjiang Rd., Zhongshan Dist., Taipei City
- ④ Bureau of Investigation for Ministry of Justice (Website: [http:// www.mjib.gov.tw/cgi-bin/mojnbi?/services/contact/all.html](http://www.mjib.gov.tw/cgi-bin/mojnbi?/services/contact/all.html)) Tel: (02)2917-7777 ; 0800-007-007.

2.3.3 Transparency of Information Revelation

Besides following domestic regulations on transparency of information revelation, CPC also set up the "CPC spokesperson and deputy spokesperson operating procedure" to enhance the transparency and accuracy of information revelation. Important information is posted in real-time on the company website. All the stakeholders' concerned issues are revealed both in Chinese and in English. It also provides complete and real time financial and business information for the stakeholders.

Actual Actions for Transparency of Information Revelation

- 🔍 Regularly update information on CPC 's official website
- 🔍 Publish annual reports annually
- 🔍 Regularly publish CSR Report
- 🔍 Real-time information published on CPC's official website and released to the media
- 🔍 CPC FB fan page and CPC App



CSR影城
CSR活動影片
歡迎民眾點閱

GO >



CSR遊戲
有趣的互動遊戲
歡迎您參與

GO >



台灣中油



獲獎認證
中油公司各項
榮譽及肯定

GO >



財務資訊
按時提供各項
財務資訊公告

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客服與回饋
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提供寶貴的意見

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 <p>CPC corporate governance zone</p>	 <p>CPC Corporate Social Responsibility Website</p>	 <p>CPC Facebook Website</p>	 <p>CSR Questionnaires for Supply Chain/ Questionnaires for Stakeholders</p>
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2.3.4 Risk Management

In order to promote risk management policies and establish a crisis management mechanism, CPC trains its employees to attach importance to risk management and crisis management to enhance risk management and crisis management effectiveness, achieve corporate sustainability objectives, and establish risk management and crisis management practices.

Risk Management Committee

CPC has set up the "Risk Management Committee" since March, 1998 to establish the measuring criteria for risk assessment and follow the procedure of Plan-Do-Check-Action (PDCA) to keep improving risk management.

Organizational Structure of Risk Management

The president is in charge of the Risk Management Committee, and the president is the chairperson, and all the top-level managers are the directors with Department of Planning being the secretary unit. The committee is in charge of the policy, standard, procedure, and the related issues of risk management for the whole company. The Internal Inspection office helps the committee check the suitability and effectiveness of CPC's risk management control system. Moreover, each unit would set up a risk management group with the unit head being in charge of handling, pushing and monitoring risk management of the business of unit itself, and the unit head takes the final responsibility.

CPC Risk Management Organization Structure



Operation of Risk Management

CPC regularly holds Risk Management Committee meetings to make a holistic review of potential risks, decide major risk items, and set up as well as review various corresponding projects and monitor the results. We identified 6 major risk items in 2017. All of them have been improved dramatically and the risk value falls below tolerable level, showing specific effects of CPC's risk management mechanism.



6 Major Risk Items Identified by CPC in 2017

Risk Item	Risk Category	Corresponding Strategies	Effectiveness
Non-implementation of Standard Operating Procedure (SOP)	Internal Control and Management	<ul style="list-style-type: none"> Strengthen the audit of the issuance of work permits in the area, the contractor's implementation of construction safety and implementation of the SOPs. Track the accident-related units for the related SOP revisions and implementation of education and training. 	<ul style="list-style-type: none"> The audit of project for the work permit is specially conducted. The common defects and specific contents are organized into a table for audit and we assist in strengthening the construction management of the contractors in the area so as to reduce the related risks caused by the failure to implement the SOP. The reasons for the industrial safety incidents and the handling process are reviewed. If necessary, new or revised SOPs are introduced and employees are advised and trained to strengthen industrial safety management. The education and training of operators is strengthened and the issuance of the contractors' work permits is implemented.
Risk of Construction Safety	Internal Control and Management	<ul style="list-style-type: none"> The "Construction Safety" is set in the "Engineering Instruction" and the contractors are required to actually carry out and complete the hazard identification and risk assessment; it is necessary to confirm whether the contractors perform the operations according to the overall and separate health and safety management plan. 	<ul style="list-style-type: none"> "Construction safety" has been set forth in the "Engineering Instruction" and the construction contractors are required to comply with it to reduce the risk of construction safety. The audit of industrial safety classification, industrial safety pickets, morning report meetings and work permit inspection and approval are implemented. The causes of emergencies will be analyzed and reviewed. The improvement items that should be implemented are checked every day.
Risk of Oil Price Fluctuation	Economy	<ul style="list-style-type: none"> Regularly hold the meeting for oil price hedging strategy, take into account the international economic situation, study the spread trend between the price of exporting oil products and the cost of crude oil, develop a hedging strategy and conduct a review. Pay attention to the trend of the oil market at any time, grasp the timing of better entry and aim at the profit of exporting oil products. 	<ul style="list-style-type: none"> CPC fully supplies oil for the domestic market, the remaining is exported, so the price difference for the export of oil products is hedged. There were 12 times of hedging in 2017.
Long-distance Oil and Gas Pipeline Leak	Internal Control and Management	<ul style="list-style-type: none"> Implement the inspection of pipelines, contact disaster response centers and develop a contingency plan after a pipeline accident. Strengthen patrol, conduct pre-construction surveys, provide correct positions of pipelines, explore pipelines for trial excavation, see the pipeline before further construction and send stationed personnel during construction to prevent external damage. Conduct pipeline cathodic protection system measurement, close-interval potential survey, Intelligent PIG (IP) inspection, and make improvements when the results are abnormal. 	<ul style="list-style-type: none"> Through the immediate notification and response of regional instant messaging groups set up by the pipeline center, the pipeline status has been able to be effectively controlled and understood so that the possible unexpected conditions can be controlled. Pre-construction surveys and personnel stationing during construction are carried out. The patrolling personnel' awareness of hazard prevention will be strengthened, such as checking and inspecting pipelines and communication and advocacy with external construction units.



6 Major Risk Items Identified by CPC in 2017

Risk Item	Risk Category	Corresponding Strategies	Effectiveness
Long-distance Oil and Gas Pipeline Leak	Internal Control and Management	<ul style="list-style-type: none"> ④ Inspect the pipeline equipment regularly and keep it in good condition. ④ Strengthen the watch of pipeline monitoring systems, check oil volume received and sent, inspect pipelines, hard-to-reach points and suspicious points and deal with them when abnormalities occur. ④ The pipeline management and audit team checks the on-site management and control on a monthly basis. 	<ul style="list-style-type: none"> ④ Accident prevention is carried out in accordance with the Company's patrol standard procedures and communication and advocacy with local governments are strengthened. It is expected that the relevant road authorities will be able to establish a corresponding regulatory agency to implement road construction quality and effectively control the pipeline excavation.
Affected Sea Pipeline due to Continuous Collapse of the Seabed	Climate, Ecology and Environment	<ul style="list-style-type: none"> ④ Carry out seabed collapse protection works to stabilize the seabed, avoid sea tides, and ensure the safety and operation of the sea pipelines in accordance with various SOPs. ④ In case of an accident, repair is made according to relevant emergency procedures to reduce losses and continuous monitoring and maintenance are carried out. 	<ul style="list-style-type: none"> ④ The seabed collapse protection project that was scheduled to be carried out in 2017 has been accepted and completed, and the Operation and Maintenance SOP has been formulated and reinforced in accordance with relevant emergency response plans. ④ Continuously and irregularly carry out regular maintenance and inspection work. Adopt appropriate protective measures for improvement, reduce the risks of the sea pipelines and ensure the safety of them. In the event of strong earthquakes or typhoons or other natural disasters, an emergency external inspection will be conducted immediately if the sea state permits.
Stable and Safe Supply of Oil and Gas	Economic Policy	<ul style="list-style-type: none"> ④ Diversify oil and gas supply sources and enhance the control of the safety inventory. Choose politically stable countries to work with for oil and gas exploration and production as well as merger of oilfields. ④ Promote the investment project of the third LNG receiving terminal. ④ When Taichung LNG Receiving Terminal Phase II Expansion Project is completed, the turnover day can go up and the inventory deployment pressure can be effectively reduced. ④ To constitute a mutual backup system, the new 35.8-kilometer of 36-inch onshore gas pipeline from Taichung Harbor to Tungshiau is planned and it is estimated to be completed by the end of 2020. 	<ul style="list-style-type: none"> ④ Actively diversify oil sources. CPC is now purchasing crude oil from the Middle East, Africa, Europe, Asia, central Asia and Australia. ④ In 2017, we worked on overseas exploration or production development with 17 oil fields in 7 countries and produced a total of 188,067 kl of crude oil.

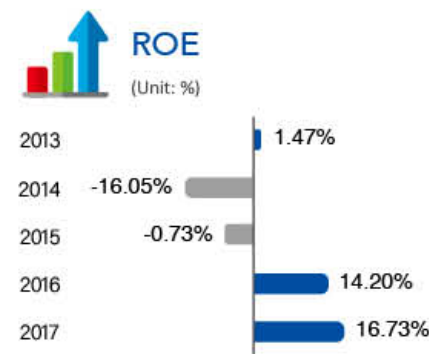


2.4 Operational Achievement

2.4.1 Financial Achievement

As a state-owned enterprise, CPC is responsible for stabilizing domestic prices. 2017 was also a year of harvest for us, with the revenue reaching NTD 896.6 billion, a 17.3% increase compared with 2016. The profit before tax was NTD 48.5 billion, a 37% increase compared with 2016. The financial contributions to the government amounted to NTD 126.4 billion, a 5.6% increase compared with 2016. Please refer to CPC's 2017 Annual Report for detail information of our financial performance.

CPC's Financial Performance over the 5 years

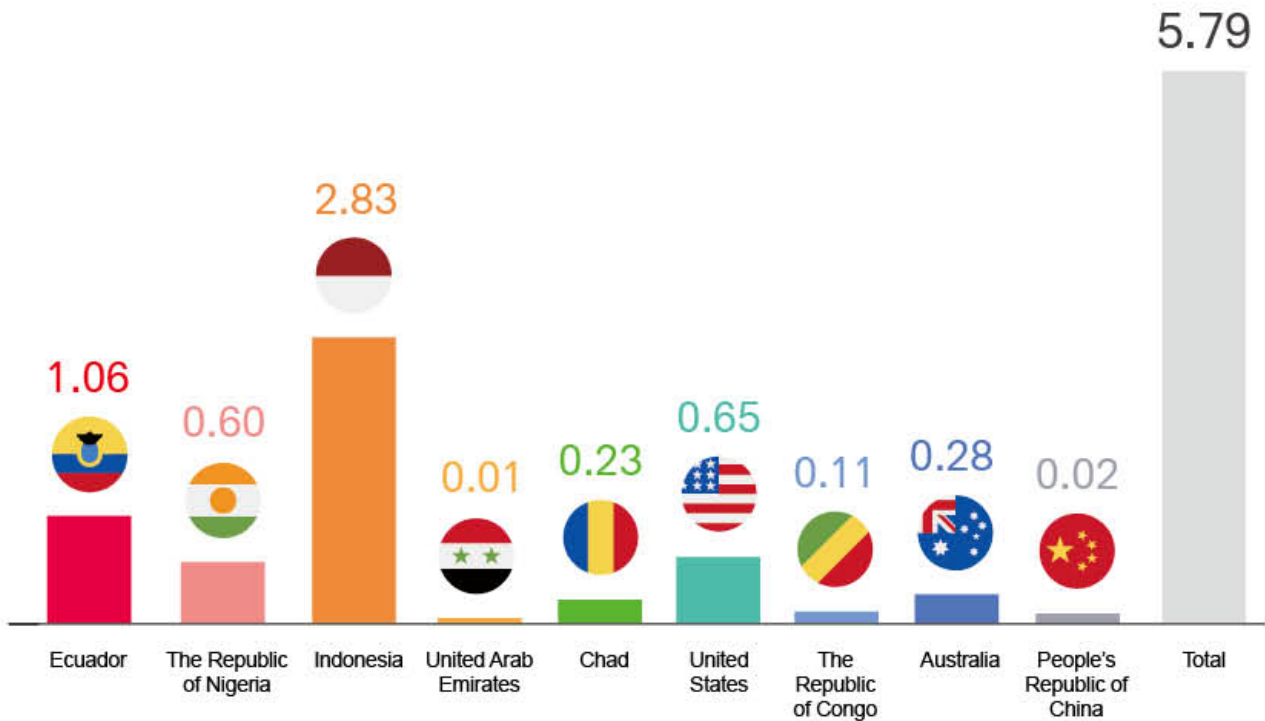


Note:

- Contributions to the country's finances include profit-seeking enterprise income tax, tax payment, tax collection and other contributions.
- Tax payment includes commodity tax, land tax, house tax, custom duties, stamp tax, vehicle license tax, mineral right fee and other special taxes, harbor service fee, air pollution fee, soil pollution fee and other fees.
- Tax collection refers to the business tax.
- Other contributions include funds of other agencies, energy funds, protection funds, subsidizing fishing boat oil and fees for good neighborly relations.
- In 2017, the amount paid to the shareholders was NTD 0, and there were net operating losses in 2014 and 2015. The surplus for 2013, 2016 and 2017 were used to make up for losses.



CPC's Financial Contributions to Foreign Governments in 2017 (hundred-million TWD)



Continued to be rated as AAA(twn) in 2018 by Fitch Ratings in 2018

In May, 2018, the evaluation results of CPC obtained from Fitch Rating were Long-Term Foreign Currency Issuer Default Rating: AA- and Domestic Long-Term Rating: AAA (twn), outlook stable.

Ratings Definitions of Fitch Ratings



“AAA” ratings are assigned only in cases of exceptionally strong capacity for payment of financial commitments. This capacity is highly unlikely to be adversely affected by foreseeable events.



“AA” ratings indicate very strong capacity for payment of financial commitments. This capacity is not significantly vulnerable to foreseeable events.

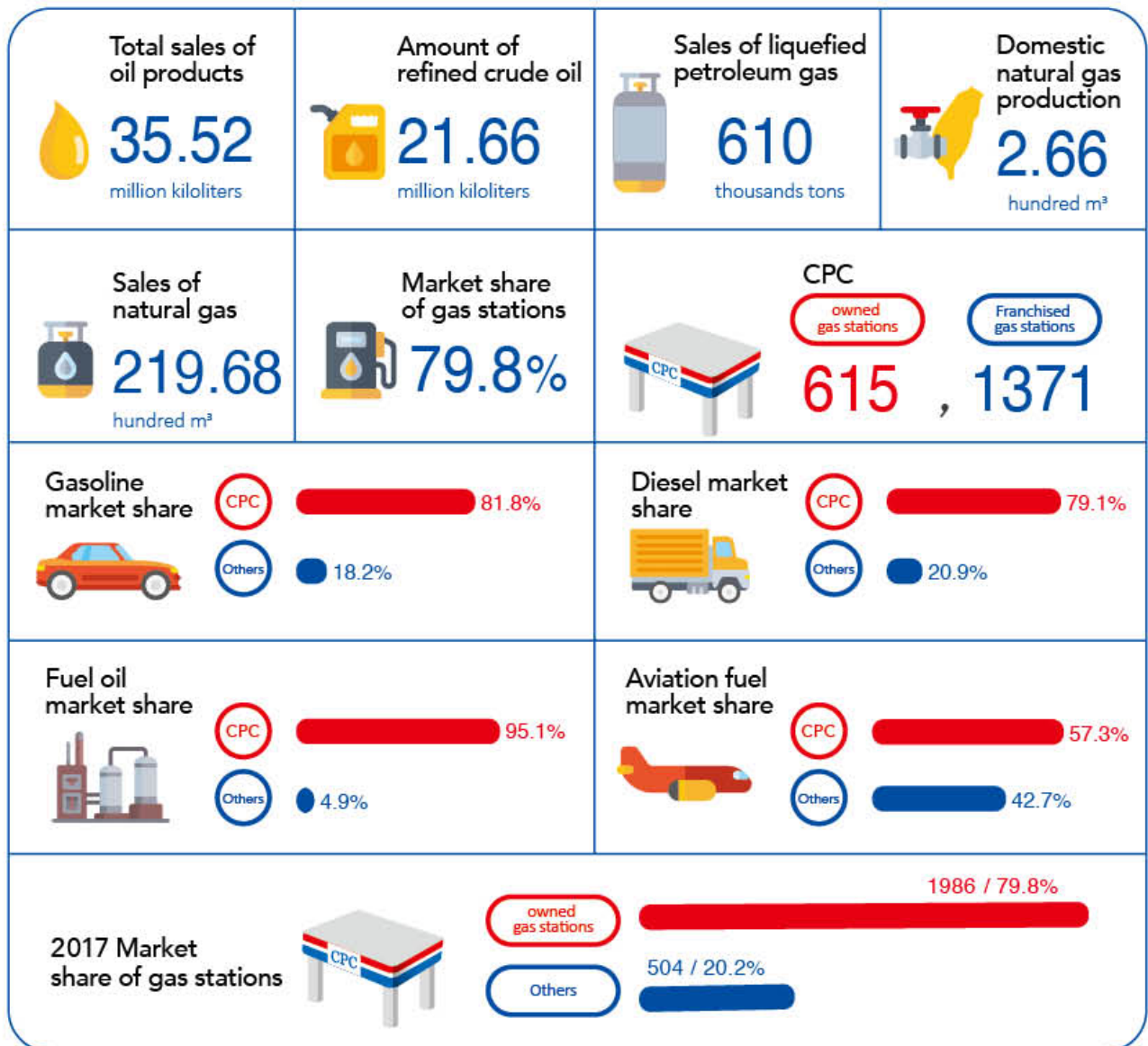
Note: The modifiers “+” or “-” may be appended to a rating to denote relative status within major rating categories.



Government Financial Aid

The amount of CPC's investment deduction in 2017 was NTD 0. CPC made application in accordance with the Key Points for Petroleum Fund Rewards for the Exploration and Development of Petroleum and Nature Gas and received research grants of NTD 55.59 million (7 projects) and exploration grants of NTD 5.59 million (2 projects) from the Petroleum Fund. In addition, in accordance with the Subsidy Measures for Petroleum Facilities and Transport Costs in Remote Areas, Indigenous Inhabited Areas and Outlying Islands, a subsidy of approximately NTD 134 million was applied, which covers the cost of shipping of petroleum, diesel and jet fuel, the cost of airline stations and oil storage facilities in offshore islands, the personnel costs of the oil depots, the transportation costs, gas station facilities and personnel costs for gas stations in remote and Indigenous Inhabited Areas.

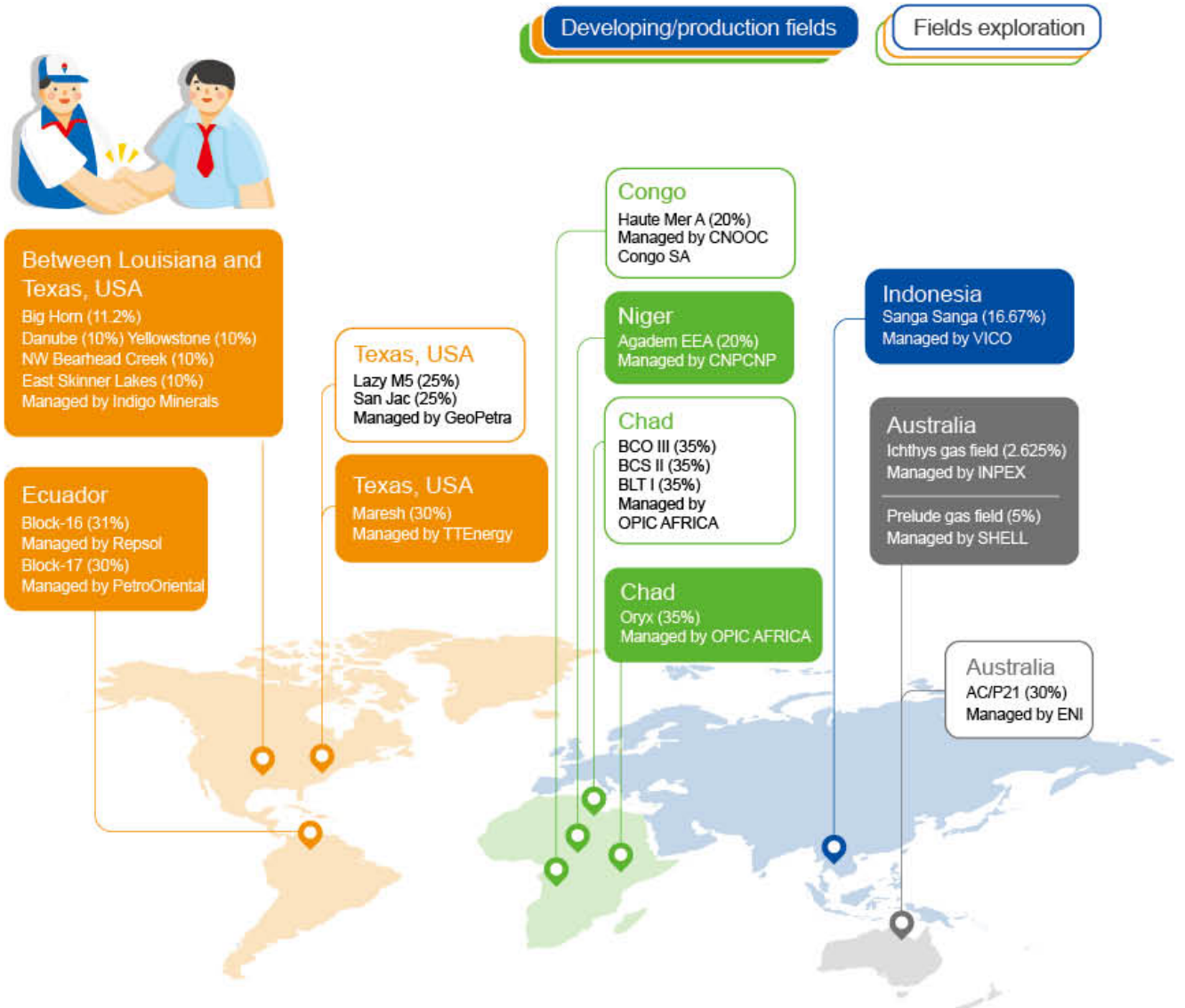
2.4.2 Operation Overview





💧 Promotion of the exploration and development of oil and gas reserves at home and abroad in 2017

CPC actively promotes the exploration and development of oil and gas reserves at home and abroad. In 2017, three oil and gas fields were under negotiation, including the Morona field in Peru, the joint research project of Sepehr field in Iran and Kasuri field in Indonesia. For many years, CPC has cooperated with other governments, state-run oil companies and international oil companies in the exploration throughout America, Asia-Pacific regions and Africa in the name of OPIC. As of the end of 2017, we have cooperated with international oil companies in field exploration in 7 countries, with a total of 17 oil and gas fields. In 2017, we obtained 4.51 million barrels of crude oil and 137 million cubic meters of natural gas in 2017. The annual oil and gas output was 1.59 million barrels of oil equivalent in domestic fields and 6.52 million barrels of oil equivalent in foreign fields. At the end of the year, the remaining reserves verified were 6.16 million barrels of oil equivalent in domestic fields and 142.45 million barrels of oil equivalent in foreign fields.





2.4.3 Research and Development

CPC is committed to setting up three research institutes, including Refining & Manufacturing, Exploration and Production and Green Energy Technology for transformation and investing in R&D of capacity, energy, energy storage, carbon reduction and high-value petrochemicals. The R&D budget invested in 2017 was NT\$1.925 billion. The benefits obtained from research and development in 2017 is estimated at NT\$3.931 billion, 6.27% higher than 2016. 31 patents were acquired, an increase of 3 patents compared with 2016. 302 papers were published, an increase of 10 articles compared with 2016. 117 new technologies were introduced, an increase of 8 over 2016. The total amount of investment in renewable energy in 2017 was NT\$83,543 thousand, including investment in photovoltaic technology development of NT\$52,159 thousand and geothermal energy industry development of NT\$31,384 thousand.

Year	2013	2014	2015	2016	2017	2017 growth rate (%)
Financial performance (billion)	3.57	3.12	3.30	3.70	3.93	6.27%
Patent acquisition (item)	13	12	15	28	31	10.71%
Published papers (Article)	249	291	284	292	302	3.42%
New technology introduced (item)	96	109	99	109	117	7.34%

Major R&D Projects and Achievements

<p>Studies on Traditional and Non-Traditional Oil and Gas Resource Assessment</p>	<ul style="list-style-type: none"> ① Accomplished the updating of the mining area's reserves simulation in Chad and the setting of water quality standards and assisted Exploration & Production Business Division in obtaining the Oryx oilfield development permit on July 14, 2017. ② The geological and well-site data of 7 Late Cretaceous source rock basins in Colombia were collected and displayed and mapped on Google Earth platform for the assessment of CPC's mining areas. ③ The research results of seismic interpretation, well test data, seismic attributes and inversion were integrated and 3 different types of exploration targets were found in the 2D seismic survey area. The assessment of the total oil and gas resources (P50) was completed and highlights of the F field for the future open tender related database were strengthened to facilitate successful investment. ④ The Fengshan structural sediment control project by means of hydraulic fracture was studied and planned. In addition to solving the problem of sediment production, it is also possible to achieve the benefit of increased production. ⑤ The distribution of the three potential areas of the Pliocene/Pleistocene and Pliocene prospects with an area of nearly 3 billion cubic meters of non-traditional/traditional biogas resources were proposed.
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Major R&D Projects and Achievements

<p>The Application of Environmental Engineering Technology</p>	<ul style="list-style-type: none"> ④ The groundwater survey at the site of the Storage and Transportation Office in Cianjhen of the Petrochemical Business Division and the planning of underground pollution improvement for the Central Oil Supply Center were completed. The potential for soil gas pollution identification technology at the gas station was verified. ④ Established GCxGC-TOF-MS for the analysis and application of gasoline oil products. ④ The geophysical survey technology actually completed the measurement of ground resistance in Kaohsiung Factory A site and interpreted the underground pollution distribution based on the high resistivity anomaly. ④ Completed several underground pollution improvements, i.e. technical services such as pollution detection, air monitoring, air pollution diffusion model simulation, water quality monitoring, content analysis of heavy metal in groundwater, and wastewater treatment improvement and recovery.
<p>Development of New Products and New Technology</p>	<ul style="list-style-type: none"> ④ Developed silica modification polymeric material to overcome corrosion under thermal insulation. ④ Completed the development of alternatives of non-toxic enamel paint # 06 of chrome yellow in color green formula. ④ Completed the safety evaluation of the first-rate small molecule collagen. ④ Established high price component analysis technology for rice bran. ④ Established a rapid verification method for Gamma Oryzanol to complete the analysis of commercially available oils and fats. ④ Completed sintering of lithium titanate (Li₄Ti₅O₁₂; LTO) and resulted in a total output of 370 kg of LTO finished products, followed by screening/water removal/product packaging operations. A total of 300 kg was shipped to the battery factory for sample testing. ④ The stably dispersed tungsten oxide solution is mixed with a conductive polymer to prepare a tungsten oxide coating for electrochromic and thermal spraying materials. ④ LED explosion-proof emergency lights/emergency lights have passed the test of explosion-proof (Ex) electrical equipment of the ITRI. ④ Completed 2 batches of trial production of water-based thermal insulation coatings compiling with the CNS4940 standard for exterior wall coatings. ④ Trial production of amorphous carbon materials, producing 800 kilograms of coke per month.
<p>Research of Biomass and Renewable Energy</p>	<ul style="list-style-type: none"> ④ For domestic geothermal heat test for abandoned wells, the temperature cycle test of the coaxial installation of insulating paint tubing in single well was completed. ④ Completed the assessment report of the BOT case in Qingshui geothermal area and updated the underground temperature and the model of the fractured zone in the Qingshui geothermal area. ④ Completed the 499kWp solar power demonstration system at Linyuan Petrochemical Complex for the sale of electricity to Taiwan Power Company; in Neihu station, Taipei, the grid-connected system was started for the sale of electricity; completed the photovoltaic systems in 44 gas stations of Kaohsiung Business Office, with a total capacity of 1411.7kWp. ④ The perovskite absorption layer film was made using vacuum and non-vacuum processes to complete a perovskite solar cell module with six units in series. The voltage of the two modules is close to 4 V and the PV conversion efficiency is about 2.4%, which can smoothly drive the LED light. ④ Used two different techniques of non-vacuum spin-coating technique for coating precursors and self-built electron beam vacuum evaporation to produce nickel oxide layers in perovskite solar cells and the formation of oxidized crystals of nickel metal was confirmed with X-ray Diffraction (XRD). ④ Completed heavy oil modification (refined asphalt) process design (P&ID, pipeline details, equipment specifications, instrument specifications).



Perovskite solar cell module



LED explosion-proof lights



Electric stacker with LTO energy storage system

2.4.4 Affiliated Business and Investment

In order to establish a control mechanism for the invested business and to effectively promote reinvestment plans to achieve the objectives and benefits of the reinvestment to ensure the rights and interests of CPC, we have formulated the “Rules Governing the Invested Business”. As of the end of 2017, CPC has 18 invested companies, with 11 domestic ones and 7 foreign ones and the total investment amount of NTD 21.45 billion, and the investment income reached NTD 1.44 billion, ROI at 6.71%. CPC shares in detailed information of invested businesses holding 20% shares, please refer to the shareholders’ annual report at (<https://new.cpc.com.tw/ebook/eBook-list.aspx?clsid=8>).

2.5 Cooperate in line with National Policies

CPC as a state-owned enterprise, shoulders the responsibility of stabilizing domestic prices and works in line with the policy of “stabilizing the price, improving the market mechanism and promoting the rationalization of energy prices”. The company implements the fairness of user charge, reflects the operating costs at a reasonable price and increases incentives for energy conservation.

1. The domestic gasoline and diesel prices of CPC are based on the gas and diesel price adjusting mechanism approved by the competent authority, hoping to meet the principle of fairness in user charge and promote the rationalization of energy prices. After all price adjustments have been verified by administrative procedures, information such as price comparison tables and adjustment amount calculation tables will be published on the CPC official website to comply with the principle of openness and transparency.
2. In consideration of the government's goal of stabilizing prices, domestic gasoline and diesel prices are based on the principle of maintaining the lowest price among the neighboring countries in Asia. In addition, CPC irregularly cooperates with the competent authority in the review and revision of the gas and diesel price adjusting mechanism.



3. In terms of LPG prices, CPC reports price adjustments each month based on a review of the price adjustment mechanism and cooperates with the government's policy of stabilizing domestic prices for stable supply to domestic markets. However, in January and February 2017, considering the coming of Lunar New Year and the government's policy of stabilizing the price during the Spring Festival, the price of LPG that should have been adjusted upwards by 2.6 dollars and 3 dollars per kilogram respectively was only increased by 1 dollar and 0 dollar in order to reduce the burden of the public. The unit price not adjusted, in addition to being listed as the policy factor, is recovered when the prices are adjusted downwards. In addition, the price adjustment plan would be published on CPC's official website every month.
4. In terms of NG prices, CPC will review domestic NG prices on a monthly basis based on the domestic natural gas price adjustment mechanism approved by the government. Natural gas price adjustments and price lists will be disclosed on the CPC's official website in accordance with the principle of openness and transparency.



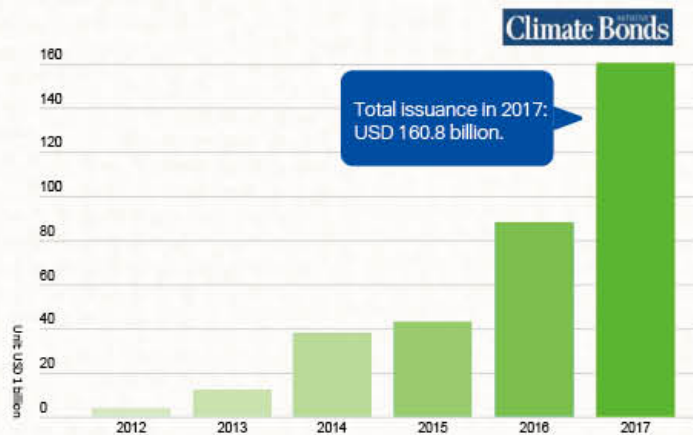
Special
Column

1

CPC -

the First Domestic Production Enterprise Issuing Green Bonds

Statistics from CBI shows that the overall issuance of global green bonds in 2017 has reached USD 160.8 billion.



Source: Statistics from CBI 2017.

The origin of green bonds issuance

After the mid-twentieth century, the advancement of technology has driven the rapid development of the social and economic activities. The past practice of focusing on economic development as the priority has caused many serious environmental and social problems, threatening the safety of mankind and their descendants. The global warming issue is becoming more important, and nowadays, with the increasing awareness of environmental protection in the world, sustainable development has become the focus of every government and also the goal that all pursue. Therefore, many countries start to attach great importance to the development of green industry. However, whether it is the promotion of the green industry or the investment in environmental protection related elements, it all requires the support of long-term funding, and under this trend, green finance emerged. Green finance is an economic activity to support environmental improvement, address climate change and make efficient use of resources. It is also a financial system for the sustainable development of the environment. Green bond is one of the major green products in such a system, referring to the measure of borrowing money and making use of the dedicated funds obtained on green investment projects in climate, environmental protection, energy conservation and carbon reduction.

Promotion Measures of Green Finance

In order to promote the transformation of the domestic economy into green economy to move toward a



TPEX specially made a crystal trophy to congratulate the listing of CPC's green bonds. The trophy was awarded by Chairperson Philip Chen of TPEX (right) to Acting Chairperson Yang Wei-fu of CPC (left).



Ceremony for the listing of CPC's green bonds was held on September 20, 2017, a, Director-General Rosemary Yung-Hsin Wang of Securities and Futures Bureau (first from the right), Chairperson Philip Chen of TPEX (second from the right), Chairperson Wellington L. Koo of FSC (third from the right), President Yu-Ching Su of TPEX (first from the left), Chairperson Daw-Yi Hsu of KGI Securities (second from the left), and Acting Chairperson Yang Wei-fu of CPC (third from the left) jointly participated in the gong striking ceremony.

low-carbon and sustainable operation model, the Financial Supervisory Commission (FSC) discussed the green financial policies in September, 2016. Driven by the green financial policy, the TPEX cooperated with the government's industrial policy of "Five plus Two", promoting the sustainable development of the domestic environment and assisting the green technology industry and circular economy industry to obtain medium- and long-term funds. The "Taipei Exchange Operational Directions for Green Bonds" was promulgated on April 21, 2017 and an over-the-counter trading system for green bonds was established, coupled with the proper provision of economic incentives for the issuance of domestic green bonds, the development of a green bond market is promoted. There are a total of 13 articles, mainly regulating principles and regulations of the scope, certification bodies, information disclosure in green investment projects, setting a milestone in domestic green finance in Taiwan. The biggest difference between green bonds and general corporate bonds is that the funds raised from green bonds are used in "green" investment projects that have a positive effect on the environment, such as the improvement of production machinery, process, operation procedures, energy conservation and carbon reduction, pollution prevention and control, protection of biodiversity or conservation of natural resources. Green bonds not only allow corporations to have more methods of financing, they also attract more domestic and foreign investors who care about environmental issues. Green bonds indeed are a good source of funding for the development of environmental sustainability.

FSC also put forward the "Green Finance Action Plan" on May 9, 2017, covering seven aspects of the credit, investment, capital market financing, talent cultivation, deepening the development of green financial products or services, information disclosure and promotion of green sustainable concepts. This action plan was approved by the Executive Yuan on November 6, 2017, and currently, effects have been observed in the aspects of credit, investment and capital market financing. In addition, in order to further develop the green bond market, FSC will continue to encourage enterprises to implement environmental protection measures on one hand and encourage institutional investors to conduct responsible investment on the other hand through corporate governance evaluation and compliance of sustainability indices, guiding the issuers and investors to participate in the green bond market.



Special
Column

1

First Corporate Green Bonds

After evaluation, CPC selected the two projects, the “Phase II capacity expansion at the Taichung LNG Plant” and the “Third Liquefied Natural Gas (LNG) Receiving Terminal” in the GHG Reduction Category of the Green Project and issued NTD 2.8 billion of 10-year green bonds on September 20, 2017, becoming the first domestic production industry to issue green bonds. Natural gas has high combustion efficiency and high heating value, and the carbon dioxide emitted during the combustion process is about half that of coal, showing considerable environmental advantages. It is one of the important energy sources to reduce the GHG emission and curb climate change. Therefore, natural gas has played an important role in the sustainable energy policy of a country. Take an LNG receiving terminal with the annual operating volume of 6 million metric tons for example, the gas-fired power generation can reduce approximately 11.72 million metric tons of CO₂ compared to coal-fired power generation (equivalent to the carbon reduction of about 30,128 Da-an Forest Parks) and 525 metric tons of PM 2.5 emission. Moreover, the cold water (so-called diamond water) discharged from the LNG plant has great water quality, and the temperature can be maintained at 22-24°C in summer, very suitable for fish farming. Currently the diamond water is widely used for the grouper fish breeding in the nearby fish farms. CPC’s Green Technology Research Institute also establish a pilot plant of red algae breeding next to the cold drainage channel at the Yongan LNG Plant in Kaohsiung, making use of the discharged cold water in the production of high-value algae so as to make effective use of cold energy while reaching the goal of carbon reduction and energy conservation.

Ardent Participation in the Financial Market

The green bonds issued by the CPC were ardently supported by several underwriters and banks, and the popularity could be seen from the bidding quotation. The tender price of the 10-year green bonds was 5.6 times the amount of the needed NTD 2 billion, and the award of the bid was decided to be reopened to NTD 2.8 billion, with the rate of the award of contract at 1.16%, not only lower than the market expectation, it is also lower than the 1.40% of Taiwan Power Company with the same period of time, and the amount of interest saved in the 10-year period can amount to NTD 67.20 million. This also drives the willingness to bid for the 5-year and 7-year bonds, and the award rates of the bonds of the three year periods were lower than history low in CPC’s bond history. Compared with the lowest historical cost of CPC, during the respective period of period of existence, the total interest costs saved could

be NTD 230 million, showing the investors' emphasis of and support for environmental sustainability and development of green energy technology.

Listed Over-the-Counter, Embracing a New Era

CPC issued NTD 2.8 billion of 10-year green bonds, the first green bonds issued by a domestic production business. Due to the great attention given by the financial market and relevant authorities, TPEX held a ceremony for CPC's listing of green bonds at 9 am, September 20, 2017. More than 50 distinguished guests, including the Chairperson Wellington L. Koo of FSC, Chairperson Philip Chen of TPEX, Acting Chairperson Yang Wei-fu of CPC, Director-General Rosemary Yung-Hsin Wang of Securities and Futures Bureau, Chairperson Daw-Yi Hsu of KGI Securities, peripheral securities institutions, Securities Association, and securities dealers all gathered together for this occasion, symbolizing the development of green bonds in Taiwan is moving to a new milestone.

The Blooming Global Green Bonds

2017 was the first year of Taiwan's development of green bonds. With the guidance and active assistance from FSC, TPEX launched the listing of five green bonds for transactions on May 19 and July 12, and the issuers were all banks, including four domestic financial institutions and one foreign financial institution. The total issuance amount reached NTD 8.8 billion. On September 20 the same year, CPC issued NTD 2.8 billion of 10-year green bonds and Taiwan Power Company also issued NTD 8.3 billion of green bonds on December 15. The total annual issuance amount reached NTD 20.6 billion in Taiwan. According to the statistics from the Climate Bonds Initiative (CBI), the global green bond issuance reached USD 160.8 billion, which shows the booming development of the global green bonds. CPC not only serves as the leading company for the issuance of green bonds in Taiwan, but also actively cooperates with the government for the promotion of the green industry development and the new energy policies, striving to become an eco-friendly enterprise to reach sustainability of the industry, environment and energy. In the future, if there are demands for funds in the areas of green energy and circular economy, issuance of green bonds will continue to be the main financing channel.



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Special
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2

Construction of CPC Smart Green Gas Stations- Integrated Community Green Energy Supply Center



🔹 Embracing the Era of Green Energy and Creating Smart Green Energy Center in the Community

To work in line with the global trend of green growth and in response to changes in the business environment such as the policies of green energy development and energy conservation and carbon reduction encouraged by the government, CPC continues to seek business transformation to bring new growth momentum to achieve the government's air pollution control action plan of "Phasing out all non-electric scooters by 2035 and phasing out all non-electric vehicles by 2040". Under the leadership of our Chairperson, Tai Chien, described by the employees as "a leader taking the lead in actions", the grand blueprint and vision for the transformation of CPC's green energy have been outlined. In all parts of the country, the gas stations that are close to the people's life will be promoted to become community green energy centers with three major axes of production capacity, energy storage and energy use, allowing the extra electricity generated through solar power in the community to be stored in the CPC Smart Green Energy Stations, and the stored electricity will be released for use when necessary. In the initial stage, CPC gas stations will take the lead in solar power generation and also serve as the charging and battery exchange stations for e-scooters.

🔹 Embracing Sunlight with the Roofs of Gas Stations - Solar Power Generation and the Operational Platform

To respond to the government's policy of Million Rooftop PVs, starting from 2010, CPC has planned and made use of the roofs of the gas stations for the installment of the photovoltaic system that can not only reach energy conservation and carbon reduction but also enhance the operational performance of the gas stations. In 2011, the PV systems were installed in Kenting and Linlung stations in Pingtung, and the prelude of CPC's green renewable energy started. The solar power system was then installed in Maguang Station in Yulin, Shetou Station in Changhua, Nanhuan Rd. Station and Ershui Station in

Douliu, Yunlin Area, and the solar PV systems were successively completed in these stations. In addition, though the cloud monitoring system of the Green Technology Research Institute, the real-time enquiry and monitoring of the daily energy production and solar module performance can be made to ensure the equipment is operated properly and prompt response is possible when the equipment fails. The information of daily power generation, cumulative power generation and accumulated carbon reduction would be all disclosed to the public on CPC's official website. In addition, to speed up the installation of the solar PV system, we contracted the installation of PV systems on roofs of CPC gas stations, and a total of 24 stations completed the installation of the PV system. Afterwards, the installation would be focused on self-installation.

CPC contracted the installation of 120 PV systems in 2017, and another 50 are also planned to be set up in 2018. After completion of these systems, the total number will reach 179 and the estimated daily power generation will be 16,000 kWh, with approximately 8,300 kg of carbon reduction. In the future, the feasibility assessment of the PV systems in other sites will be made and the installation will be carried out step by step every year. An operational platform will also be set up, and through the information system, the integration of the solar energy and energy storage equipment and the operation & maintenance management can be made to achieve the best performance. We also hope to create the follower effect in the industry by setting a good example.

Changing from Gasoline to Battery- Setting up Charging/ Battery Exchange Stations for E-Scooters

In 2017, the Executive Yuan announced the Policy of “phasing out all non-electric service cars by 2030”, “phasing out all non-electric scooters by 2035”, and “phasing out all non-electric cars by 2040”. At the same time, the sales of domestic e-scooter also showed significant growth (annual sales of 11,049 e-scooters in 2015 and 20,916 in 2016), showing the increasing needs for a charging/battery exchange station for e-scooters.

To cooperate with the policy development and to respond to the market demands, CPC actively formulates deployment strategies for the charging/ battery exchange stations for e-scooters. A total of 1,000 charging/ battery exchange stations will be set up in three years from 2018, and an operational management information platform as well as the follow-up maintenance team will also be established to provide the public with more diverse, convenient and professional services, which is also a new step for our gas stations to move toward transformation. In addition, CPC has long been devoted to the new energy related foresight research, and currently, we have developed anode materials of amorphous soft carbon and lithium titanate that can be used as materials for cells with cost-saving or fast-charging advantages. In May, 2018, CPC signed an MOU of CPC brand battery partnership with TDK Corporation and Eternalergy. First a preparatory team combining the respective advantages would be formed. CPC will provide anode materials such as lithium titanate (LTO) and soft carbon, combined with TDK's relevant technologies of battery research and manufacturing and Eternalergy's intelligent battery management technologies. In the future, a joint venture is planned to be set up to produce CPC brand batteries aiming at Southeast Asian markets and international markets, adding new impetus to the transformation of the operating model and energy services of CPC.



Special
Column

2

Creating the Local Fujusawa SST, Early Demonstration of the Smart Green Energy Demonstration Station

CPC has extensive experience in gas station operations and also has four related technologies of solar PV integrated systems, fuel cell hydrogen reorganization, anode materials for lithium battery, and anode materials for lithium titanate battery, having the advantages of transforming into smart green gas stations. To accelerate the development of CPC smart green energy gas stations, the CPC Smart Green Energy Gas Station Ad Hoc Group was established, with the short-term goal (2018) of developing a CPC smart green energy demonstration gas station by the end of 2018 to meet the needs for charging e-scooters; the medium-and long-term goal is to develop a symbiotic micro grid smart community with the surrounding communities. The CPC Smart Green Energy Gas Station Ad Hoc Group has selected two gas stations on Xinyi Rd, Chiayi City and Qianfeng Rd., Tainan City to be established into two CPC smart green energy gas stations with the self-developed technologies from the Refining & Manufacturing Research Institute and the Green Technology Research Institute respectively to search for ways of development of a smart city and the symbiotic models.

The gas station on Xinyi Rd, Chiayi City aims at four goals of the pilot operation, including fast charging in 15 minutes, providing new type of energy beside the fuel, a model of circular economy of batter recycling for energy storage and a new business model that combines the charging wait time with recreation. The gas station on Qianfeng Rd. in Tainan City is planned for the production and storage of energy for the micro-grid in the community. The production capacity is to plan to have a PV system with the fuel cell with stable power supply; the energy storage system adopts a highly safe vanadium flow battery with the lithium titanate battery; for the energy use, the gas station is transformed the gas station into a fast charging station of e-scooters. CPC Smart Green Energy Gas Station will integrate the renewable resources in the neighboring communities and at the same time conduct electricity regulation in the community to make the most effective use of all the renewable resources in the community, gradually planning the management service model of the micro-grid electricity.

Clean Green Energy for a Sustainable CPC

CPC has spared no effort to promote the government's green energy policy and maintain public health. In the future, the existing gas stations will be moving toward integrated smart green energy stations which have the energy storage system that can help the community and the planning of mobile payments will also be made to establish a big data center. It is hoped that through the analysis of big data, we can understand the consumers' consumption habits that can assist in the management decision for the green transformation of CPC to further provide more diverse products and services to meet the new consumer needs, serving as the cornerstone of the sustainable management of CPC.



3.

Environment Care – Harmony and Sustainability

- 3.1 Environmental Harmony and Sustainable Management Policy
- 3.2 Environmental Responsibility
- 3.3 Fulfillment of Environmental Responsibility
- 3.4 Green Effects



MBR+RO

The Refining & Manufacturing Research Institute, together with Dalin Refinery and Project & Construction Division jointly work on a Membrane Bioreactors and Reverse Osmosis membrane (MBR+RO) wastewater reclamation project, which is designed for processing wastewater of 8,000 tons and recycled water of 5,600 tons every day.



2017

Sustainable Management Performance



Carbon Reduction effectiveness

The greenhouse gas emissions have been reduced from 11.58 million tons in 2005 to an average of 7.84 million tons in the past three years, reducing over 30% of carbon emissions, and the proportion of national emissions has also dropped from 4.0% to 2.8%.



On the Earth Day , Free Tree Giveaway

On the Earth Day (April 22), Free Tree Giveaway was carried out with a total of 20,000 free trees given away. CPC launched a public welfare environmental protection activity in which people could exchange trees with invoices and waste batteries.



Tree planting activities

In 2017, CPC organized tree planting activities, with a total of 9,150 trees being planted.



the Subscription of Green power

In 2017, the subscription of green power was 8 million kWh, which was the highest among all state-owned enterprises. The Bureau of Energy, Ministry of Economic Affairs issued CPC a green label (No. 1061001570).



Environmental protection expenditure

CPC's environmental protection expenditure in 2017 was approximately NTD 5.3 billion.



International Conferences of the Parties

From 2003 to 2017, CPC has participated in International Conferences of the Parties (CO P) 13 times to learn about the impacts of climate change and ways of reducing carbon emissions and formulate carbon reduction plans.



Decreased by SOx emissions

SOx emissions in 2017 decreased by 29.66% compared with 2016.



Decreased by NOx emissions

NOx emissions in 2017 decreased by 10.19% compared with 2016.



3.1 Environmental Harmony and Sustainable Management Policy

Material topics

Energy, Emissions Water, Effluents and Waste, Environmental Compliance, Biodiversity, Materials Alternatives to Fossil Fuels

The importance of environmental harmony and sustainable management and the purpose of management

In the face of increasingly stringent environmental regulations, CPC has tried to implement environmental management and has actively promoted the important issues of sustainable development. CPC actively improves the quality of oil products, promotes energy saving and waste reduction, emphasizes pollution prevention, strengthens source control, strictly abides by environmental regulations, establishes environmental monitoring systems, conducts environmental education and training, researches and improves environmental technologies, and pays attention to communicating with the public and strengthening corporate environmental responsibility and sustainable management. We are committed to becoming an international energy company that takes into account the ecological environment.

Management Approaches

- ① To cooperate with the policy of "Transformation of Petrochemical Industry and Circular Economy" and continue cooperation among the government, academia and industry to fully foster new talents in the fields, we work on reaching the goal of "high value and low carbon" in petrochemical industry. Moreover, we also actively develop the relevant technologies of circular economy, taking into account of both the economic development and environmental protection.
- ① To cooperate with the policy of "Promoting Clean Energy and Expanding the Use of Natural Gas", we accelerate the construction of the third LNG receiving terminal, expand and diversify sources of imported natural gas and work on the construction of natural gas storage tanks and pipelines, actively working on the expansion of natural gas application.
- ① To cooperate with the policy of "Strengthening Energy Conservation and Improvement of Energy Efficiency", we introduce advanced energy technology and implement equipment maintenance and replacement of old equipment, continue the spontaneous inspection and improvement mechanisms to enhance energy efficiency.
- ① To comply with the government's Greenhouse Gas Reduction and Management Act, CPC continue to promote greenhouse gas inventory and reduction and environmental accounting systems, prevent and improve pollution, and strive to become an environmentally friendly company.

Commitments and goals

Short-term Goals

- ① To have 20 units pass and implement the ISO14001 Environmental Management System in line with the new version of 2015.
- ① The number of environmental penalties per year is less than the performance appraisal target for State-owned Enterprise Commission.
- ① To reduce CPC's total greenhouse gas emissions by 1% per year.
- ① To have 100 gas stations apply for green building labels and promote energy saving and waste reduction.
- ① To promote green building labels for gas stations, and recycle wastewater and car wash water for reuse.
- ① The factory saves water and improves the recycling efficiency of process wastewater.

Medium- and Long-term Goals

- ① The personnel in charge of environmental protection work shall obtain Environmental Health & Safety (EHS) protection certification, training credits and on-the-job training so as to achieve the goal of the integration of recruitment, training, and appointment.
- ① To receive no environmental penalty caused by human error in each unit.
- ① To reduce the GHG emission to 70% that in 2005 by 2030.
- ① To promote the hydrogen energy demonstration system plan and develop regional energy services.
- ① To promote Green Energy Technology Research of Renewable Energy, Biomass, etc.
- ① To improve refinery structure in response to the policy that gasoline and diesel will not be supplied to automobiles by 2040.
- ① Set the goal of recycling 90% of wastewater.
- ① To subscribe reclaimed water in Dalin and Linyuan Factories.
- ① To promote product water footprint and effectively manage the use of water resources.





Commitments and goals

Short-term Goals	Medium- and Long-term Goals
<ul style="list-style-type: none"> ① To Conduct an ecological survey on the algae reefs in the sea area in Kwun Tong, Taoyuan. ① Conduct an environmental ecology baseline of the Suao oil supply service center . ① To continually monitor the water quality of sea areas in various jurisdictions. 	<ul style="list-style-type: none"> ① To implement environmental impact assessment (EIA) that includes biodiversity survey for development projects. ① To cooperate to promote protection plans for algae reef conservation in Guan-Xin sea area. ① To promote educational training and activities for an environment of biodiversity. ① Continue the implementation of pollution prevention and control programs for CPC related terminals, coasts and ocean to protect and maintain marine ecology to ensure biodiversity. ① To provide 0.5% low sulfur fuel oil to create an eco-friendly sea area.
Units in charge	CPC's Sustainable Management Committee Environment & Ecology Conservation, Environmental Accounting & Information, Department of Environmental Protection.
Introduced management systems	ISO 14001 Environmental Management System, ISO 14064-1 Greenhouse Gas Inventory System.
Review and evaluation mechanism	<ul style="list-style-type: none"> ① The environmental protection business meeting is held once every quarter. The quarterly implementation results and progress reports of the environmental protection business of each unit are tracked, and the latest environmental protection regulations and government plans are announced to facilitate early response. ① Energy saving performance tracking meeting is held twice a year to track the results of greenhouse gas inventory and the effectiveness of energy saving and carbon reduction plans conducted by various units. ① The Sustainable Management Committee is convened three times a year to discuss the reports and proposals of each group. The Environmental Protection and Ecological Conservation Group proposes proposals related to environmental protection at least once a year.

Practices of SDGs



6 CLEAN WATER AND SANITATION 	<p>Goal 6. Ensure availability and sustainable management of water and sanitation for all.</p> <p>6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.</p>
<p>The Refining & Manufacturing Research Institute, together with Dalin Refinery and Project & Construction Division jointly worked on a Membrane Bioreactors and Reverse Osmosis membrane (MBR+RO) wastewater reclamation project, which is designed for processing wastewater of 8,000 tons and recycled water of 5,600 tons. This project completed the test run on December, 2017. After it meets the phase I expansion environmental assessment requirements, it will also reduce the amount of wastewater discharged and mitigate the impact of water shortage in the dry season.</p>	
7 AFFORDABLE AND CLEAN ENERGY 	<p>Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all.</p> <p>7.a. By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.</p>



Practices of SDGs



Green Technology Research Institute actively invests in research and development of eco-friendly processes, changes in raw materials for production, and development of reduction technologies. Its research and development focus on "low-carbon, energy-saving, and clean energy" for the development of clean energy development, carbon dioxide reduction and reuse, and biomass energy technologies. Through the core technologies, we are progressing in six aspects including environmental friendliness, new product development, clean energy, carbon reduction, energy storage, and energy saving. We will try our best to enhance the integration of innovation value in response to market demand, and develop innovative, renewable and sustainable energy, high-value with low carbon and energy-saving and environmentally friendly green energy industry to create a green energy industry and expand the scope of operations. The research and development projects currently being put into use include the pilot production of the energy storage materials, namely the amorphous carbon materials and lithium titanium oxide anode materials, refined asphalt, dicyclopentadiene purification tests, high-performance coating materials, and biomass.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.

To cooperate with the policy of "Promoting Clean Energy and Expanding the Use of Natural Gas", we accelerate the construction of the third LNG receiving terminal, expand and diversify sources of imported natural gas and work on the construction of natural gas storage tanks and pipelines, actively working on the expansion of natural gas application.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Goal 12. Ensure sustainable consumption and production patterns.

12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

The Refining & Manufacturing Research Institute, together with Dalin Refinery and Taoyuan Refinery jointly work on the project that self-developed anti-emulsifiers is added to slop oil to cooperate with the management of waste oil storage tanks to improve the quality and amount of recovered waste oil and improve the performance of the distillation plant for blending waste oil.

13 CLIMATE ACTION



Goal 13. Take urgent action to combat climate change and its impacts.



13.2 Integrate climate change measures into national policies, strategies and planning.

CPC has launched a company-wide greenhouse gas emissions inventory since 2005 and has been certified by a third party approved by the EPA to promote energy-saving projects at the plant and cooperate with the Industrial Development Bureau to voluntarily reduce industrial emissions. The result of company-wide emissions reduced during 2005 to 2016 verified by a third-party reached 3.84 million tons, accounting for 2.8% of the national emission in 2015 (4.0% in 2005), demonstrating the effectiveness of energy-saving and carbon reduction. The Paris Agreement has officially entered into force. The voluntary reduction contribution made by various countries has become an unavoidable responsibility. In order to achieve the goal of reducing carbon in Taiwan, CPC has set a target of reducing GHG emissions by 30% by 2030 compared with the level in 2005 and continued to promote the greenhouse gas reduction. To work in line with the national long-term carbon reduction technology development plan, CPC has been committed to the research and development of carbon dioxide capture and storage technology. Through experience accumulated in exploration and mining related fields, the foundation design and engineering technology integration of CO₂ storage pilot test has been established and successfully completed. However, due to delays by the residents' resistance, the follow-up will continue to be promoted following the establishment of regulations regarding the National Energy Program of the Ministry of Science and Technology and the Environmental Impact Assessment of the Environmental Protection Agency.



Practices of SDGs



	<p>Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development.</p> <p>14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.</p>
<p>The site of the third liquefied natural gas receiving terminal is facing the issue of ecological conservation of algae reefs and first-class conservation wildlife <i>Polycyanthus chiashanens</i>, causing the review delayed. In order to resolve the EIA disputes and respond to the requests of conservationists, in accordance with the resolution of the EPA's preliminary review meeting held on October 26, 2017 and the resolution made by the Executive Yuan which invited the relevant authorities to survey the third liquefied natural gas receiving terminal on November 10, 2017, CPC has planned alternatives to the existing site of algae reefs and <i>Polycyanthus chiashanens</i>. After assessing the feasibility and impact on the environment, CPC will complete the assessment report as soon as possible to request the EPA to hold a review meeting.</p>	
	<p>Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.</p> <p>15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.</p>
<p>In order to carry out energy conservation and carbon reduction, CPC began responding to the "Green Afforestation Project" promoted by the government in 2008. In 2017, Taoyuan Refinery, Taichung Branch, Chiayi Branch, Tainan Branch, Kaohsiung Branch and Refining Business Division organized tree planting activities. 9,150 trees were planted in the six districts. In addition, on the Earth Day (April 22), Free Tree Giveaway was carried out with a total of 20,000 free trees given away. A total of 100 gas stations in Taiwan launched a public welfare environmental protection activity in which people could exchange trees with invoices and waste batteries.</p>	

3.2 Environmental Responsibility

3.2.1 Implementation of Environmental Management

As of 2017, 20 departments or divisions of CPC have been awarded ISO 14001 certificate for environmental management system and have passed annual checkup by the qualified company. CPC strictly adheres to environmental protection laws and regulations and set up an environmental protection check information management system. The environmental inspection team inspected the implementation of environmental protection business in various units. Each factory also took the initiative in inspecting the implementation of environmental protection on site. Therefore, the environmental penalty for the past three years has been decreasing year by year.



Environmental Violations and Penalties over the Last 3 Years

	2015	2016	2017
Controlled Value	<23	<24	<25
Number of Cases	22	23	21
Amount of Fine (NTD)	4.14 million	3.92 million	3.17 million

Note 1: The controlled value is the average value of middle three years of the previous five years.

Note 2: The number and amount are the ones reported to State-owned Enterprise Commission, not including those under appeal.

The number and amount of penalties in 2017

	Air pollution	Soil pollution	Water pollution	Poison	EIA	Waste	Drinking water	Total
Number of Cases	16	2	2	0	0	0	1	21
Amount of Fine (NTD 10 thousand)	250	40	21	0	0	0	6	317

Note 1: The controlled value is lower than the average value of middle three years of the previous five years.

Note 2: The number and amounts are not including those under appeal.

Continuous Environmental Improvement Measures

1. Education and Training	Strengthen the employees' compliance with environmental regulations, promote environmental education and training, and train personnel to be in charge of environmental protection work.
2. On-site operation	Strengthen the VOC testing, stop-leakage repair management and replacement of old equipment and components; operate equipment in accordance with operation permit to reduce the environmental load; implement water pollution control measures and soil pollution remediation measures.
3. Reduce Pollution Emissions	Add waste gas recovery system, reduce emissions of combustion tower and reinforce the source management and process waste reduction.

3.2.2 Environmental Cost and Benefits

Environmental Protection Expenditure

CPC's Sustainable Management Committee Environmental Accounting & Information regularly reports to the Committee on the environmental accounting statistics of CPC and discloses information so that the stakeholders can understand CPC's related environmental accounting costs regarding company operation, management activity, research and development, loss and compensation and fees and taxes, which will be accordingly adjusted and controlled. CPC's environmental protection spending in 2017 was approximately NTD 5.3 billion.



Environmental Protection Expenditure over the Last Three Years

Unit: NTD 10 thousand

Year	2015	2016	2017
Company Operation Cost ^{Note1}	273,273	177,483	155,274
Suppliers and Clients Related Cost ^{Note2}	1,692	1,971	1,386
Management Activity Cost ^{Note3}	23,494	24,594	20,184
R&D Cost ^{Note4}	10,723	28,036	28,307
Social Activity Cost ^{Note5}	13,099	13,632	11,103
Loss and Compensation Cost ^{Note6}	160	98	3,023
Fees and Taxes ^{Note7}	286,834	287,148	310,347
Total	609,275	532,962	529,623

Note 1: Pollution prevention expenditure, global environmental protection expenditure and resource recycling expenditure.

Note 2: Expenditure on green procurement, resource recovery and recycling, product and service derived from the implementation of environmental protection, and additional expenditures on packaging containers derived from environmental impact reduction.

Note 3: Expenditure on environmental education and training, verification and certification, environmental monitoring and measurement, disposal of environmental impact, insurance for environmental protection, government-defined air pollution, soil pollution, water pollution and other fees.

Note 4: Expenditure on products researched and developed as a result of environmental protection and expenditure on research to reduce environmental impacts at product sales stage and expenditure on environmental impact assessment.

Note 5: Expenditure on natural conservation, afforestation, landscaping and other environmental improvements, expenditures on sponsoring community residents' environmental public welfare activities, sponsoring environmental groups, announcements, advocating environmental information and other information.

Note 6: Expenditure on environmental issues, compensation, penalties and lawsuits, maintenance of urban landscape and quality of residential environment.

Note 7: The fees regarding the air pollution, soil pollution, water pollution and other fees imposed by the government.

Environmental Benefit

CPC added the 2nd stage environmental accounting performance index in 2012, and for the first time, CPC calculated efficiency on raw materials and energy needed for production to better understand the long-term trend and reduce environmental impact. Environmental efficiency index is calculated with total amount of production or refinery as the denominator, and with amount of raw materials, energy needed, and amount of pollutant produced as the numerators. Compared with 2016, the petrochemical raw material use intensity in 2017 increased by 30.9%, crude oil use intensity increased by 5.8%, liquid energy use intensity decreased by 50%, gas use intensity increased by 14.3%, water usage intensity increased by 7%, electricity use intensity increased by 10.6%, GHG emission intensity increased by 4.7%, industrial waste intensity rose by 1.6%, wastewater intensity increased by 3.1%, wastewater pollutant intensity increased by 33.3%, VOC emission intensity increased by 12% and air pollutant emission intensity decreased by 3.7%.



Environmental Benefit Indexes

Indexes item	2015	2016	2017
Petrochemical raw material use intensity petrochemical raw materials used (KL) ^{Note1} / petrochemical production (KL) ^{Note 1}	0.074	0.068	0.089
Crude oil use intensity Crude oil needed(KL) / equivalent distillation capacity for refinery (KL) ^{Note2}	0.194	0.190	0.201
Liquid energy use intensity Liquidized energy needed (KL) ^{Note3} /(equivalent distillation capacity for refinery + petrochemical production) (KL)	0.002	0.002	0.001
Gas energy use intensity Gasified energy needed (km ³) ^{Note4} / (equivalent distillation capacity for refinery+ petrochemical production) (KL)	0.020	0.014	0.016
Water usage intensity Water amount used (km ³)/ (equivalent distillation capacity for refinery + petrochemical production) (KL)	0.221	0.186	0.199
Electricity use intensity Electricity used (kWh)/ (equivalent distillation capacity for refinery + petrochemical production) (KL)	11.157	9.888	10.940
GHG emission intensity Carbon dioxide emission equivalent (ton) /(equivalent distillation capacity for refinery + petrochemical production) (KL)	0.045	0.043	0.045 ^{Note 7}
Industrial waste intensity Waste (kg)/ (equivalent distillation capacity for refinery + petrochemical production) (KL)	0.318	0.321	0.326
Waste water intensity Waste water discharged (ton)/ (equivalent distillation capacity for refinery + petrochemical production) (KL)	0.074	0.065	0.067
Waste water pollutant intensity Waste water pollutant generated (kg) ^{Note5} / (equivalent distillation capacity for refinery + petrochemical production)(KL)	0.004	0.003	0.004
VOC emission intensity VOC emitted (kg)/ (equivalent distillation capacity for refinery + petrochemical production)(KL)	0.021	0.025	0.028
Air pollutant emission intensity Air pollutant emitted (kg) ^{Note6} / (equivalent distillation capacity for refinery + petrochemical production)(KL)	0.039	0.027	0.026

Note 1: Petrochemical raw materials used= (naphtha+ reformate+ xylene mixture) used, petrochemical production amount is the production amount of ethylene, propane, butadiene and benzene converted into equivalent distillation capacity (EDC).

Note 2: EDC (Equivalent Distillation Capacity). Standardized amount for different refinery process.

Note 3: Liquefied energy needed=(gasoline+ diesel+ fuel oil) needed.

Note 4: Gasified energy needed=(NG+ fuel gas) needed.

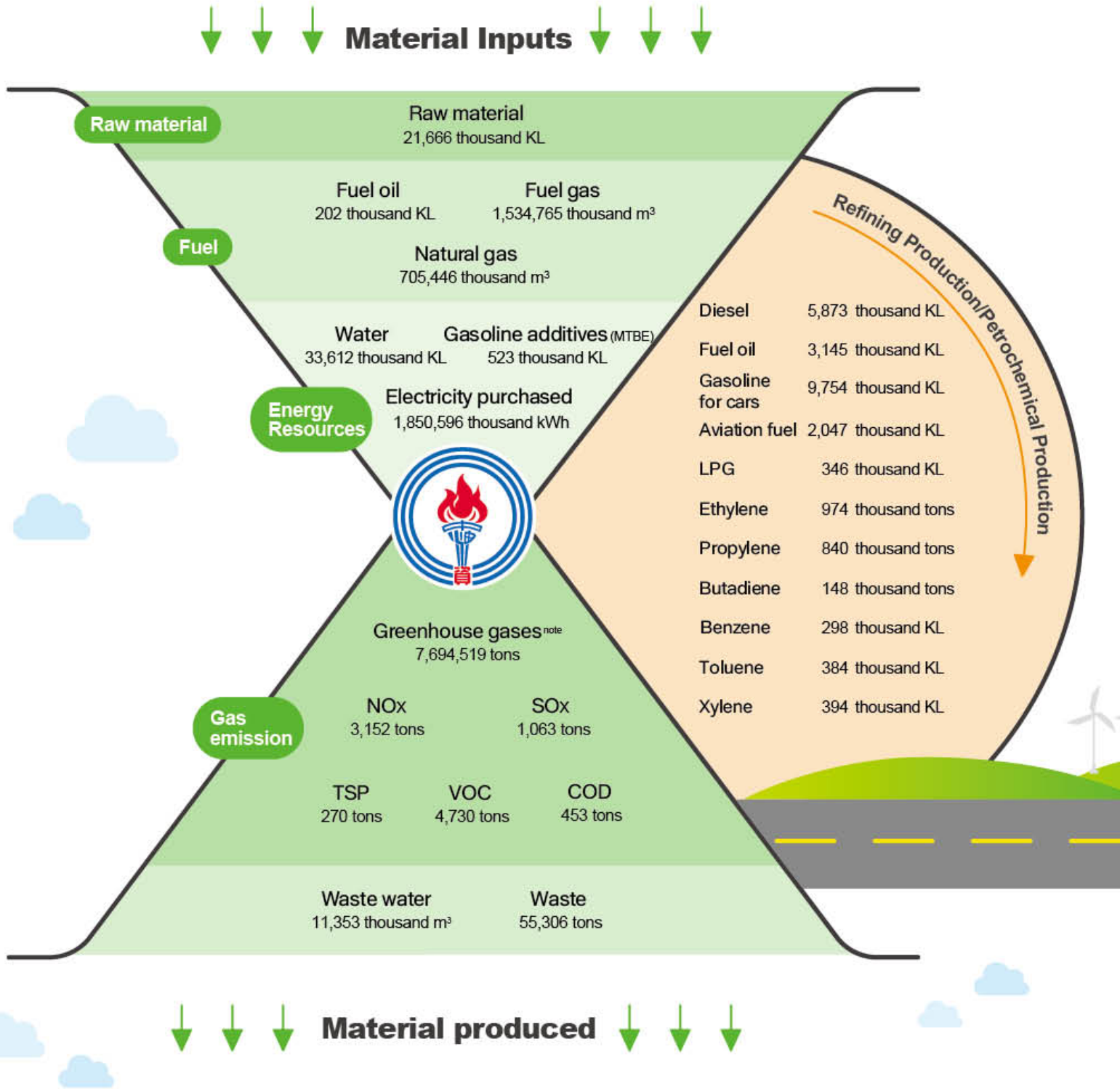
Note 5: Total amount of water pollutants = total amount of (COD+SS+Oil) in water waste.

Note 6: Amount of air pollutant= total amount of (Sox + NOx + TSP).

Note 7: The initial estimated value is 0.045. Third party verification is to be completed by the end of August.



3.2.3 Environmental Footprint in 2017



Note: The inventory data of Kaohsiung Refinery Plant and Taoyuan Refinery Plant were still undergoing third-party verification.

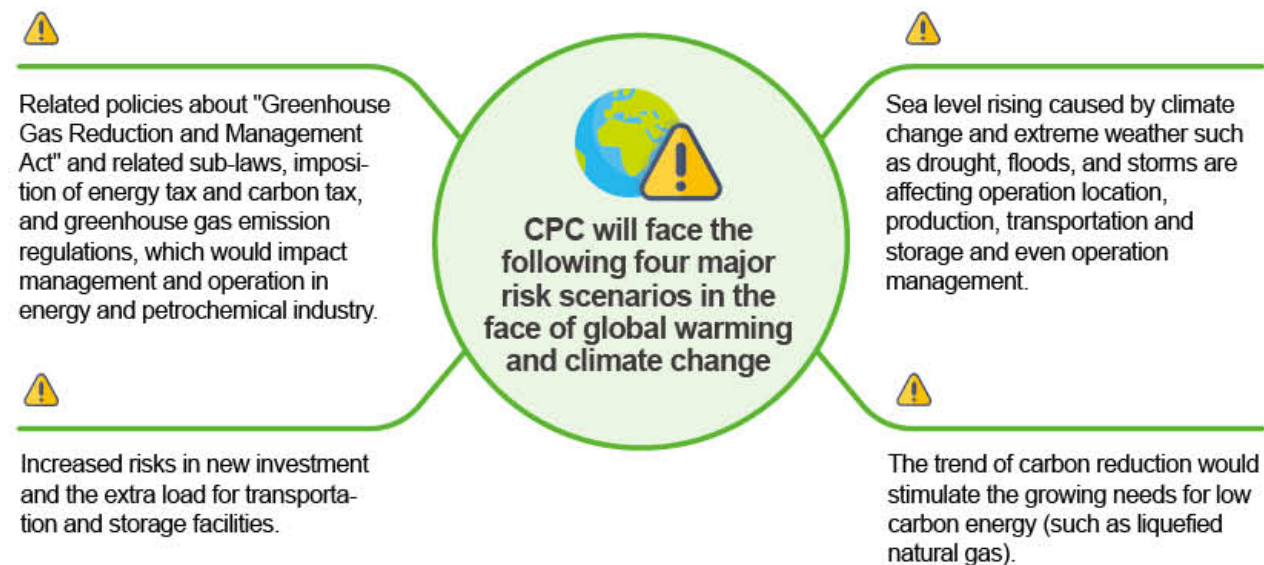


3.3 Fulfillment of Environmental Responsibility

3.3.1 Climate Change Risks and Opportunities

Related policies about GHG Reduction and Management Act and related sub-laws, imposition of energy tax and carbon tax and GHG management have impacted management and operation in energy and petrochemical industry. As for the financial risk of GHG emissions reduction and management, the quantification of financial risks is difficult because of the incomplete detailed rules of the GHG Reduction and Management Act and undecided carbon rights trading and carbon fees. In 2017, the related costs for the research and development of green energy technology included a total investment of NTD 430 million. The Marketing Business Division planned to invest NTD 450 million in energy saving and waste reduction of 100 gas stations to obtain the green building labels.

GHG reductions will be carried out by all units of CPC according to the plan. The target of 2030 is to reduce carbon dioxide emissions by 30% compared to 2005 in hope of mitigating the effects of global warming. All units have been requested to propose risk management measures and implementation in accordance with relevant climate change response strategies and submit them to the Risk Management Committee for control.



CPC Strategies in Adapting to Climate Change	
Establish Energy Saving Organization	<ul style="list-style-type: none"> The Energy Conservation Service Group was established in 2005. The vice-president serves as the head of the group, who coordinates the promotion of energy conservation throughout the company and provides downstream customers with consulting and services of energy-saving technology. The main focuses are the introduction and research and development of new energy-saving technologies, the establishment of energy consumption targets for major workplaces, the setting of improvement targets and the strengthening of performance tracking. Set up a technical consulting team to provide the necessary technical advice and services in each plant. The energy efficiency follow-up meeting chaired by the vice-president is held every half year, and it regularly tracks the effectiveness of the energy conservation programs of all units.



CPC Strategies in Adapting to Climate Change

<p>Strengthen energy conservation and carbon reduction advocacy and personnel training</p>	<ul style="list-style-type: none"> ① Enhance employees' energy conservation concepts, implement energy management for factory energy consumption, and improve energy efficiency and energy productivity of refineries. ② Organize energy-saving activities for vehicles checkups, fuel consumption, timely turning off the light, promote tree planting and send out seedlings and promote the installment of solar PV systems in gas stations and green building certification for gas stations. ③ Energy saving and carbon reduction training classes are held each year, which are promoted and advocated in Green Dragon Creativity Summer Camp held in Taiwan.
<p>Participate in Government Program on Energy Saving, Carbon Reduction and Climate Change Adaptation and promote climate risk assessment and improvement plans for refining, transportation and storage and oil supply systems</p>	<ul style="list-style-type: none"> ① Check the company greenhouse gas emission amount annually to reduce impacts. ② Carry out the expansion of the Taichung natural gas receiving terminal in line with the National Green Energy Low-carbon Action Plan of the Executive Yuan, start the investment plan for construction of the third natural gas receiving terminal, and engage in the CCS pilot project to establish the technical capacity for independent carbon capture and storage. ③ Work in line with the Executive Yuan's Climate Change Adaptation Program, climate change risk assessment and adjustment strategy planning and improvement for natural gas receiving terminals, NG pipes, exploration and oil supply and storage facilities were carried out; Yong-an receiving terminal completes climate change risk assessment, Yong-an receiving terminal embankment, improved loading system and channel deepening; Taichung receiving terminal completed the establishment of the plant subsidence monitoring network and benchmarks for measuring elevation. In addition, the geological disaster potential investigation and analysis and improvement plans were carried out for 13 national oil supply tanks.
<p>Improve Refinery Structure and improve energy efficiency</p>	<ul style="list-style-type: none"> ① Strengthen the adjustment of refinery structure and replacement. Adopt Best Available Control Technology (BACT) to increase energy efficiency and reduce the impact on the environment. ② Actively promote the improvement of energy efficiency in refinery and petrochemical plants, set energy saving targets, and control the consumption of energy and resources by all units. ③ Introduce advanced energy-saving technologies, heat recovery for heating tubes, heat exchanger network simulation, new type of heating furnace air preheater and installation of crude oil pre-flash system, motors changing into frequency motors, stepless load reduction and energy saving of reciprocating compressor, the heating furnace coated with high-radiation coatings, and the reuse of fuel gas, medium and low-pressure steam, and water resources is enhanced.
<p>Complement and Integrate with Regional Energy and Resource</p>	<ul style="list-style-type: none"> ① Work with factories in the nearby area to support each other on waste heat energy recycling and purchase steam produced by CSC to reduce energy usage in addition to providing excess fuel gas. ② In 2017, Dalin Refinery used a total of 320,000 tons of waste steam from CSC and reduced the use of 29,000 tons of fuel oil, which significantly reduced direct CO₂ emissions by 87,000 tons. ③ Use natural gas cold energy, the cold energy supplied to Far Eastern and BOIG in 2017 was 397,000 tons and 620,000 tons, respectively.



CPC Strategies in Adapting to Climate Change	
Boost Research on Green Energy Related Technology	<ul style="list-style-type: none"> 1 The Green Technology Research Institute expands cooperation in production and research and invests in renewable and green energy related technology research and development, such as photovoltaic, biomass energy, LED lighting, biomass material to promote investment in the green industry to work in line with the trend toward high value-added application of petrochemicals.
Exchange Ideas with International Organizations	<ul style="list-style-type: none"> 1 Joined the Business Council for Sustainable Development of Taiwan (BCSD) and work with companies to focus on the world's sustainable development. 2 From 2003 to 2017, CPC has participated in International Conferences of the Parties (COP) 13 times to learn about the impacts of climate change and ways of reducing carbon emissions and formulate carbon reduction plans.
Increase NG Transportation and Storage Capacity to Expand Low-carbon Energy Use	<ul style="list-style-type: none"> 1 Expand natural gas storage and transportation facilities in Yong-an and Taichung harbor and invest in the third receiving terminal. In 2017, the annual supply of natural gas reached 14.87 million tons, which is expected to increase to over 25 million tons by 2025, which is equivalent to a reduction of 6.8 million tons of CO₂ per year.
Expand the Application of Biomass Fuel	<ul style="list-style-type: none"> 1 Continue to supply and promote E3 ethanol blended gasoline at 14 gas stations in Taipei and Kaohsiung City.

3.3.2 Energy and Electricity Saving

CPC has continued to effectively control the effectiveness of energy conservation through energy efficiency indicators, promotion of energy conservation programs and regular tracking and reviewing over the years and we share the effectiveness and experience of energy conservation programs of each plant. For detailed calculation principles of energy saving effectiveness, please refer to CPC's 2017 Environmental Protection Annual Report. The energy saving measures and performance of CPC are as follows:

Major Energy Saving Achievements from 2005 to 2017

Major Energy Saving Measures	Energy Saved (equivalent oil amount in KL)	Money Saved (in 10 thousands NTD)	CO ₂ Emission Reduced (in ton)
Renewal of Manufacturing Equipment	244,529	344,118	741,988
Facility Refurbishment or Improvement	134,231	195,445	406,185
Recycling the Heat and Fuel Gas in Manufacturing	230,712	371,885	705,700
Refinement of Manufacturing Process	86,745	234,396	261,764
Improvement of Energy Management	131,963	89,607	352,343
Total	828,181	1,235,450	2,467,981

Note: For the detailed calculation principles of the above related energy saving effectiveness, please refer to CPC's 2017 Environmental Protection Annual Report.



Major Energy Saving Programs from 2005 to 2017

Item	Achievement (Oil equivalent in KL)
Recover exhaust gas in crude distillation, cracking, refining workshops and boilers for fuel gas use	125,154
Recycle waste heat in furnace, cracking furnace, and boiler flue gas (APH)	81,232
Refurbishment of heating and furnace wall and the radiation zone; replacement of refractory cotton and heat coating	76,755
Renewal of process (debottleneck and improvement)	72,137
Replacement of decompressors in heavy oil conversion workshop	52,445
The integrated application of the mid-to-low pressure vapor in the plants	37,412
Cleaning and renewal of the tubes in the convection zone of the furnace and boiler	36,994
Renewal of high performance catalysts (isomerization, reforming and absorption)	26,842
Replace turbines for power, reforming and cracking plants with motors	16,946

Note: For the detailed calculation principles of the above related energy saving effectiveness, please refer to CPC's 2017 Environmental Protection Annual Report.

Energy Consumption of the Refinery from 2015 to 2017

Energy Consumption for the Last 3 Years			Unit: GJ= 10 ⁹ Joule		
Year		2015	2016	2017	
Non-renewable energy	Direct energy Consumption	Natural gas	1.47*10 ⁷	0.92*10 ⁷	1.3*10 ⁷
		Fuel gas	5.47*10 ⁷	5.68*10 ⁷	4.85*10 ⁷
		Low BTU fuel gas	5.76*10 ⁶	5.16*10 ⁶	5.28*10 ⁶
		LPG	1.00*10 ⁶	1.51*10 ⁶	1.58*10 ⁶
		NC bottom oil	1.69*10 ³	0	-
		Low sulfur fuel oil 0.5 %	0.65*10 ⁷	0.49*10 ⁷	7.4*10 ⁶
		Carbon residue	1.56*10 ⁷	2.00*10 ⁷	1.8*10 ⁷
		Total heating value	0.98*10 ⁸	9.76*10 ⁷	9.38*10 ⁷
	Indirect energy Consumption	Electricity purchased	1.55*10 ⁷	1.38*10 ⁷	1.41*10 ⁷
		Steam purchased	0.76*10 ⁶	0.51*10 ⁶	0.96*10 ⁶
Total heating value purchased		1.62*10 ⁷	1.43*10 ⁷	1.5*10 ⁷	
Gross heating value		1.14*10 ⁸	1.12*10 ⁸	1.09*10 ⁸	

Note 1: Energy Consumption = Fuel Usage * Unit Heating Value

Note 2: The unit heating value is: (1) natural gas of 8,900 Kkcal/KS, (2) fuel gas of 9,000 Kkcal/KS, (3) low BTU fuel gas of 6,000 Kkcal/KS, (4) LPG of 6,635 Kkcal/KL (5) NC bottom oil of 9,700 Kkcal/KL, (6) low sulfur fuel oil (0.5%) of 9,200 Kkcal/KL, (7) Carbon residue of 9,580 Kkcal/TON, (8) electricity purchased of 2,180 Kkcal/MWH (9) steam purchased of 724Kkcal/TON



2017 CPC sale of Electricity

Item	Sale of Electricity
11 solar-powered stations in Gas stations (renewable energy)	Accumulated 987,000 kWh

3.3.3 Greenhouse Gas Reduction Management and Achievement

CPC conducts annual inventory of the greenhouse gases emissions in all factories and registers the results to the "Taiwan's National Greenhouse Gas (GHG) Registry" and discloses the results in the Sustainable Report to show the GHG emissions situations over the years. The greenhouse gases can be classified into three scopes. Because scope 3 is difficult to quantify and verify, CPC didn't calculate its GHG emissions. In 2017, the GHG emissions in Scope 1 and Scope 2 is 40,000 tons of CO₂e less than that in 2016.

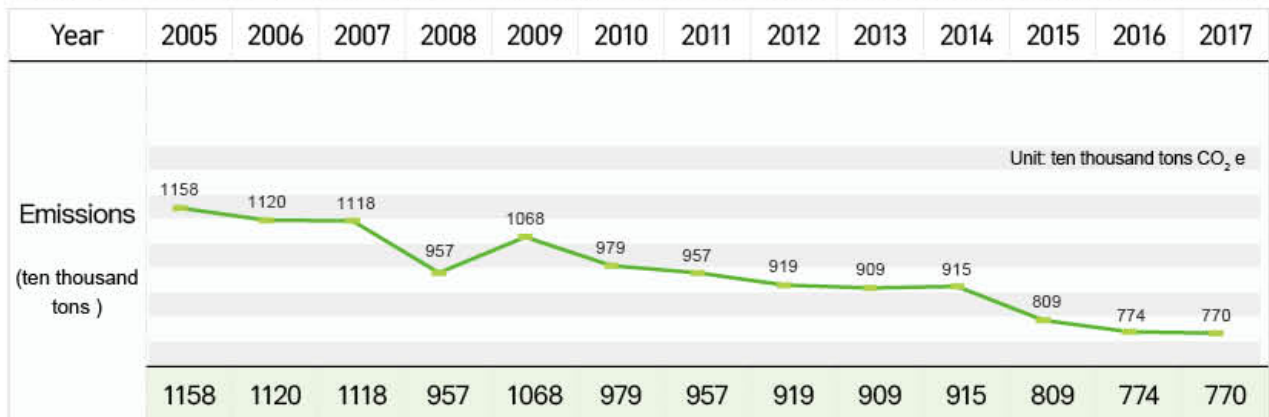
CPC's Scope 1 and Scope 2 Greenhouse Gas Emissions over the Last 3 Years

Unit: ten thousand tons CO₂e

Year	Scope 1	Scope 2	Total
2015	697	112	809
2016	667	107	774
2017 ^{Note}	657	113	770

Note: The inventory data of Kaohsiung Refinery Plant and Taoyuan Refinery Plant were still undergoing third-party verification.

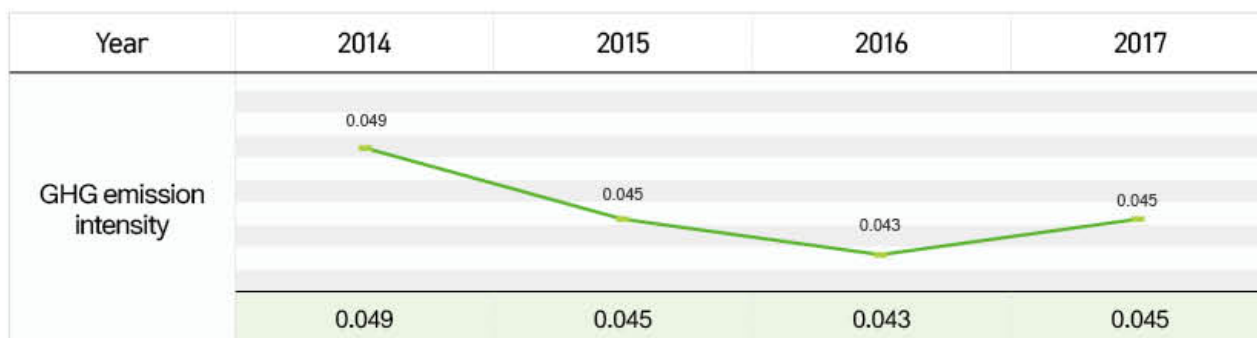
Trends for Scope 1 and Scope 2 Greenhouse Gas Emissions between 2005 and 2017



Note: CPC summarizes GHG emissions or removals by means of operational control methods. The types of GHGs inventoried include six greenhouse gases of CO₂, CH₄, N₂O, HFCS, PFCS, SF₆. The emission coefficient used for inventory calculations and Global Warming Potential (GWP) are all quoted from the information in the international publication. The scope of the operational boundary is divided into Scope 1, Scope 2 and Scope 3. Scope 1 refers to the direct emission sources owned or controlled by the company, such as emissions pipelines, processes and vehicles owned.; scope 2 refers to the indirect emission sources such as purchased electricity, heat and steam; and scope 3 refers to other indirect emissions from emission sources that are not owned or controlled by our company. Because it is difficult to quantify and verify and not be able to be directly controlled by enterprises, it is generally not included in the inventory. CPC plans to conduct GHG emissions inventory for commuter and business trips in scope 3 in the GHG inventory in 2016. (GWP data source: CPC used the IPCC Second Assessment Report before 2016 and changed to the IPCC Fourth Assessment Report from 2016).



Annual Greenhouse Gas Intensity of CPC



Note: GHG emission intensity: CO₂ emissions (ton)/(equivalent distillation capacity for refinery + petrochemical production) (KL).

In response to climate change, CPC is committed to reducing greenhouse gas emissions through the use of low-carbon fuels, energy conservation, improved equipment efficiency and reduction of waste. The company annually promotes the reduction of greenhouse gas emissions.

The Main Strategies for Promoting Energy Saving and Carbon Reduction

Scope 1	<ul style="list-style-type: none"> ① Improve energy efficiency: update processes, expand production capacity and introduce advanced energy-saving technologies, comprehensively establish energy consumption standards for various equipment, strengthen the testing and maintenance of equipment and carry out the improvement and replacement of plant processes and public systems. ② Strengthen the integration of process, heating furnace and boiler-related energy management, recycling of waste oil and gas, crude hydrogen and medium-to-low pressure vapor to increase the efficiency of energy use. ③ Integrate regional energy, promote the integrated use of waste gas recovery and waste heat and the recycling of natural gas cold energy to reduce energy use. ④ Expand natural gas receiving capacity and promote the use of low-carbon and clean energy such as natural gas.
Scope 2	<ul style="list-style-type: none"> ① Control the energy efficiency indicators of major production plants and energy-consuming equipment. ② Promote each factory's annual energy saving plan. ③ Convene energy efficiency tracking meetings on a regular basis. ④ Save electricity for offices to work in line with government agencies, Executive Yuan and the School Energy Conservation Action Plan. ⑤ T8/T9/T12 lamps will be replaced by the energy-saving LED lamps at the end of 2018. ⑥ To work in line with the energy conservation targets set by energy users and implementation plans promoted by the Bureau of Energy, MOEA, for energy users with more than 800kw contract capacity, if they save more than 1% of energy annually starting from 2015, the total energy saving target should reach 4%.

CPC's GHG Reduction Plan and Achievements over the Years

Year	2011	2012	2013	2014	2015	2016	2017
Number of Projects (item)	21	30	21	17	21	18	30
Amount Reduced (ten thousand tons/year)	20.7	22.1	20.8	32.3	19.1	11.3	10.2

Note 1: This figure lists the equivalent CO₂ amount converted from greenhouse gas according to the Global-Warming Potential (GWP) of the Second Assessment Report – IPCC (1995).

Note 2: Global warming potential (GWPs): It refers to the radiation impact generated by a unit of GHG quality equivalent to the multiple of the equivalent CO₂ amount.



3.3.4 Air Pollution Prevention and Control

CPC promotes air pollution prevention and control programs for all units to reduce the impact of air pollution emissions on the environment, especially the flue gas emission quality and VOC emission management of new factories. In addition, we are committed to reducing the impact of industrial activities on employees and residents near the factories.

Major Measures for Reducing Air Pollution

- ① The air pollution prevention and control equipment adopts the best available control technology (BACT) standard, which can reduce the air pollutant emissions of the whole plant, and has a positive effect on the overall environmental quality.
- ① The content of benzene, lead and sulfur in gasoline and diesel products strictly complies with EU regulations (EN228 and EN590).
- ① The quality of flue gas emissions from factories is strictly controlled and meets national standards.

① Air Pollution Prevention and Control Measures and Performance

The major air pollutants from CPC are sulfur oxides, nitrogen oxides, particles and volatile organic compounds. The emitting sources are the chimneys, flare, storage tanks, equipment component and loading operations. In recent years, people in Taiwan have paid more and more attention to air quality. In order to effectively reduce emissions of pollutants, CPC has long been committed to improving all aspects, including the use of clean fuels, exhaust gas recovery and reuse, process improvement, the introduction of advanced technology and equipment and end-of-pipe treatment, in order to gradually reduce pollution emissions systematically. Related improvement items are as follows:

Air Pollution Prevention and Control Measures

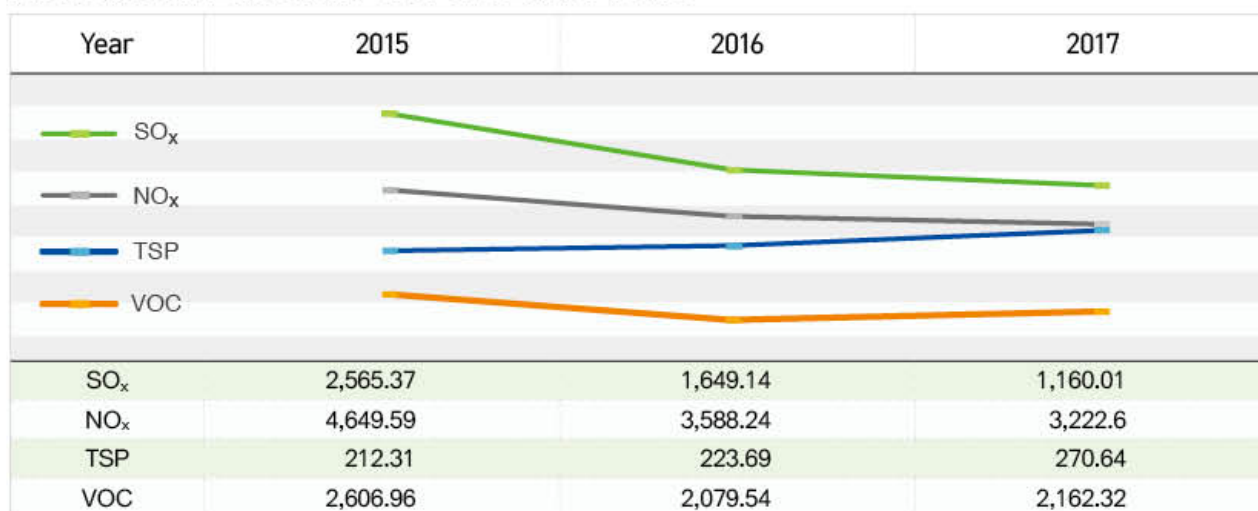
Item	Description
Use Cleaner Fuel	<ul style="list-style-type: none"> ① Use fuel gas (clean fuel) for new processing units. ① Increase gaseous fuel usage percentage for existing units, including NG, hydrogen, LPG and fuel gas to reduce the making and emission of pollutants.
Improve Operation	<ul style="list-style-type: none"> ① Improve combustion technology and increase combustion efficiency through all kinds of practice. ① Adjust process parameters and control the system under optimal control parameters.
End-of-Pipe Treatment	<ul style="list-style-type: none"> ① Particles: Add electrostatic precipitators or cyclone collectors. ① Sulfur oxides (SOx): Install Flue Gas Desulfurization (FGD) equipment. ① Nitrogen oxide (NOx): Use Selective Catalytic Reduction (SCR). ① VOC: Institute non-leakage devices with condensation, absorption and membrane separation treatment.
Adopt Advanced Technology and Equipment	<ul style="list-style-type: none"> ① Employ advanced technology and high efficiency heat exchange equipment and systems for new reactors. ① Introduce latest processing integration and control systems. ① Apply high elimination rate facilities and low leakage equipment.
Exhaust Gas Recovery and Reuse	<ul style="list-style-type: none"> ① Check, maintain and repair all pressure control valves and safety valves to reduce exhaust emissions from the process of plants to the flare. ① The factories produce self-produced gas at high pressure. The high pressure is recovered and the (low pressure is recovered through Flare Gas Recovery System (FGRS) after it is increased.) ① The future normal exhaust gas of the factories will be fully recovered through Flare Gas Recovery System (FGRS) and will not be emitted to the flare.



Through various improvement measures, the total emissions from refineries and petrochemical plants of CPC have been gradually reduced. The air pollution emission trends over the years are shown below. Based on the results of the past three years, the emissions have shown a downward trend, among which the SO_x emissions in 2017 decreased by 29.66% compared with 2016 and the NO_x emissions in 2017 decreased by 10.19% compared with 2016, indicating that all the improvement measures have achieved the reduction results.

Air Pollutant Emissions over the Last 3 Years

Unit: ton



Note: The 2017 TSP emissions increased by approximately 46.95 tons compared to 2016 due to the recent amendments to the environmental regulations, in which the TSP emissions are calculated by actual measured values.

Flue Gas Emission Quality

Year		Quality in 2017	Current National Standard
Oxysulfide SO _x (ppm)	Gaseous Fuel	< 90	100
	Liquid Fuel		300
Nitrogen Oxide NO _x (ppm)	Gaseous Fuel	< 130	150
	Liquid Fuel		250
Total Suspended Particles (TSP) (mg/Nm ³)	Depends on Amount Displaced	< 25	< 100

VOC Emission Management and Improvement

Among the volatile organic compounds in the petrochemical industry, those emitted to the air through equipment components are the least likely to be controlled. To effectively control and improve the VOC emissions, the "Equipment Component Improvement Group" was established in 2013. The meeting would be held periodically to review the implementation of improvement measures in each plant. The measures for the management of equipment components and reductions are as follows.



The Measures for the Management of Equipment Components

- ① Perform checking according to VOC leakage probing procedures published by Environmental Protection Administration and use FLIR to help with the leakage checking.
- ② Use handheld VOC detector to actively check for leakage right after changing operation, repair and replacement of the equipment.
- ③ Repair, replace or remove the leakage components and increase the service and maintenance frequency.

④ The Reduction Planning of the Cap in Kaohsiung-Pingtung Areas

Due to the fact that Kaohsiung-Pingtung areas are class III control regions for ozone and suspended particles, in order to meet the goal of air quality standards, Environmental Protection Administration (EPA) proclaimed the implementation of "Cap and Trade Program of Total Amount of Air Pollutants in Kaohsiung-Pingtung Areas" on June 30th, 2015. Through Cap, the reduction responsibility is assigned to each emission source, which is a regulatory tool that directly limits the air pollutant emissions of various emission sources. The controlled pollutants include TSP, Sox, NOx and VOC. The first-phase of the program lasts for 3 years from the day of proclamation. The reduction target of different categories of air pollutants of existing fixed pollutants is set at 5% of the "approved emissions".

According to the different control numbers, evaluation and information of the refining, storage and transportation and the pollutant emissions of CPC's 8 monitoring units in Kaohsiung-Pingtung areas should be made to apply for the "approved emissions" from the competent authorities, including Kaohsiung Refinery (shut down at the end of 2015), Dalin Refinery, Linyuan Petrochemical Complex, Yong-an Natural Gas Refinery, Ciaotou Oil Supply Center and Cianjhen Storage and Transportation Office and the Guanyin and Wucailin Oil Depot owned by Dalin Refinery. Such "approved emissions" is the basis for the calculation of the reduction in air pollutants in the future. Currently all the monitoring units have obtained the "approved emissions" from the competent authorities, and have conducted related reduction programs to meet the stipulated reduction of the Cap.

3.3.5 Management of Water Resources

In response to extreme climate change, water conservation as well as emergency-response measures for droughts have become more important. To reach a better water efficiency, CPC is pushing for industrial water recycling and has already implemented several water recycling improvement measures. Water for Dalin Refinery and Linyuan Petrochemical Complex comes from Fengshan Reservoir of Taiwan Water Corporation. Water for Taoyuan Refinery is purchased from Shimen Reservoir of Northern Region Water Resources Office, Water Resources Agency Ministry of Economic Affairs, and the water usage plans are evaluated and thus supplying water to CPC would not have great impact on the water resources.

Water for Kaohsiung Refinery mainly comes from Daliao Water Supply Station. CPC regularly commissions independent and impartial units to conduct double verification every six months to measure the trend of height variation of monitoring points. According to the monitoring report from 2015 to 2017, there was no significant subsidence in the area surrounding Daliao Water Supply Station.



Amount of Water Used in the four refineries over the Last 3 Years

Unit: thousand m³

Year	2015			2016			2017		
	Daliao Water Supply Station	Purchased Water	Total	Daliao Water Supply Station	Purchased Water	Total	Daliao Water Supply Station	Purchased Water	Total
Kaohsiung Refinery	7,028	842	7,870	4,663	35	4,698	4,197	5	4,212
Dalin Refinery	-	11,037	11,037	-	12,822	12,822	-	11,655	11,655
Taoyuan Refinery	-	6,747	6,747	-	6,356	6,356	-	6,188	6,188
Linyuan Petrochemical Complex	-	13,396	13,396	-	12,719	12,719	-	13,066	13,066
Total	7,028	32,022	39,050	4,663	31,932	36,595	4,197	30,914	35,121

3.3.6 Waste Water Pollution Prevention

CPC has established complete wastewater pollution prevention and control measures to avoid the impact on the environment caused by wastewater from the production process. A brief description of the prevention and control of industrial wastewater pollution at the refineries is as follows.

Factory	Wastewater Pollution Prevention Measures
Kaohsiung Refinery	The waste water from Kaohsiung Refinery (special wastewater, waste water containing oil, inorganic salt waste water, and daily life sewage) is sent to waste water treatment units and it is properly processed before being released to drainage pipes set up by Industrial Development Bureau at Oyster Village and then sent to the ocean as effluent.
Dalin Refinery	Waste water from Dalin Refinery (special wastewater, waste water containing oil, inorganic salt waste water, and daily life sewage) is sent to oil-water separator and delivered to second level waste water treatment unit. After that, it is released to ocean through the drainage pipes of Combined Waste Water Treatment Plant in Linhai Industrial Zone. After primary treatment, part of waste water undergoes secondary (biological) treatment and advanced treatment process to meet the influent standards and is recovered for reuse in the factory.
Taoyuan Refinery	Waste water from Taoyuan Refinery (special wastewater, waste water containing oil, inorganic salt waste water, and daily life sewage) is sent to waste water treatment unit. After being processed, the water is released to Nankan River through drainage pipes. The assimilative capacity of the river can absorb the treated water and the water fits the national standard effluent quality, and actually the quality is better than the quality of the river water, so the impact would be very tiny.
Linyuan Petrochemical Complex	After primary treatment of waste water from Taoyuan Refinery (special wastewater, waste water containing oil, inorganic salt waste water, and daily life sewage), part of it undergoes the secondary (biological) treatment until it meets the effluent standards and then sent to the Linhai Waste Water Treatment Plant through Linyuan Waste Water Treatment Plant for ocean discharge. After primary treatment, part of waste water undergoes secondary (biological) treatment and advanced treatment process to meet the influent standards and is recovered for reuse in the factory.



In addition to process waste water and daily life sewage, rainwater also scours the ground of the outdoor work environment, raw materials and materials to generate runoff waste water. Pollution prevention and control measures for runoff waste water collect waste water generated in the work environment and rain separately. During the rainfall period, the amount of runoff wastewater that should be collected shall be treated in accordance with the approved volume (water pollution control measures) in the water treatment facilities and the rest shall be discharged at the discharge outlet of the approved runoff waste water according to the standard operating procedures in the factory.

Waste water Released from Refineries over the Last 3 Years

Unit: 10 thousand tons

Year	2015	2016	2017
Taoyuan	239.8	238.8	262.7
Dalin	388.6	417.6	389.4
Linyuan	279.7	265.2	270.3
Kaohsiung	456.3	290.9	197.8

Effluent Monitoring Values Meet the Emission Standards

The major pollutants in CPC's wastewater are the organic compounds in petroleum. The main monitoring points are items of chemical oxygen demand (COD), oil, suspended solid (SS) and Phenol. In 2017, all the monitoring values of the effluent discharged from the four refineries all met the standards, the wastewater released with a 7.6% decrease compared with 2016.

CPC's Monitoring Items for Effluent in 2017

Unit : mg/L

	Kaohsiung Refinery	Taoyuan Refinery	Effluent Standard1	Dalin Refinery	Linyuan Petrochemical Complex	Ocean Effluent Standard2
(COD)	15.4	20.87	100	78.6	44.4	280
(Oil)	0.6	2.44	10	2.8	<0.1	20
(SS)	7.0	17.01	30	13.8	4.45	100
(Phenol)	0.0068	<0.1	1.0	0.02	<0.01	1.0

Note: 1. Effluent standard for Kaohsiung and Taoyuan Refineries.

2. Ocean effluent standard for Dalin and Linyuan Refineries.

Note: Effluent monitoring values are the average values reported to EPA every quarter.

Mining Formation with Water Production

Most of the domestic oil and gas mining areas are natural gas wells. When producing natural gas, the condensate oil (naphtha; C₅-C₂₀) and formation water will be produced. After three phase separation of oil, gas, and water, the formation associated water production will be affected by the difference in salt content (Cl⁻, about 3,800-11,000 ppm) in different mining areas. Although salt is not included in the discharge water standard, it may cause soil salinization. Therefore, there are two treatment methods for



the water production: First, after concentration, it is reinjected into the reservoir via the water production reduction well, and the injection of the water production to the reservoir can help to extract additional oil; second, after the water is treated by the treatment plant and passes the water quality inspection, it will be discharged to the river. In 2017, the total output of water production in the formation was 29,461 KL.

Guidelines for Processing Water Production in CPC's Mining Areas

Area	Tianshan Mine, Jinqing Mine Jinshui District and Qingcaohu District	Sewengkeng Mine
Treatment method	Being reinjected into the formation through disposal wells.	Effluent
Description	Before the oil is reinjected into the formation, the oil slick is recovered by oil-water separation and then injected back into the underground reservoir. The specifications for disposal wells mainly refer to the relevant regulations of the second class of injection wells of the United States federal regulations.	The oil is first separated and recovered by an oil-water separator (API), and then discharged until it meets the emission standard using an air pressurization floater and then a biological treatment system.
Processing capacity in 2017 (%)	13,481KL(45.8%)	15,980KL (54.2%)

Reduction of Water Consumption and Waste Water Recycle for Reuse

CPC is working on recycling and reuse of wastewater from the refineries. Through the following measures, the company achieved a water saving goal and maximized the benefits of water recycling. In 2017, the water recovery rate of the four refineries decreased by 4.09% compared with 2016.

Measures for Water Saving and Waste Water Recycle and Reuse

Reduce the Loss of Cooling Water	Renew water tray and honeycomb water deflector to decrease the cooling water lost in evaporation from 0.1% to 0.003%. This can effectively reduce the amount of water replenishment.
Improve Water Usage for Furnace	Use water purifier to generate pure water and increase water amount generated every cycle and reduce the amount of wastewater. Setup electro dialysis reversal (EDR) equipment for raw water to reduce the water conductivity and hardness. Enhance water quality to get more water filtered from ion-exchange resin to reduce the water usage for furnaces.
Improve Firefighting Water Usage	Non-flowing firewater pool can be easily degenerated. Use firewater to smash the water surface to control the fungus growth.
Reduce Water Usage in Manufacturing	Set up monitor and control systems for cooling water and deflector to check the quality of condensate. Utilize electromagnetic valves to control the recycling and the recycled water is used as replenished water for the water towers. Use the deaeration tank to recycle low-pressure steam and recycle the heat and condensate.
Recycle and Reuse of Drainage Water	Waste water from manufacturing is sent to joint sewage treatment plant in the Industrial Zone. Some of it can be recycled and reused for sludge dehydrator or incineration plant. Public waste water goes through sedimentation and sand filter and then some of it can be used to wash gutters or tanks.



Achievement of Recycling Waste Water in 2017

Unit : ten thousand tons

Unit	Kaohsiung Refinery	Taoyuan Refinery	Dalin Refinery	Linyuan Petrochemical Complex
Raw Water Replenished (in 10 thousand tons) (A)	419	715	1,165.5	1,306.6
Recycled Water Amount (in 10 thousand tons) (B)	1,005	317	781	5,253.5
Water recycle rate (%) (B÷[A+B])	70.6%	30.7%	40.12%	80.08%

Achievement of Recycling Waste Water in the four refineries over the Last 3 Years

Unit: ten thousand tons

	2015	2016	2017
Raw Water Replenished (in 10 thousand tons) (A)	5,248	3,714	3,606.1
Recycled Water Amount (in 10 thousand tons) (B)	6,744	8,655	7,357
Water recycle rate (%) (B÷[A+B])	56.24%	69.97%	67.11%

Note: Water recycle rate (%) (B÷[A+B]), A is the amount of raw water replenished (10,000 tons), and B is the recycled water amount (10,000 tons).

3.3.7 Prevention and Remediation of Soil and Ground Water Pollution

CPC's current polluted sites have successively proposed response measures and requested for investigations and improvements in soil and groundwater pollution.

Corresponding Solution for Polluted Sites

Controlled or Regulated Sites	<ul style="list-style-type: none"> Require related departments to propose response measures, control and remediation plans. Investigate and remedy the contaminated sites in accordance with the plans authorized and approved by competent authorities, scholars and experts for follow-up investigation and improvement actions of related soil and ground water pollution.
Non-controlled Sites	<ul style="list-style-type: none"> Enhance the monitoring function of groundwater monitoring wells, oil and gas monitoring wells and gas station leak detection pipe. Require all departments to follow "Soil and Groundwater Pollution Prevention and Improvement Procedures" of the company and when soil and groundwater contamination was found in the field domains, immediate improvement plans should be set up and budget should be allocated for contamination remediation.



Controlled sites in 2017

Type	Site
Listed as Pollution Response Sites	Jieshou Road Station, Taoyuan, Guandong Bridge Station, Hsinchu, Shengang Station, Changhua, Wanli Station, Tainan.
Listed as Pollution Control Site	All Kaohsiung Factory, Land lot # 405, 405-1, 410 and 411 in Kaohsiung Factory; Chengkung Plant (the districts are being de-controlled), North Greenbelt, Kaohsiung Port Terminal (Cianjhen), Kaohsiung Port Terminal (South Gate), 3 lots except NO.344, LuJu Station, Land lot #322, 328 and 735 in Dongmen Wai, 7 lots at Linzan site, Shinkong community, 10 lots except No. 279 and 27, Wugu Station, Beining Road Station, Taiwan #15 road at 53.5Km, Longgang Station, Hsinchu Oil Depot, Guangming Station, SiangShan Station, Wucailin Landfill, Northern Region Warehouse (polluted by China Petrochemical Development Corporation).
Listed as Pollution Remediation Site	CBD2 (south), Site #837 in Kaohsiung Factory, 9 sites in Kaohsiung Refinery, the whole plant of Linyuan Petrochemical Complex and Shi Hua 3 Rd., Dalin Refinery (Area F).

De-controlled Contaminated Control Sites of Soil and Ground Water Pollution in 2017

Type	De-controlled Contaminated Control Sites
Control Site	Zhongxiao E. Road Gas Station, Neihu Gas Station, District 1 in Chengkung Plant.

3.3.8 Management of Wastes

Besides the general waste that is cleaned and transported to local incinerator for treatment by local cleaning squad and qualified contractors, other waste produced in CPC includes waste catalysts, sludge and sediments. Waste catalysts are treated in the way which is to recover precious metals. Sludge and sediments are processed through incinerators in the factory before landfill. Therefore, as a whole, the current solid waste is properly handled or disposed of in accordance with the nature of the waste, such as recycling, bidding and selling, barrel burial, incineration, direct landfill, oil and gas recovery and direct disposal.

Drilling mud is a common waste in the oil and gas industry. Its components often contain various kinds of oils and chemical treatment agents. Improper disposal will affect water bodies and ecology. In 2017, the domestic water-based waste mud generated by three onshore drillings (Hongchailin No.1 well, Hongchailin No.2 well and Tongxiao gas production No.2 injection well) was added with a soil conditioner to remove moisture to below 80%. After passing the dissolution test, it was commissioned and sent by the qualified cleaning industry to the landfill site. The processing capacity was 455.75 tons, 848.27 tons and 2,799.24 tons respectively. The total amount of water-based waste mud was 4,103.26 tons.

If waste has a market economic value or if government agencies announce that it should be recycled and reused, CPC will make every effort to promote the recovery and reuse of waste. In 2017, the recycled and reused items in refineries and petrochemical plants are mainly RDS waste catalysts (nickel-containing metals), RFCC spent zeolite catalysts and waste activated carbon, with the reuse rate at 100%.



Amount of Processed Waste for Refineries and Petrochemical Plants in 2017

	Method of Treatment	Treated Amount (tons)	Percentage (%)
Hazardous Waste	Physical Treatment	1,411.07	1.64
	Solidification Treatment	104.84	0.12
	Incinerated	18.56	0.02
	Overseas Treatment	5.00	0.01
	Heat treatment (except incineration)	0.07	0.00
Non-hazardous Waste	Chemical Treatment	502.28	0.58
	Physical Treatment	6,843.16	7.97
	Landfilled	8,104.67	9.43
	Incinerated	18,811.67	21.90
	Heat treatment (except incineration)	643.87	0.75
	Recycled	49,468.17	57.58

3.3.9 Management of Hazardous Materials

For the toxic chemical materials proclaimed Category One to Three by Environmental Protection Administration (EPA), 7 reached the benchmark of large operation volume, including Benzene, 1,3-Butadiene, Dimethylformamide, tetrachloroethene, aniline, Allyl alcohol and Di-iso-nonyl Phthalate. They are from Dalin Refinery and Petrochemical Business Division. There are 25 toxic chemical materials proclaimed Category One to Three that are lower than the benchmark of large operation volume, such as carbon disulfide. For Category Four, we have 12 toxic chemical materials, such as methyl tert-butyl ether. All of them are strictly regulated and reported according to EPA regulations. The management methods of CPC are as follows.

CPC's Management of Toxic Chemicals

<p>Toxic Chemical Substances Control Act</p>	<ul style="list-style-type: none"> ① Proclamation of toxic chemicals of Category 1 to 4. ② Report on operation volume and release amount. ③ Permission, approval of application, extension, abolishment. ④ Labelling of toxic chemicals, responsible person, insurance, toxic disaster control alliance, response equipment, emergency response.
<p>On-site Unit</p>	<ul style="list-style-type: none"> ① Establish and implementation of relevant procedures based on "Toxic Chemical Substances Control Act. ② Add the toxic disaster control alliance in accordance with legal regulations and organize fire drills. ③ Introduce ISO 14001 Environmental Management System.



CPC's Management of Toxic Chemicals

Head office	<ul style="list-style-type: none"> ① Suggestions for regulation amendment and revision, and provision of legal consultation. ① Environmental inspection and audits. ① Management of fine tickets. ① Establish item files for documentation of permit, personnel in charge and the toxic disaster control alliance in accordance with the item of toxic chemicals in each unit.
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Whenever operating poisonous chemicals in Category 1 to 3, we will submit the Emergency Response Plan to the competent authorities for reference when the total amount of operation reaches the large-scale handling standard. This plan includes a contingency task group, a command and reporting mechanism, and the preparation of disaster prevention and response equipment. Each emergency response plan should be tested twice a year but not inform in advance, and there should be at least an overall exercise every year to cooperate with local environmental protection units in the emergency drill for substantial prevention of toxic disasters.



In addition, all relevant units of the CPC shall establish a nationwide toxic chemical substance joint prevention organization in accordance with Article 16, Paragraph 4 of the "Toxic Chemical Substances Control Act" and Article 7 of Toxic Chemical Substances Control Act Enforcement Rules. CPC has handled the first phase registration of existing chemical substances according to the "Regulation of New and Existing Chemical Substances Registration", so far it has registered a total of 144 chemical substances. In addition, CPC has actively completed the confirmation on Chemical Commodity Importation Pre-Confirmation in accordance with relevant regulations to cooperate with EPA's "Registration System for Chemical Substance Management System".

3.3.10 Emphasizing Biodiversity

CPC adheres to the concept of "green coexistence" and attaches great importance to biodiversity. In addition to afforestation, environmental protection and ecological conservation, CPC also conducts environmental and ecological monitoring to take into consideration the social and natural ecology and sustainable development of the company.



🌿 Achievements of Afforestation Activities

CPC has been planting trees for 10 years. From March to April 2017, the “Afforestation and Green Home” activity was jointly organized in Taoyuan, Taichung, Chiayi, Tainan and Kaohsiung. On the Earth Day, Free Tree Giveaway was carried out with a total of 20,000 free trees given away. A total of 100 gas stations in Taiwan launched a public welfare environmental protection activity in which people could exchange trees with invoices and waste batteries. CPC continues to maintain ecological diversity and achieve energy conservation and carbon reduction through tree planting activities.

🌿 Complete Environmental Monitoring System

Take Yong-an LNG Factory for example, according to the EIA commitments, Yong-an Factory commissioned Cheng Shiu University to conduct long-term surveys of sea water quality and ecological environment and conduct environmental quality monitoring every quarter to grasp the changes in water quality of sea areas during operation. None of the monitoring results were abnormal due to the operation of the factory.



Environmental Monitoring Measures Around Young An Factory

Category	Item	Countermeasures
Air quality	SO ₂ , NO _x , CH ₄ , NMHC, THC, PM ₁₀ , TSP	Conduct continuous monitoring to understand long-term air quality
Water Quality	1. General items (10 items): water temperature, pH value, salinity, dissolved oxygen, residual chlorine, transparency, colon bacillus, suspended solids, BOD, grease. 2. Heavy Metals (6 items): Lead, cadmium, chromium, copper, zinc, mercury.	Conduct continuous monitoring to understand long-term sea area water quality status
Sea sediments	1. Grease 2. Heavy metals (lead, cadmium, chromium, copper, zinc, mercury).	Conduct continuous monitoring to understand long-term sea sediment status
Marine life	Phytoplankton, zooplankton, benthos, fish	Conduct continuous monitoring to understand the impact on the marine ecosystem

🌿 Make Use of Ecological Engineering Methods for Flood Prevention and Ecology Protection

Take the Suao Oil Supply Center for example, the oil storage tank of the Suao Oil Supply Center is located beside a hillside with steep slopes and heavy rainfall in Suao, Yilan. In the past, the surface runoff caused by typhoons or transient heavy rain led to geological disasters. There were 15 typhoons between 2013 and 2015, including strong typhoons such as Typhoon Dujuan. Suao Oil Supply Center has long attached importance to ecological conservation, and therefore it has used headworks, check dam - ground sill, geogrid earth anchor and vegetative stabilization (13 locations in total), detention ponds (ecological



methods) and wicker-work (vegetation) to achieve the effects of flood control and ecological conservation. The repeated typhoons have not caused the earthflows and the destruction of ecological environment.

💧 Suao Oil Supply Center-the oil depot has a diverse ecology



A Crested Serpent Eagle on the streetlight at Suao Oil Supply Center



A swallowtail butterfly at Suao Oil Supply Center



A Formosan macaque on the streetlight at Suao Oil Supply Center



A short-tailed leaf-nosed bat in Guoguang Tunnel at Suao Oil Supply Center

3.3.11 Carrying out Environmental Evaluation

All CPC's factories implement environmental monitoring in accordance with the EIA commitments to ensure that they truly understand the changes in environmental quality during the operation period. The monitoring items include air quality, noise and vibration, low-frequency noise, surface water quality, groundwater quality and traffic volume. The regular monitoring is conducted in accordance with the EIA commitments and the results of monitoring are analyzed for review and improvement.

💧 EIA Review and Implementation

A total of seven changes in the 2017 investment plan were submitted to the Environmental Protection Administration for environmental impact assessment (as shown in the following table). Five changes were reviewed and approved, and the remaining two were still under review.



EIA Plan Change for Review in 2017

Item	Name of EIA Case	Review results
1	Environmental Impact Statement for the Gas Injection Well and Gasser Development Plan in the Tianshan Area (Content comparison table for the third change)	Under review by EPA
2	Countermeasures and Environmental Impact Comparative Analysis Report of Algae Reef Ecosystem in Kwun Tong Industrial Park	Under review by EPA
3	Environmental Impact Comparative Analysis Report of the Second Change of the Second Phase of the LNG Receiving Terminal in the North and the Fifth Change of the Original New Construction Plan	Amended and approved by EPA
4	Environmental Impact Comparative Analysis Report of the New Construction of the Kinmen and Matsu Marketing Centers and the Addition of Storage Tanks	Amended and approved by EPA
5	The Second Environmental Impact Comparative Analysis Report of Environmental Impact Statement for Shalun Waste Oil Sludge Treatment Facility Improvement Project	Amended and approved by EPA
6	Environmental Impact Statement of Dalin Refinery's Distillery Factory Renewal and the Renewal Plans of Relevant Factories (Content comparison table for the first change)	Amended and approved by EPA
7	Environmental Impact Statement of the Construction of Residue Oil Conversion Unit by Dalin Refinery and Catalytic Performing Unit Expansion Plan (Content comparison table for the Third Change)	Amended and approved by EPA

EIA Review Conclusions and Commitment Tracking

CPC has passed the EIA plan and cooperated with the State Enterprise Commission, MOEA to conduct 2017 annual surveillance of key spot tracking. There are two cases as follows. After on-site verification, the two development plans are in compliance with the EIA commitments.

2017 On-site Tracking of the Development Plan

Item	Development Plan	Passed the review on	On-site Tracking on
1	Environmental Impact Assessment Report on A8601 LNG Receiving Terminal Phase III Project.	September 11, 1997	June 15, 2017
2	Environmental Impact Statement for Dalin Refinery Oil Desulfurization Project.	November 30, 2009	July 14, 2017



3.4 Green Effects

3.4.1 Green Office

Office Energy Conservation

To work line with the policy of Executive Yuan, CPC has promoted the “Energy Conservation Action Plan for Government Agencies and School” to save electricity at offices. The power saving target will be that the EUI value not exceeding the announced benchmark value until 2019. CPC would save energy by implementing stratification management. New energy-saving measures such as specialization, intelligent computer room and management optimization have been adopted for energy-saving action plans to move toward carbon reduction. In 2017, electricity was saved by 2.48%, achieving the annual saving target.

Year	Power consumption in offices (kWh)
2015 (Base Year)	21,639,285
2016	21,032,196
2017	20,511,299
2017 Saving percentage ^{Note1}	2.48%

Note : Calculation formula for saving percentage = (Power consumption for offices in 2016 - Power consumption in offices in 2017) / Power consumption in offices in 2016.

Key Task	Improvement Actions
Strengthening energy management	<ul style="list-style-type: none"> ① Work performance is included in the twice-yearly follow-up and review of the Energy Efficiency Tracking Conference. ② Regularly follow up on the Website for information concerning “Government Agencies and Energy Saving Reporting”.
Intelligent Computer Room	<ul style="list-style-type: none"> ① Since the computer facilities were newly built in 2017, electricity has needed to be recorded on a separate electricity meter. ② If computer facilities are equipped with more than 50KVA uninterruptable power supply, an independent meter is separately installed.
Improving equipment efficiency	<ul style="list-style-type: none"> ① Replacement of old air conditioners that are more than 9 years old with inverter air conditioners. ② T8, T9, T12 will be replaced with LED lamps by the end of 2018. ③ T5 and T6 lamps installed before 2016 will be replaced with LED lamps by the end of 2019. ④ T5 and T6 lamps installed after 2016 will be replaced with LED lamps by the end of 2020. ⑤ Halogen lamps for road lighting are replaced with high-pressure sodium lamps or LED lamps.

Green Purchasing Policy in Offices

CPC's goal for green purchasing rate in 2017 is 90%, and all units have to follow the green purchasing policy to finish online reporting of office supplies, office equipment and appliances. The percentage achieved in 2017 was 95%, exceeding the target set before.



Green Buildings

CPC conducted the oath-taking activity with the theme of "Moving toward the new era of green gas stations" on December 4th 2015 and started a new era of green gas stations. After Badu Gas Station and Guishan Gas station applied and obtained the Diamond Level of Green Building Label in 2015, 7 gas stations including Hoping Gas Station, Houbi Gas Station, Kenting Gas Station and so on were also granted the Diamond Level of Green Building Label in 2016. By the end of 2017, 37 gas stations had obtained Green Building Label and 11 buildings had received Diamond-Grade Green Building Label.



Oath-taking activity with the theme of "Moving toward the new era of green gas stations"



HSR Gas Station in Guiren

3.4.2 Circular Economy and Green Products

The manufacturing process, quality and transportation of CPC products all follow domestic and international environmental regulations and we can provide Safety Data Sheet (SDS) for our products to ensure the safety. In 2017, CPC products did not have any health, product safety, product information and labeling regulations violation or even any voluntary violations.

Recycle Crude Oil for Refinery

To decrease the excess use of petroleum resources, CPC has long been reducing the production of waste oil and focusing on the research on the crude oil recovery and refining. In 2017, CPC's refining percentage of crude oil was 0.14%, with a total refining amount of 31,020KL, lower than the refining percentage in 2015, which was caused by the reduced production of waste oil in 2017.

The Crude Oil Feed and Refining in the recent 4 years

	Item	Unit	2014	2015	2016	2017
Incoming	Crude oil (including recycled oil)	KL	22,380,439	20,525,008	21,635,119	21,661,811
Refining	Waste oil or non-qualified oil	KL	27,075	77,870	32,086	31,020
	Percentage of re-refining	%	0.12%	0.38%	0.15%	0.14%



R&D of Green Product

In order to achieve the goals of industrial sustainability, environmental sustainability and energy sustainability, CPC cooperates with the government in promoting green energy industry development and new energy policies. Green Technology Research Institute actively invests in R&D of environment-friendly processes, changes in production materials and development of carbon reduction technology. Focusing on the “energy conservation, carbon reduction and clean energy”, we will carry out research on clean energy development, carbon dioxide reduction and reuse and biomass energy technologies. Through the core technologies, the company is moving toward six aspects of environmental friendliness, new product development, clean energy, carbon reduction, energy storage and energy saving. In response to the market demand, we will try our best to promote the integration of innovation value and develop and research a renewable energy with innovation and sustainability. Green Technology Research Institute selects "photovoltaic", "hydrogen energy and fuel cells" and "biofuel" as the R&D focus based on industrial development characteristics and technologies. In addition, it integrates "energy storage" and "energy saving" applications to make renewable energy more effective and make the future development direction of the green energy industry chain more complete. In 2017, the R&D expenditure for renewable energy was NTD 160,814 thousand. The content and objectives of the research projects are as follows.

CPC's Green Products

Biomass Refining Process Technology Research	Hydrogen Energy and Fuel Cell Technology Research	Photovoltaic Technology Development
<ul style="list-style-type: none"> (1) Development of green diesel process technology. (2) Development of biomass aviation fuel process technology. (3) Biomass pyrolysis process technology and product development. 	<ul style="list-style-type: none"> (1) Development of a small natural gas re-combiner of 3-5 kW. (2) Integration and development of the factory's residual hydrogen power generation technology. 	<ul style="list-style-type: none"> (1) Application and development of photovoltaic integration system technology. (2) Development of large-size Perovskite Thin-film Solar Cells.
		
<p>Green diesel and biomass pyrolysis.</p>	<p>Development and design of micro natural gas re-combiner (left: high temperature; right: low temperature).</p>	<p>Large-size perovskite thin-film and its solar cell module.</p>



Special
Column

3

Recycling and Reuse of Wastewater - Membrane Bioreactor Technology

Climate change exacerbates the crisis of water shortage

Taiwan is a country that is pluvial but short of water. When droughts occur, it may face a crisis of water shortage. Moreover, due to climate change, the risk of water shortage will increase again. In response to this water crisis, with a new amendment to the Water Pollution Control Act and the imposition of water pollution expenses and water consumption expenses, all units of CPC have also been committed to improving the efficiency of waste water treatment in factories and actively promoting the recycling of wastewater resources for cherishing the earth's resources, complying with the EIA commitments, and saving on environmental protection costs, and also for the reservation of the energy for CPC to cope with climate change.

Solution for water shortage: reuse of factory wastewater

The wastewater discharge from CPC mainly comes from the 4 refineries and chemical plants. The wastewater generated typically contains oils, dissolved organics, suspended solids and phenols. The traditional wastewater treatment processes of refineries and petrochemical plants separate the oil and water through primary treatment. After the wastewater undergoes secondary (biological) treatment to meet the influent standards of the petrochemical industry, it will be discharged or reused.

In order to improve the efficiency of wastewater treatment and recovery, refineries can add Membrane Bioreactor (MBR) and RO/EDR technology during the process to remove suspended solids, dissolved organics, inorganic substances and bacteria, and then reuse the processed wastewater in the process. The MBR is a combination of membranes and microorganisms. It differs in shapes and materials, such as tubular, hollow fiber, spiral, disk/plate and ceramic. Its advantage is that it requires small land area. The requirement of small land area makes it at least 30% smaller in size compared with the traditional wastewater treatment equipment. At the same time, a number of pollutants are removed and the treated water quality is good, which can effectively improve the efficiency of wastewater treatment.

Advantages and Disadvantages of MBR

(Compared to Conventional Activated Sludge Process)



Membrane Bioreactor (MBR)



Reverse Osmosis (RO)

Advantages

1. Requires small land area
2. The water quality is good and clear
3. Be capable of operating high sludge concentration
4. less subject to the changes in water quality
5. Not affected by sludge expansion
6. Less waste sludge
7. Short start-up time

Disadvantages

1. There is a membrane blocking problem
2. High membrane cost
3. High aeration power

According to the water resources risk with mainstream technology

Currently, the wastewater treatment processes at Dalin Refinery and Linyuan Petrochemical Plant are planning to add MBR and RO treatment technologies. The process is as follows.

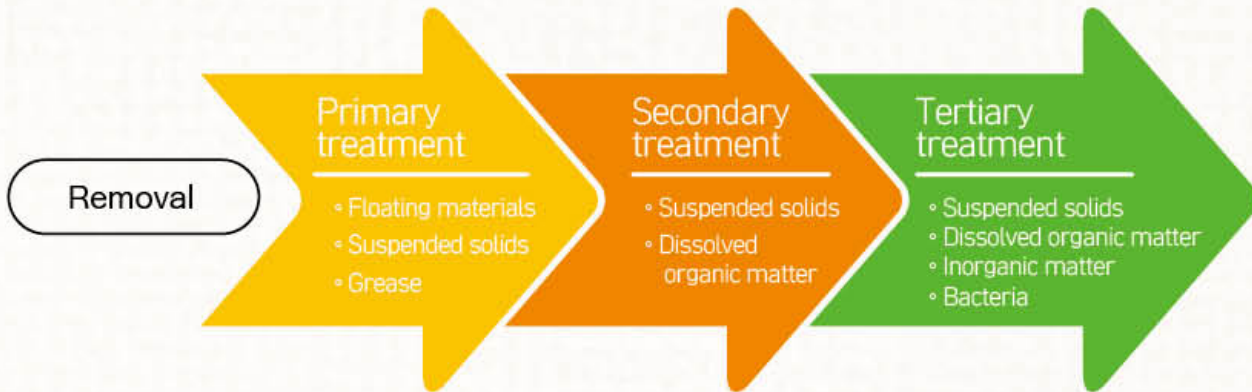
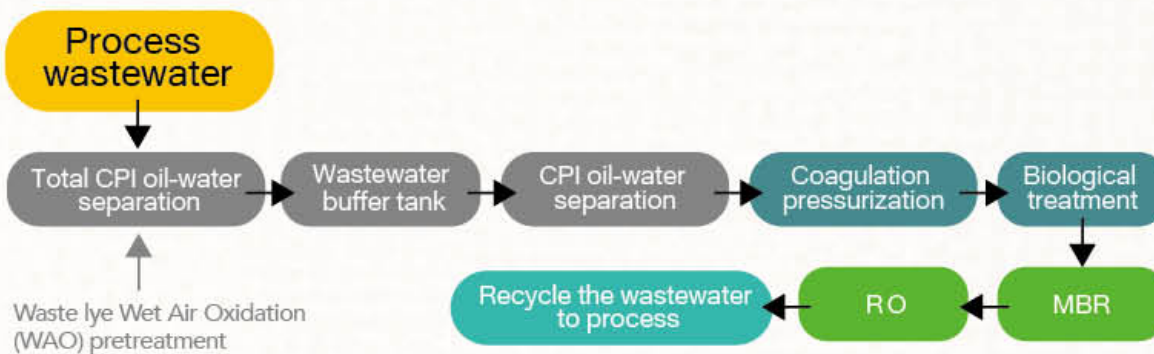


Figure: Wastewater Treatment Process Flow at Dalin Refinery and Linyuan Petrochemical Plant.



The waste water treatment unit at Linyuan Petrochemical Plant was started in January 2013 with a processing capacity of 6,000 tons/day, which greatly increased the efficiency of water treatment. The recovery rate in 2017 was 70.11%, which was better than the EIA commitment value; the waste water treatment unit at Dalin Refinery was put into operation in December 2017 with a processing capacity of 8,000 tons/day.

MBR+RO technology is a powerful tool and mainstream technology for wastewater recovery. Linyuan Petrochemical Plant and Dalin Refinery of CPC have used this latest wastewater treatment and recovery equipment to improve the efficiency of wastewater treatment in response to various water resource risks. The management and improvement of waste reduction and waste water diversion before recycling still need to be continued. In addition, the related courses on water pollution prevention and control should be actively initiated to improve the professionalism of employees in terms of environmental protection for the best wastewater treatment and recycling in the face of the increasingly stringent environmental conditions and regulations in the future.

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4.

Talent Development, Security – Workplace Wellbeing

- 4.1 Sustainable Management Approach for a Happy Workplace
- 4.2 Sustainable Workplace
- 4.3 Friendly Workplace



2017

Sustainable Management Performance



Create Employment

In 2017, a total of 326 new employees and 1,400 workers were recruited.



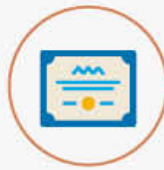
Attention to Human rights

In terms of hiring employees in 2017, there was no occurrence of violation of human rights or discrimination, nor was there any impact on the company's operating activities due to human rights.



Emergency response drills

In 2017, a total of 309 sessions of disaster relief drills, 7 emergency response drills without warning and 4 large-scale emergency response drills were conducted.



Safety and Health training

In 2017, CPC held 113 certificated courses, credited classes and on-the-job training for workplace safety and health training.



Secure Environment

There was no death due to performing duties in 2017.



Caring for the Vulnerable

As of 2017, CPC hired 757 people with disabilities, accounting for 5% of total staff.



Friendly Workplace

In 2017, the reinstatement rate and the retention rate after parental leave reached 100% for both women and men.



Employee Training

In 2017, 2,761 classes were organized for training, and the trainees totaled 100,467 person-times, the average number of training hours for employees was 53 hours.



4.1 Sustainable Management Approach for a Happy Workplace

CPC regularly holds a labor-management meeting at least once every three months as required. In 2017, a total of 24 corporate-headquarters labor-management meetings were held regularly to maintain a good interactive relationship with employees to achieve a harmonious relationship between the employer and employees. All meeting minutes have been disclosed on the CPC's internal website. With regard to changes in operations that may have a significant impact on employees, the labor-management meeting has established a communication mechanism on specific issues and established a project communication team on specific issues. To assist staff in solving difficulties and safeguarding legitimate rights and interests, CPC has formulated the Grievance Practices for CPC Staff to effectively handle cases of employee complaints, improve work morale and promote unity and harmony. CPC employees can propose claims concerning labor terms based on it. According to statistics, there were 2 complaints filed by the employees in 2017.

Related material topics Employment and Labor Relations, Labor/ Management Relations, Education and Training, Occupational Health and Safety, Assets Integrity and Safety Drills, Emergency Prevention.

The importance and purpose of sustainable management of a happy workplace

No matter where I used to be, I knew that I needed a team to do things well and make achievements. Without teamwork, I could absolutely do nothing!" CPC's new appointed Chairperson, Dr. Tai, Chein, emphasized the importance of teamwork when he took Letter of Appointment in the press release in November, 2017. He stressed that he would take care of all the members of this community of life that will work together with him in the future and that the entire CPC will be "brave and strong" only when all the members are happy.

Management strategies

- ① To comply with the policy of "Implementation of Occupational Safety and Health System" and "Improvement of Occupational Injury Prevention, Protection and Laborer Reconstruction", we implement standard operating procedures for implementation and inspections to prevent accidents from happening, continue to strengthen the workplace safety and environmental education and training for relevant drills so as to maintain work and environmental safety.
- ① To carry out workplace safety disciplines, promote the participation of all employees, conduct regular safety assessments of processes, implement disaster prevention training, strengthen emergency response capabilities, enhance the overall workplace safety and achieve the goal of "100% safe workplace and zero accident".
- ① To properly plan the employment and deployment of manpower, continue to promote knowledge management and organize various training programs, effectively pass down expertise and experience, foster the depth and breadth of employees' careers, reduce the impact of labor shortage and optimize corporate human resources.
- ① To cooperate with the government's privatization policy, continue to communicate with employees and labor unions to gather internal consensus and facilitate the successful completion of privatization to enhance the autonomy and flexibility of the company's operations.

Commitments and goals

Short-term Goals

- ① To continue to promote CNS 15506 and introduce ISO 45001 in the future to work in line with the changing trend of Occupational Safety and Health Management System.

Medium- and Long-term Goals

- ① All employees are provided equally high quality safety and health protection and zero accident.



Commitments and goals

Short-term Goals

- ① To implement the Globally Harmonized System (GHS) and Chemical Control Banding (CCB) according to laws.
- ① To continuously carry out workplace safety and emergency response exercises.
- ① To strengthen the accident learning, reporting and investigation and regularly check the implementation of the proposed matters.
- ① To implement a contractor safety performance appraisal system.
- ① To implement industrial health education and training and continue to implement the certificated courses, credited classes and on-the-job training.
- ① To continue to assist key units in completing the establishment of process safety management system.
- ① To strengthen employee health protection system, including labor health protection matters like health management, occupational disease prevention and health promotion.
- ① To comply with the relevant provisions of the Labor Standard Act and continue to employ indigenous people and people with physical and mental disabilities to provide them with appropriate job opportunities.
- ① To provide smooth communication channels between the two sides of labor and management and hold a variety of forums in order to coordinate and deal with disputes in a reasonable and systematic way to develop consensus between labor and management.
- ① To plan the employment of core manpower in advance, cultivate new staff functions, develop core business capabilities, enhance management functions, improve work experience and core knowledge training, pass down expertise and experience through knowledge management and training programs to reduce the impact of labor shortage.

Medium- and Long-term Goals

- ① To strengthen the workshop information construction, and engineering pipeline diagram, operation, maintenance procedures should be regularly reviewed and updated. Each workshop area should be equipped with management files of health and safety information, testing and start-up and shutdown reports.
- ① To enhance the equipment and the professional ability of pipeline non-destructive testing to effectively prevent the deterioration of equipment and non-planned shutdown.
- ① To establish corrosion loops in various factories, strengthen inspections of sites where corrosion may occur, establish RBI assessment techniques and invest more resources in high-risk equipment for inspections.
- ① To promote the establishment of all plant and set up the process safety management system as in the key unit and conduct internal and external compliance audits of existing management systems.
- ① To introduce advanced detection technologies, such as Time of Flight Diffraction, AC field measurement, electromagnetic probes, internal inspection systems and magnetic leakage testing to enhance inspection during operation to shorten overhaul time.
- ① To establish mutual trust and reach zero labor dispute.
- ① To establish a humanized working environment, so that each employee can get a sense of accomplishment at work and further enjoy working.
- ① To establish training policies and future training directions, implement reserve managers and rotation plans to cultivate the depth and breadth of staff functions and to achieve the development of the various positions and the future management talents and optimize the company's resources according to the vision, the direction of the organization and the development of the main business of the company and the development of the professional duties required by the staff.

Units in charge	CPC's Sustainable Management Committee Social Care, Department of Human Resources, Department of Industrial Safety & Health.
Introduced management systems	OHSAS 18001 Occupational Health and Safety Management Systems (CNS15506), Taiwan Occupational Safety and Health Management System (TOSHMS), Grievance Practices for CPC Staff, e-Petroleum Institute, Talent Quality-management System (TTQS).
Review and evaluation mechanism	<ul style="list-style-type: none"> ① The meetings of Sustainability Promotion Committee are convened three times a year to discuss the reports and proposals of each group. ① The internal and external audits of TOSHMS are conducted on a regular basis every year and a TOSHMS management review meeting is held to review the defects and results of audits to ensure that the occupational safety and health issues of CPC comply with the regulations.



Practices of SDGs



 <p>4 QUALITY EDUCATION</p>	<p>Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.</p> <p>4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.</p>
<p>Knowledge Management (KM) is based on building a common knowledge management platform to expand knowledge content and promote active knowledge management services. In 2009, the Company introduced a knowledge management platform. In 2010, the Company established a Knowledge Management Committee and formulated relevant incentive measures. In recent years, CPC has focused on maintaining the normal operation of the knowledge management system platform. The KM online competition was conducted in 2017 based on the CPC's knowledge management promotion plan to complete the upgrade of the community modules. In addition, functions such as the function modules for each unit's contribution and report revision were added to increase the utilization rate of KM for the company's employees and continue to deepen the corporate culture of KM in CPC. In 2017, we organized 2,951 classes with 107,457 person-times of trainees. Among them, 39 classes were for supervisor training with 1,804 trainees, 1,932 classes were for professional training with 59,177 trainees, 163 classes for second professional skill training with 6,518 trainees and 14 classes for skill assessment training with 409 trainees. In addition, 2 people were awarded for further research abroad and 23 people for foreign internship.</p>	
 <p>5 GENDER EQUALITY</p>	<p>Goal 5. Achieve gender equality and empower all women and girls.</p> <p>5.1 End all forms of discrimination against all women and girls everywhere.</p>
<p>After hiring, CPC provides equal pay for equal work, and never has other considerations for race, belief, religion, political party, place of origin, birthplace, gender, sexual orientation, marriage, appearance, being physically or mentally challenged or union member. We also ensure freedom of association for the employees, and encourage them to join clubs and cooperate with companies that follow the same principles. This is exactly the reason why there has never been a gender or race discrimination case against CPC. During 2017, there is no human right violation or discrimination case for newly hired employees. Nor is there any human rights impact on our company operation, It also includes 1 female director of board, 1 female supervisor and 1 female V.P.. Women are fully empowered.</p>	
 <p>8 DECENT WORK AND ECONOMIC GROWTH</p>	<p>Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.</p> <p>8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.</p>
<p>In recent years, due to factors such as large numbers of staff retiring and quota management, the manpower gap has not been covered up, resulting in shortage of expertise, experience and labor. In consideration of the need to cultivate manpower in advance, the manpower and job offers required by all units are recruited externally within the budgeted annual quota under the principle of economizing employment expenses. The manpower required for the core business includes five types of on-site operations of chemical, electrical engineering, machinery, exploration and marketing as well as direct sales, and the operational capabilities and knowledge can be passed on and production skills be continuously improved and refined to increase production efficiency. In 2017, a total of 326 new recruits and 1,400 workers were recruited, totally provided 1,726 full-time employment opportunities.</p>	
 <p>10 REDUCED INEQUALITIES</p>	<p>Goal 10. Reduce inequality within and among countries.</p> <p>10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.</p>
<p>For employees hired through MOEA joint examination for government-owned enterprises, all are coming in as 1st level of 2nd grade, male or female. CPC-hired ones are coming in as 1st level of 5th grade, again, male or female. The starting salary of new employees is always higher than the local minimum wage.</p>	



4.2 Sustainable Workplace

Workplace safety is one of the core values of CPC's sustainable operation. In addition to adhering to the laws and regulations, CPC continues to promote the concept of intrinsic safety to ensure equipment reliability and stable operation. In addition, we are also committed to the concept of safety and health and cultural construction to achieve the goals of implementation of the workplace safety check, compliance with SOPs, implementation of safety leadership, establishment of workplace safety and workplace protection for all employees. In addition, CPC continuously reduces the risks of personnel, equipment and the environment through PDCA.

4.2.1 Occupational Safety and Health Management

In order to effectively reduce the risk of industrial safety accidents, in addition to establishing OHSAS 18001 system, CPC introduced Taiwan Occupational Safety and Health Management System (TOSHMS) in 2008, hoping to establish procedures of hazard identification, risk assessment and risk control for effective prevention of occupational disasters. Each year, internal and external audits are regularly conducted and a TOSHMS management review meeting is held to review the defects and results of audits to ensure that the occupational safety and health issues of CPC comply with the regulations; Up to the end of 2017, a total of 34 business units completed the establishment and verification of TOSHMS certification.

Occupational Safety and Health Committee

The Occupational Safety and Health Committee is in charge of promoting workplace safety, preventing accidents, improving working conditions and employees' health, with the president as the chairperson of the committee. There are 25 commissioners coming from related departments, including one chairperson and 24 commissioners. There are 9 commissioners from the labor union, accounting for 36% of all the commissioners, exceeding the requirement in the regulation. CPC holds quarterly meetings for the Occupational Safety and Health Committee. In 2017, labor union members submitted 5 proposals which accounted for 62.5% of the issues for discussion.

Promotion of Issues Concerning Employee Safety

Issues concerning work environment, labor conditions and health and safety improvement are brought up and discussed with the employer's representatives in the monthly labor-management meeting, and the responsible divisions would propose a solution or brief the handling process. The issues brought up in the labor-management meeting will be continuously tracked until the problem is solved, and such case would be treated as a formal agreement. Representatives from both the employer and the employees of CPC jointly develop the collective agreement. The articles will incorporate occupational safety and health and related labor rights and interests that are superior to the current Labor Standards Act.



Management of Contractors' Safety

CPC also attaches importance to the safety of contractors. Therefore, there are clear regulations concerning the contractor construction safety management, including the system implementation, control procedures and emergency response. The same regulations and procedures apply not only to our employees but also to the contractors' workers. CPC has conducted 17 times of inspection and auditing of our contractors in 2017 (including holiday inspections and the ones without prior notice). In addition, each unit conducts inspections of our contractors on a daily basis through a hierarchical inspection and audit system.

Contractor Management Mechanism

- 1. CPC has set "Management procedures for safety and health of contractors" and "Guidance on safe work permit". The same regulations and procedures apply not only to our employees but also to the contractors' workers.
- 2. The contractors' labor accidents are seen the same as the ones for our employees, and would be investigated, recorded and tracked.
- 3. We also established "inspection and auditing teams" to go to construction sites for non-scheduled on-site inspection and auditing.
- 4. We reinforced the establishment of safety awareness of our contractors and strictly required them to follow the SOPs.
- 5. We established contractor evaluation system. The responsible divisions would give evaluation after the completion of work for other units to refer to in order to urge the implementation of contractors' self-management.



The contractor inspection kickoff meeting



On-site inspection



On-site inspection



The education and training of contractors' scaffolding staff before entering the site



Safety Management of Security Guards

Our security guard staff and contracted security companies are responsible for the access control and security of CPC owned plants, factories and CPC office buildings. All security staff in our company have to receive the professional security guard training as well as the emergency personnel training; operators in the control rooms have to attend disaster prevention seminars for high-rise buildings. Contracted security guards should also be trained by their own security companies for basic training (including basic regulations and laws concerning security, fire control, traffic control and self-defense) and professional education (such as human rights, etiquette, system operations, use of equipment and patrol investigation).

Emergency Response Drills

By classifying the identified emergencies, CPC has developed various emergency response drills and regularly conducts emergency simulations to strengthen contingency and disaster prevention capacity. In 2017, CPC held a total of 309 disaster prevention drills, 7 emergency response drills without warning and 4 large-scale emergency drills.



On-site emergency response exercise



Emergency response exercise at the gas station



Offshore emergency response exercise



Disaster Prevention Drills in 2017

Category	No.
Equipment abnormality	75
Pipeline valves abnormality	70
Natural disasters (including flood prevention)	36
Human events	87
Others (electric shock, control system abnormality)	52
Total	320

4.2.2 Workplace Safety Education, Training and Advocating

To elevate the workplace safety and environmental protection functions of all employees at CPC, we set up a series of workplace safety education, training and advocating activities to build workplace safety awareness of the employees. In 2017, CPC held a total of 113 sessions of workplace safety and health training, including license courses, credited classes and on-the-job training.

Workplace Safety Education, Training and Advocating
<ul style="list-style-type: none"> ① CPC established the "principles of employees' education and training for Environmental Health & Safety (EHS) protection" to regulate the certification, credited training and on-the-job training of environmental safety and health required for each job position, and the demand for training should be investigated at the end of each year. ② Various training, exchanges and promotion of EHS-related training is planned and conducted. ③ Conduct EHS-related training for high-level management to enhance their safety awareness and management capabilities.

Workplace Safety Education and Training Summary in the recently 3 Years

Unit: person-time

Year	2015	2016	2017
Training Category			
Workplace Safety and Health Certification	3,519	3,636	4,251
On-the-job training for workplace Safety	15,900	20,652	19,970
On-the-job Training for Occupational Health	7,480	6,260	4,195
Total	26,899	30,548	28,416



Class discussion and report



The explanation of the aerial vehicle



The declaration and encouragement of first-level supervisors on the workplace Safety week



The president went to all units for workplace safety advocacy

4.2.3 Workplace Safety Performance

Statistics for Employee Occupational Disasters in 2017

	Male	Female	Total
Injury Rate (IR) ^{Note1}	0.042	0	0.038
Occupational Disease Rate (ODR) ^{Note2}	0	0	0
Lost Day Rate (LDR) ^{Note 3}	3.59	0	3.18
The number of deaths due to performing duties	0	0	0
Absentee Rate (AR) ^{Note4}	0.49%	1.35%	0.6%

Note 1 : Male Injury Rate (IR) = (Men's total number of disability injuries (excluding minor injuries and traffic inside and outside the factories*) ÷ Men's total working hours) × 200,000 = (6/28,225,220.3) × 200,000 = 0.042.

IR = (Total number of disabling injuries (without minor injuries and traffic inside and outside the factories*) ÷ Total working hours) × 200,000 = (6/31,910,976.3) × 200,000 = 0.038.

*Minor injuries are slight injuries caused by work or related work activities and other occupational reasons. The injured staff can go to work on the same day or the next day after being cured in a hospital or clinic.

Note 2 : ODR = (total number of occupational diseases / total working hours) × 200,000.

Note 3 : LDR = (Male total lost working days ÷ Male total working hours) × 200,000 = (507/28,225,220.3) × 200,000 = 3.59. LDR = (total lost working days * total working hours) × 200,000 = (507/31,910,976.3) × 200,000 = 3.18.

*The number of lost working days refers to the calendar day; the number of lost working days is calculated from the next day after the accident to the day before returning to work.



Note 4 : AR= (The total number of absent days during the report period ÷ The total number of working days during the report period) × 100%.
 Male: $<15,653.75 / (12,873 \times 248) \times 100\% = 0.49\%$; Female: $<6,473.75 / (1,933 \times 248) \times 100\% = 1.35\%$; Total: $<22,127.5 / (14,806 \times 248) \times 100\% = 0.6\%$.
 *Calculation of absent days: absent days = occupational hazards leave + approved sick leave + ordinary sick leave without hospitalization + ordinary sick leave with hospitalization + menstrual leave.

Statistics for Contractor Occupational Disasters in 2017

	Male	Female	Total
Injury Rate (IR) ^{Note1}	0.079	0.011	0.09
The number of deaths due to performing duties	1 ^{Note 2}	0	1

Note1: IR=(Number of recorded injuries/Number of hours worked)×200,000.

*The number of total working hours of the contractors is calculated by the actual working hours reported by each unit in each month. Current data cannot distinguish gender.

Male: $(7 / 17,759,631.96) \times 200,000 = 0.079$.

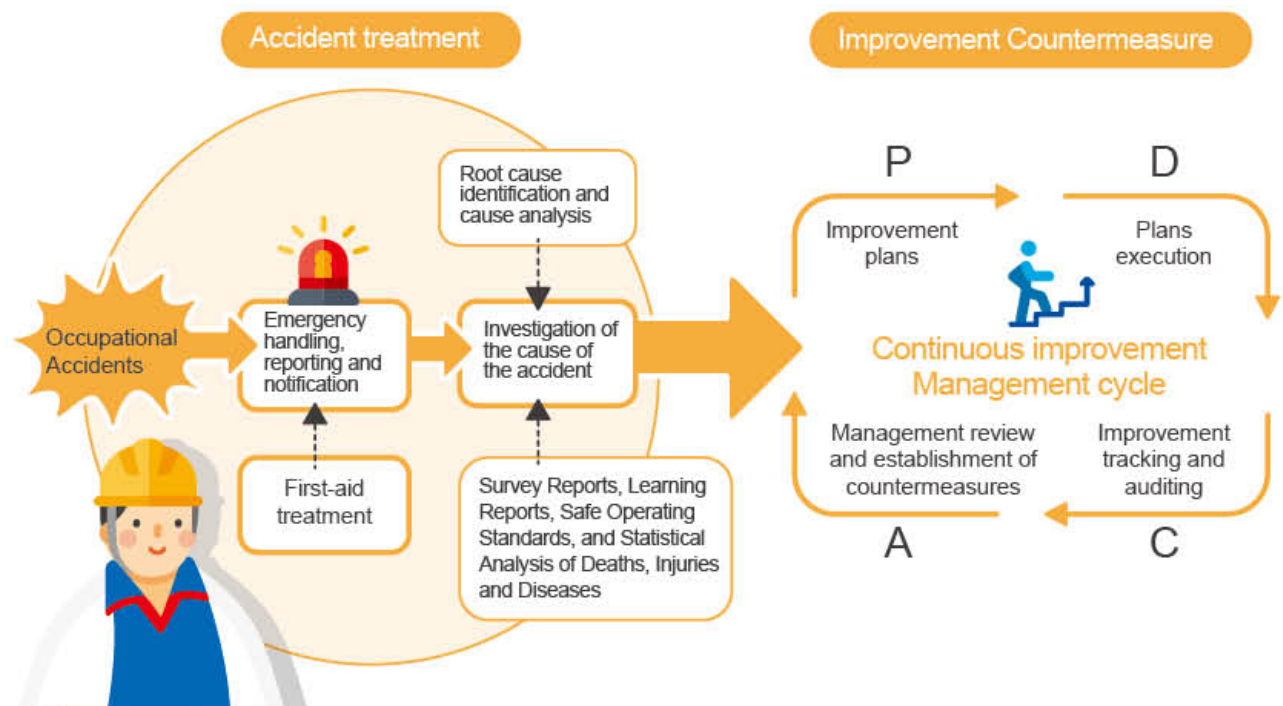
Female: $(1 / 17,759,631.96) \times 200,000 = 0.011$.

Note2: A contractor inhaled hydrogen sulfide and got poisoned.

Handling of Occupational Accident

CPC has established the "Occupational Accident Investigation and Management Guidelines" to set regulations for the notification process at the time of the accident, investigation, report writing, statistics and follow-ups. In addition, an online "Disaster and Emergency Report" has been established on the Company's website to grasp the actual situation of the disasters that occurred in various units in no time.

The Investigation and Management Process for Occupational Accidents





Total Cost of Occupational Safety

CPC's related expenses of occupational safety include the operating costs of the Company, suppliers and clients related cost, the cost of management activities, the cost of research and development, the cost of social activity and the cost of loss and compensation.

Occupational Safety Cost






unit: NTD thousand

	2015	2016	2017
Company Operation Cost	1,247,208	1,093,625	1,027,672
Suppliers and Clients Related Cost	204,344	283,148	229,347
Management Activity Cost	501,318	444,510	345,314
R&D Cost	33	22,559	26,399
Social Activity Cost	13,617	12,707	933
Loss and Compensation Cost	300	3,444	766
Total	1,966,820	1,859,993	1,630,431

4.2.4 Healthy Work Environment

In order to provide staff with a healthy working environment, the Company has set up a clinic to provide a convenient medical environment for the staff and arranged for the annual health check (general inspection and special inspection) of the staff and monitored the operational environment. In addition, we further strengthen the health management statistical analysis. The top five abnormal items will be analyzed annually and the relevant health guidance activities be planned accordingly to make the effective use of them as the basis for health management.

Major Measures of Cherishing Employees' Health

-  Set up a clinic to provide a convenient medical environment for the staff.
-  Arrange health checkups including general and special ones for all employees annually.
-  Check the working environment quality regularly.
-  Based on health checkup data, annually analyze top five abnormal items.
-  Hold a variety of occupational health-related activities and provide the updated health care messages and health services monthly.



Regular Health Examination	2015	2016	2017
Number of employees receiving general health exams	13,894	13,936	14,127
Number of employees receiving special health exams	2,201	1,928	2,167
Total cost of health examinations (including special health checkups)	NTD 26,526,105	NTD 26,198,119	NTD 26,967,058
Special checkups	Noise, dust, organic solvents, special chemicals, ionizing radiation and abnormal air pressure.		

Other Major Measures for Health and Safety

Epidemic prevention measures for infectious diseases	<ul style="list-style-type: none"> ① Cooperate with the government in implementing anti-epidemic work (such as workplace disinfection and influenza vaccination). ② The workplace safety and health department conducts advocacy and arranges the education activities for their employees every year according to the epidemic seasons and regions of various diseases. ③ Actively engage in epidemic prevention for dengue fever, set up the ad hoc group during the epidemic prevention period and implement mobilization, advocacy, inspection, drug administration and tracking according to the plan of epidemic prevention.
Leisure Center	<ul style="list-style-type: none"> ① CPC focuses on employees' needs and provides employees and their families with a full range of sports and leisure venues, including swimming pools, gyms, table tennis rooms, basketball courts and aerobics classrooms. ② Through active curriculum design, employees can also get a healthy balance of body and mind while working and enhancing the friendship between colleagues.
Accessible space	<ul style="list-style-type: none"> ① According to the building technical regulations, the office are equipped with facilities of outdoor guide paths, ramps and handrails, indoor access corridors, elevator voice and braille, front guides for the staircase, slewing space and toilets, etc.



Four cancer checkups - Oral mucosal examination



Health Lecture - Office Stretching Exercises



4.3 Friendly Workplace

CPC has long been committed to employee training and counseling. We provide related welfare measures and a working environment with a sound human development system. For many years, we have continued to hire aboriginal and physically and mentally challenged employees. We expect every employee to enjoy working without any worries and lead the Company to sustainability through Compliance, Care, Communication and Inheritance.

4.3.1 Respecting Human Rights

Besides following Labor Standards Act and other related regulations, CPC has also established "CPC work rules", and no forced labor is the highest principle. If the employee agrees to work overtime on duty, the overtime fee is paid in accordance with the relevant regulations. CPC abides by Labor Standards Act and other regulations to inform employees of layoff in advance to ensure the staff being laid off have enough time for preparations.

The Minimum Advance Notice Time for Major Company Operation Change

1. Those who have worked for more than 3 months but less than 1 year would have 10-day advance notice.
2. Those who have worked for more than 1 year but less than 3 years would have 20-day advance notice.
3. Those who have worked for more than 3 years would have 30-day advance notice.

Hire and Care for Underprivileged Groups

As of the end of 2017, CPC hired 757 physically or mentally challenged people, accounting for 5% of total number of staff, which is superior to the 1% of the total number of employees required by People with Disabilities Rights Protection Act. It fully demonstrated the character of good corporate citizen. CPC also hired 33 aboriginal people as regular employees. In the aboriginal and non- aboriginal towns hired another 173 aboriginal part-time workers and contractors.

Promotion of Gender Equality

For employees hired through MOEA joint examination for government-owned enterprises, all are coming in as 1st level of 2nd grade, male or female. CPC-hired ones are coming in as 1st level of 5th grade, again, male or female. The starting salary of new employees is always higher than the local minimum wage. CPC provides female workers with a friendly working environment by setting up quality and certified breastfeeding rooms and holding gender education and training. The propaganda videos such as anti-discrimination in the workplace and the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) are played in the training courses so that our employees can understand the common forms of discrimination in the workplace and enhance the awareness of employees' human rights. In addition, based on the "Sexual Harassment Prevention Act", we set up the Sexual Discrimination



Grievance Mediation Committee to be in charge of mediating sexual discrimination cases, and we create sexual harassment prevention webpages and the hotlines at (02)8725- 8419 or (02) 8725-8422 to have dedicated persons deal with sexual harassment complaints. When the head office recruits new staff, we will require the employees to be familiar with the working environment and give them the courses on sexual harassment prevention and grievance mechanism. It is necessary to strengthen the publicity and prevention and to carry out sexual harassment prevention and control education for supervisors and employees.

Supporting Staff to Apply for Parental Leave without Pay

CPC supports the staff to apply for parental leave without pay. From January 2, 2014 to December 31, 2017, there were 924 employees who had applied for maternity leave or paternity leave. Among them, 762 were male and 162 were female employees. In 2017, the total number of employees who applied for parental leave without pay was 59, of which 17 were males and 42 were females. The reinstatement rate and the retention rate after parental leave reached 100% for both women and men in 2017.

The Reinstatement Rate after Parental Leave in 2017

	The number of employees who were expected to be reinstated after parental leave without pay in 2017 ^{Note 1}	The number of employees who were actually reinstated in 2017	Reinstatement Rate ^{Note 2}
Female	11	11	100%
Male	7	7	100%

Note: 1.The number of employees who were expected to be reinstated after parental leave without pay in 2017 included those who applied for parental leave without pay in 2015-2017.

2.Reinstatement rate = (The number of employees who were actually reinstated in 2017 ÷the number of employees who were expected to be reinstated after parental leave without pay in 2017)×100%.

The Retention Rate after Parental Leave in 2017

	The number of employees who were actually reinstated in 2016	he number of employees who were actually reinstated in 2016 and had been reinstated for 12 months by 2017	Retention Rate ^{Note}
Female	14	14	100%
Male	10	10	100%

Note: Retention rate =(the number of employees who were actually reinstated in 2016 and had been reinstated for 12 months by 2017 ÷the number of employees who were actually reinstated in 2016)×100%.



Equal Pay System

The basic salary ratio of female and male employees in the same positions and job grades at CPC is 1:1. The average annual salary ratio of female and male supervisors is 1:0.9526; the average annual salary ratio of female and male employees is 1:1.0723.

Employee Retirement System

The matters concerning retirement of dispatched employees and contract employees have complied with Regulations Governing the Retirement, Indemnity and Severance Payments for Employees of State-owned Enterprises Administered by the Ministry of Economic Affairs and the related civil service laws; the matters concerning hiring employees have complied with labor laws such as the Labor Standards Act and the Labor Pension Act. In addition, we have established the "Employee (dispatched and contract-based employees) Pension Fund Management Committee" and "Supervisory Committee of Labor Retirement Reserve". Employee (dispatched and contract-based employees) Pension Fund Management Committee is responsible for the planning, custody and use of pension, indemnity and severance payments while Supervisory Committee of Labor Retirement Reserve is responsible for labor retirement reserve, the audit of the amount of payment and other supervision matters regarding labor retirement reserve. The overfunded pension of public service pension fund of the public servants who cancel the public employee insurance has been paid by CPC according to the laws since June 1, 2014. Each year, the Company commissioned the actuarial company to calculate the overfunded pension of staff, workers and retirees. The pension was recognized monthly according to the actuarial report. The pension fund was contributed to "Employee (dispatched and contract-based employees) Pension Fund Management Committee" and "Supervisory Committee of Labor Retirement Reserve" (Note: The Labor Retirement Reserve is in custody of the Bank of Taiwan in accordance with the law). According to the actuarial report dated 31 December 2017, the pension liabilities should be recognized from the net pension expenses (employees: NT\$ 311,107,293, workers: NT\$ 13,842,786) in 2018. Since July 2005, new recruits, contracted employees and employees who have chosen to apply for the new system but retained the seniority in the old one have complied with Labor Pension Act. CPC is required to pay 6% of their monthly wages to their individual labor account.

Trade Union and Collective Agreement

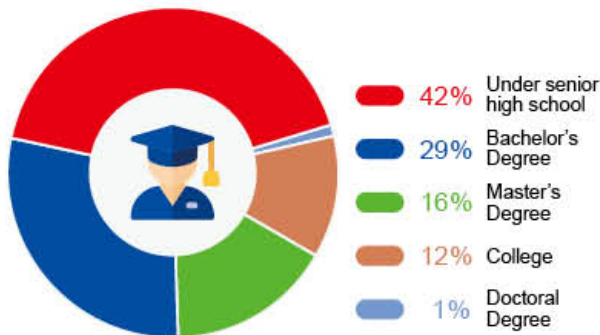
Both employer and employees are concerned with common issues and exchange opinions or negotiate occasionally to reduce disputes. In addition, representatives of trade unions are invited to participate in workplace safety, complaints, reward and punishment committee, project approval meeting and procurement approval meeting. Both of the employer and employees set up the Employee Welfare Association and the Supervisory Committee of Labor Retirement Reserve. A total of 14,786 employees from CPC joined the trade unions, accounting for 99.86% of the total employees. Representatives from both the employer and the employees of CPC jointly develop the collective agreement in order to demonstrate the employer's determination to safeguard the rights and interests of the employees.

4.3.2 The Hire of Employees

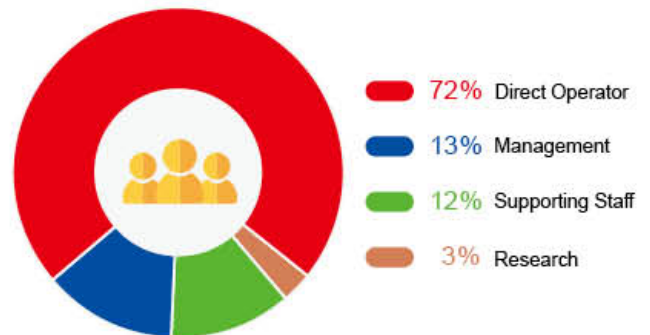
When it comes to the hire of employees, CPC has specific regulations and has never employed child labor. At the same time, in order to provide more employment opportunities for disadvantaged groups, those who with disabilities and aboriginal identity will be given extra credit when being recruited. After hiring, CPC provides equal pay for equal work, and never has other considerations for race, belief, religion, political party, place of origin, birthplace, gender, sexual orientation, marriage, appearance, being physically or mentally challenged or union member. We also ensure freedom of association for the employees, and encourage them to join clubs and cooperate with companies that follow the same principles. This is exactly the reason why there has never been a gender or race discrimination case against CPC. During 2017, there is no human right violation or discrimination case for newly hired employees. Nor is there any human rights impact on our company operation.

As of the end of 2017, CPC has 14,806 employees, with 12,873 males (86.94%) and 1,933 females (13.06%). All of them are employed in Taiwan with the average age of 48.3 years old and average seniority of 22.0 years. In 2017, there were 976 new recruits and 944 retired employees.

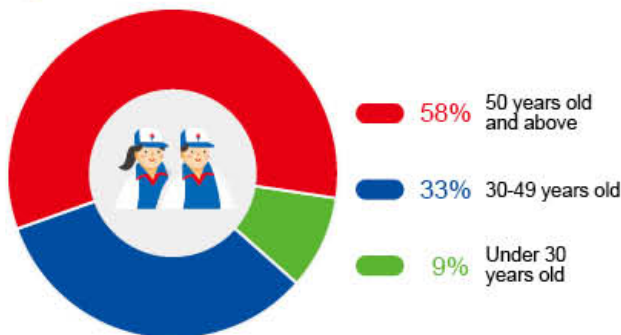
Distribution of Education Background



Job Distribution



Age Distribution

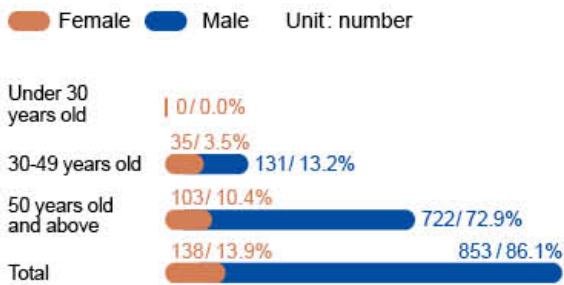


Newly Hired Employees

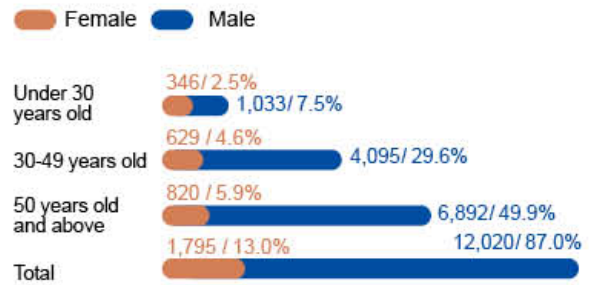




Managers



Non-managers



Newly Hired Employees in 2017

	Female		Male	
	Number	Percentage	Number	Percentage
Under 30 years old	110	31.79%	414	40.08%
30~49 years old	53	7.98%	383	9.06%
50 years old and above	2	0.22%	14	0.18%
Total	165	8.54%	811	6.30%

Note: Newly hired employees: 976 people; employment rate: 6.59%.

Number of Retired or Resigned Employees in 2017

	Female		Male	
	Number	Percentage	Number	Percentage
Under 30 years old	4	1.16%	55	5.32%
30~49 years old	5	0.75%	64	1.51%
50 years old and above	90	9.75%	726	9.54%
Total	99	5.12%	845	6.56%

Note 1: There were 944 retired or resigned employees in 2017 with the demission rate of 6.38%.

Note 2: This table does not contain 17 employees who applied for leave without pay and 29 employees who died of illness or died from accidents in 2017.

Note 3: This table contains a total of 113 people (including the employees in the downsizing project in 2017).

Note 4: It is calculated based on the proportion of each gender and each age group of the actual number of 14,806 employees in CPC in December 2017.



4.3.3 Human Resources Development and Training

CPC attaches importance to the development of human resources. In addition to the effective use of the overall human resources, we strengthen the professional functions of various business fields and actively cultivate competent talents, while continuing to recruit young talents. We hope to have high-quality human resources to lead the development of CPC to enhance the company's competitiveness comprehensively. In 2017, the average training hours of employees reached 53 hours.

In order to enable employees to enhance their professional capabilities and expand their work functions, e-learning resources with multiple channels in combination with information technology and learning applications have been developed. In 2002, CPC established the "e-Petroleum Institute" on the Company's internal network, which is a virtual college with the purpose of sharing innovation, deepening knowledge and digitized services. It was incorporated into the CPC Enterprise University in 2005. The core knowledge courses developed or co-developed by the Company accounted for 50% and electronic news reports were issued regularly. In 2017, the platform was updated as "New e-Petroleum Institute," which integrated the ishare Online Synchronization System.

CPC also conducts research on the professional functions of each core professional position. In addition to serving as a reference for internal promotion and rotation adjustment, the research also serves as the content of inquiries for the interviews when the Company is recruiting personnel with qualified work attitudes and ideas during the external recruitment of talents.

The training center was awarded TTQS bronze medal in 2017.

The Overview of Employee Education and Training in 2017

Employee Level	Number of People		Training Hours		Average Training Hours Per Person	
	Female	Male	Female	Male	Female	Male
Manager	136	833	7,542	47,803	55.46	57.39
Non-manager	1,688	11,488	106,355	614,104	63.01	53.46
Total	1,824	12,321	113,897	661,907	62.44	53.72

Note: Managers mean those who have commanding, supervising and evaluating authority.

Employee Performance Evaluation

Every year in the mid-year and year end, CPC would evaluate all employees for their performance and regularly track the achievement for proper rewards or punishments. CPC also conducts research on the professional functions of each core professional position. In addition to serving as a reference for



internal promotion and rotation adjustment, it also serves as the content of inquiries for the interviews when the Company is recruiting personnel with qualified work attitudes and ideas during the external recruitment of talents.

The annual evaluation ratio in 2017-Personnel Category

Personnel Category	The annual evaluation ratio in 2017 (the number of evaluated personnel / the total number of evaluated personnel)	
Regular Employees	93.77%	
Contracted Employees	Appraisal	91.89%
	Sort	99.84%

Percentage of Employees Evaluated in 2017-by Gender

Item	Percentage of Employees Evaluated in 2017 (the number of assessment of the male (female) employees/ the total number of male (female) employees)
Percentage of Male Employees Evaluated	93.43%
Percentage of Female Employees Evaluated	90.51%

Note: The statistical number does not include newly hired employees in 2017 with the seniority of 6 months or less and those on unpaid leave.

4.3.4 Employees' Rights and Benefits

In addition to being committed to creating a perfect workplace, CPC also provides various bonuses based on the overall performance of the business and individual employee contributions and performance. It also provides benefits under the Employee Welfare Fund Act and sets up Employee Welfare Association with Taiwan Petroleum Workers' Union to organize various welfare businesses and recreational activities. In order to promote the employee welfare business, various regional welfare branches were established under the Association. All employees are not only covered by National Health Insurance, public insurance and labor insurance, but also provided with additional group insurance, overseas travel insurance and injury insurance for business trips, solatium for injury, disability and death while carrying out official duties to protect the safety of employees' work and life.

Various business units also set up welfare facilities such as clinics, canteens, libraries and convenience stores, as well as various sports facilities such as stadiums and gymnasiums. In addition, CPC also provides child education grants, children's education loans for university and college, medical subsidies for employees and dependents, employee marriage, funerals, and retirement benefits and interest-free



loans for emergencies. CPC has revised employee borrowing rules to include additional borrowing rules for marriage and childbirth to take care of young employees and implement equality between the sexes. According to the resolution of the 7th Labor Conference, if individual units are unable to set up child care facilities alone, they can contact various branches of the Employee Welfare Association to look for better child care institutions nearby and provide employee care services in a preferential manner. It also assists club activities such as ball games, chess, mountaineering, swimming, painting and movie appreciation to balance employees' body and mind and motivate morale.



Staff clinics



Staff library



Staff canteens



Cultural activity

Special
Column

4

Gender Equality- Woman Power at CPC



The first generation of female worker at the gas station



The first generation of female gas station head



The first female member of the drilling team (left)

The hire of female gas station personnel drove the trend of female employment

In November 1973, in the year which CPC has been established for 27 years since 1946, it pioneered the promotion of equal rights for men and women and hired the first female gas station employee in Taiwan, which was an unprecedented move of the industry at that time and was ahead of the policy and trend of gender equality. The competition for the recruitment of female personnel in that year was fierce and a lot of those who were hired were newly graduates from star schools such as Taipei First Girls High School, National Lan-Yang Girls' Senior High School, National Hsinchu Girls' Senior High School, Taichung Municipal Taichung Girls Senior High School, National Chia-Yi Girls' Senior High School, National Tainan Girl's Senior High School and Kaohsiung Municipal Kaohsiung Girls' Senior High School. This group of 18 to 20-year-olds, dressed in pink shirts and trousers and stood on the front line to refuel for people, showing high-quality answering and operating skills. Greetings and services with smiles as well as gentle and graceful attitudes enhanced the harmonious relationship between customers and gas stations. They instilled a kind of new and friendly image to the masculine petrochemical gas stations. The addition of female refueling personnel not only effectively increased the sales in gas stations but also greatly improved customer satisfaction when CPC had a monopoly of the gas stations. The tender trend of CPC evoked a demonstration role and other industries in Taiwan followed the trend to recruit female employees, which helped increase women's employment opportunities.

Increase of female staff in the blue collar factory

The industry characteristics and work contents of CPC range from exploration, oil refining, petrochemicals and solvent production to gas station refueling services, and due to the characteristics and work content, CPC mostly recruits male staff. However, in recent years, the number and proportion of female employees have increased year by year. For the past six years since 2012, the number of female employees under the age of 40 has increased by two times, from 400 to more than 800. More specifically, in addition to the staff, the oil refinery hired female engineers with chemical backgrounds; the oil and gas exploration team also hired



There are also two female vice presidents


female drilling crews. In addition, female negotiators and dispatched staff were also present at the conference table in the male-dominated Middle East and African mining areas. Take Dalin Refinery where work is mainly based on operations for example, about 5% of the 2,000 employees are women. When CPC recruits new employees externally, it does not particularly provide preferential treatment for female candidates but takes the job title, content, professionalism and abilities into consideration to realize the equal rights of both sexes regardless of gender.

The rise of female power- full empowerment

40 years after pioneering the employment of female personnel, CPC once again set a precedent for the state-run enterprise. At the end of 2016, the Company appointed the first female vice-president, Ann S. C. Bih, in the history of the state-owned enterprise. The vice-president communicates with the gentle and delicate qualities of women and successfully trades for crude oil trading contracts at a reasonable price and makes profits in the trade negotiation. She served as a spokesman to provide immediate, correct, and complete information to the media, enabling the Company to communicate with the outside world smoothly. In 2018, CPC appointed the second female vice-president, Shu-chen Chen, who supervises Accounting Department, Finance Department, Procurement Department and Property Management Department with her specialty. As of May 2018, among the members of the Board of Directors of CPC, there is one female director of board and one female supervisor; among the five Vice Presidents of the company, two of them are female, accounting for 40%; in the eight main business divisions, there are also two female CEOs; in the 90 senior-level executive positions, there are 22 female supervisors, which accounted for 24.44% of supervisors and deputy supervisors. Women's empowerment is also fully practiced.

A friendly workplace fulfilling gender equality

CPC also adopts many systems and measures in terms of gender equality, such as the establishment of the Sexual Discrimination Grievance Mediation Committee and the implementation of sexual harassment prevention and control education. In order to cooperate with the policy to eliminate the crisis of low birthrate, a nursing room is set up. During the normal working hours, employees are given breast-feeding time and paternity leave is also given to male employees. In addition, childbirth allowances can be applied; employees who raise children under the age of 3 are encouraged to apply for parental leave without pay. The employees who take care of children under the age of 6 are encouraged to apply for family care leave. In 2017, the number of male employees applying for parental leave without pay was close to 30% of the total number of applicants. The reinstatement rate and the retention rate after parental leave reached 100% for both women and men.



5.

Service, Contribution -A Friendly Society

- 5.1 Sustainable Management Approach for a Friendly Society
- 5.2 Customers and Us
- 5.3 Affiliated Partners
- 5.4 Cheering for Love

2017

Sustainable Management Performance



Poor Children Sponsorship

Starting from September, 2010, employees at CPC voluntary funded 203 school-children in Taiwan through World Vision Taiwan and donated approximately NTD 2.44 million to help them to attend school, have a healthy and happy childhood and fully feel the warmth of the society.



Assist sales of agricultural products

In 2017, CPC organized the secondary agricultural product marketing activities. We helped with the sales of 2,000 boxes (30,000 kg) of bananas in 100 CPC-owned gas stations and 4,000 boxes (14,400kg) of ponkan in 120 CPC-owned gas stations nationwide.



Millions of Blood

In the public welfare event of blood donation, we have fruitful results and donated 3,076,000c.c. (that is 12,304 bags) of blood; this blood donation event is continuously organized by all units.



had Employed with Disabilities

As of the end of 2017, CPC had employed 514 part-time workers with disabilities (accounting for 18% of all part-time works at CPC) in charge of refueling or car washing.



Exquisite Service

In order to implement the exquisite service of gas stations, we selected 120 gas stations to introduce CEM customer experience management in 2017.



Access-free facilities

As of 2017, a total of 589 self-owned gas stations are equipped with restrooms with access-free facilities.



Attention to Human rights

In 2017, the procurement contracts all contained human rights provisions, and the proportion reached 100%.



Social Care

In 2017, the spending on social care amounted to NTD 394.734 million.



Loving Taiwan by Planting Trees

The “Loving Taiwan by Planting Trees by You and Me” seedlings giving event was conducted in 100 CPC-owned gas stations. This event of exchanges of seedlings with invoices or recycled batteries was enthusiastically participated, and 20,000 seedlings were exchanged .



sponsored Taipei 2017 Universiade

CPC sponsored the fuel for the transportation vehicles of Taipei 2017 Universiade, with 122,500 liters of gasoline, 743,000 liters of diesel, and 5,000 bottles of See Clean detergent for the cleansing of athletes clothing.



Plant trees to Protect the earth

CPC planted a total of 9,150 trees in 2017.



Mountain Cleaning Activity

In 2017, the Autumn Mountain Cleaning Activity was participated by around 3,000 employees nationwide and their families.



Support Sports Development

CPC provided grants and scholarship to outstanding athletes and support sports development. In 2017, we sponsored one school team with ten elite players with NTD 2,430,000.



Donated to the Second Life for Computers project

CPC responded to the Second Life for Computers project. In 2017, CPC donated 166 refurbished computers to assist the elementary schools, communities and social welfare groups with the information equipment for teaching, allowing resources to be reused.



5.1 Sustainable Management Approach for a Friendly Society

CPC has customers throughout the country, and for such a long time, we have established a network of a customer-oriented service system. In terms of products and services, our insistence on the principle of “providing safe and multiple products” has never changed. CPC has always attached great importance to corporate trademarks, so all the trademarks being used currently have been registered through legal procedures to obtain exclusive rights so as to avoid consumer confusion and to safeguard the company’s rights and interests. When providing consumers with related products, services or marketing advertisements, relevant domestic regulations are strictly abided by.

Related material topics	Local Communities, Customer Health and Safety, Marketing and Labeling, Customer Privacy.
The importance and purpose of sustainable management of a Friendly Society	In addition to attaching importance to the economy and the environment, CPC also places importance on social care. The specific contributions include aspects in community care, care for the disadvantages, public welfare activities, and energy education and advocacy, aiming at creating a harmonious society.
Management strategies	<ul style="list-style-type: none"> ① To continue our work in the promotion of good-neighborly, assisting local development, caring for the disadvantaged, spreading love to rural areas, taking root in energy education and promoting ecological conservation, fostering outstanding national athletes and fulfilling our corporate social responsibility. ① To make good use of channel advantages and brand value, combine local culture, provide exquisite services, move toward compound operations and increase the added value of assets and products. ① To cooperate with the policy of "Promoting Enterprise Management of State-owned Enterprises and Enhancing Service Quality", we use customer-oriented management to provide high-quality products and fine services to improve customer satisfaction and maintain excellent corporate image.
Commitments and goals	
Short-term Goals	Medium- and Long-term Goals
<ul style="list-style-type: none"> ① To establish friendly relations with local governments to assist in various public constructions that can benefit the residents. ① To invite residents in neighboring areas and vulnerable children to participate in the free green propaganda, environmental protection-related activities to make the goodwill and let the green concept grow. 	<ul style="list-style-type: none"> ① To help local political and economic development in accordance with the national policy and create a win-win situation among local areas, CPC and even the whole country. ① To maintain friendly relationship with factories and mines and continue to strengthen the promotion of vulnerable care and coexistence and common prosperity with residents ① To integrate the concepts of the green business, cultural industries and community co-prosperity to create a new green impression of CPC.
Units in charge	CPC’s Sustainable Management Committee Social Care, Public Relations Department, Department of Environmental Protection, Quality Assurance at all Business Units.



<p>Introduced management systems</p>	<ul style="list-style-type: none"> ④ The Products and Services area provides detailed descriptions of “Product Specification”, “Safety Data Sheet”, “Hazard Identification Information” and “Composition and Information on Ingredients” for consumers to refer to at https://new.cpc.com.tw/product/. ④ “Customer Service Information Security and Management Procedures of Personal Data” ④ “Key Points of Neighborly Work”, “Key Points of the Establishment of the Neighborly Work Review Committee”. ④ ISO 27001:2013 Information Security Management.
<p>Review and evaluation mechanism</p>	<ul style="list-style-type: none"> ④ The meetings of Sustainability Promotion Committee are convened three times a year to discuss the reports and proposals of each group. ④ The meeting of Neighborly Work Review Committee is convened once a month to review CPC’s annual neighborly work plan, proposals of public welfare activities subsidized by CPC or self-funded with the amount exceeding NTD 100,000, proposals of public welfare construction (including the purchase and installation of equipment) subsidized by CPC or self-funded with the amount exceeding NTD 1 million, and tracking the assessment of the performance of neighborly work conducted by the Headquarters and all business units.

Practices of SDGs



	<p>Goal 1. End poverty in all its forms everywhere.</p> <p>1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.</p>
<p>Starting from September, 2010, employees at CPC voluntary funded 203 schoolchildren in Taiwan through World Vision Taiwan and donated approximately NTD 2.44 million to help them to attend school.</p>	
	<p>Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.</p> <p>2.c. Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.</p>
<p>Due to fewer typhoons in 2017, the good weather contributed to fruitful production of fruits, which caused the fruit prices to drop, significantly reducing the farmers’ income. To respect and show the gratitude to the hard work of the farmers, CPC actively assisted farmers in marketing agricultural products, encouraging the public to eat more local fruits. In addition, active gas stations with strong sales capabilities were also invited to jointly sell the fruits.</p>	
	<p>Goal 3. Ensure healthy lives and promote well-being for all at all ages.</p> <p>3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.</p>
<p>In the operations of Class 1 to Class 3 toxic chemical substances, when the total operating volume reaches the benchmark of a large amount operation, a contingency plan shall be submitted to the competent authorities for future reference and the emergency response drill has to be conducted in coordination with local environmental protection agencies for the substantially help with toxic disaster prevention.</p>	



Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.

To care for the disadvantages groups, CPC has advocated the concept of “CPC with love and service without barrier”, and has introduced the concept of Loving Gas Stations since 2001, providing job opportunities to physically or mentally challenged people to help them restore confidence. As of 2017, 514 physically or mentally challenged people have been hired to work on gas filling or car washing jobs. CPC had employed 514 part-time workers with disabilities (accounting for 18% of all part-time works at CPC) in charge of refueling or car washing.



Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable.

11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.

To take the needs of the physically challenged people into consideration, the annual budget for public restrooms at the gas stations has been used to reconstruct for facilities for people with disabilities. We have promoted accessible facilities at 589 restrooms of CPC-owned gas stations by the end of 2017.

5.2 Customers and Us

5.2.1 Providing Clean and Diversified Products

CPC truly emphasizes on company logo and trademarks. All the logo and trademarks are legally applied and registered to get the exclusive usage right. CPC is always monitoring market trends and protecting company goodwill. All of CPC's products are marked with our logo to prevent any confusion from customers and to protect company interests. CPC strictly abide by domestic rules and regulations in providing products and service as well as marketing advertisement. In 2017, there is no product, service, advertisement or marketing related regulation violation, nor with any fine. To effectively enhance the Company's positive image, we continue to actively promote corporate governance, major business promotion, corporate social responsibility and sustainable development achievements on media channels such as print, TV and the internet, and there were no violations against market communication regulations and voluntary regulations.

Promotion of CPC's Corporate Image Marketing Program in 2017

Type	Method	Violation Of Marketing Regulations
Advertisement	Print magazines External activity manual	No violations in 2017
Broadcasting	TV Broadcast Outdoor media	
Others	Invite media interviews at important events	



Service for Fuel Related Products

For fuel related products, besides detailed marking and description for danger identification and ingredient list, we also list the "Product Regulation", " Safety Data Sheet", "Hazard Identification Data" and "Ingredient Identification Data" in "Product and Service" section of our company website for consumers to refer to. In 2017, there was no any violation for regulation nor voluntary regulations at CPC.

Green Biotechnology Products

Based on our core technology advantage, CPC actively broadens R&D scope into biotech area and CPC now owns various green biotech products like health products, bio-body care products and bio-beverage. Take See Clean the Eco-friendly Laundry Liquid and Zoeyen GSH Bio-fiber Moisturizing Facial Mask for examples, CPC has been upholding a philosophy of providing safe and effective biotech products for the environment and our customers. We have established the "biotech product research and development management handbook". In addition, we also implement double inspection, with both CPC and the OEM partner doing checking and inspection separately. It would be acceptable only when both reports are passed. If you need more information regarding CPC's biotechnology product, please go to our online store of CPC Bio at <https://new.cpc.com.tw/cpcb10/>.



5.2.2 Leading and Innovative Gas Stations

CPC emphasizes on core corporation value of "customer-focused and service first", being committed to the leadership and innovation of gas station's service. CPC sincerely hopes that gas stations can not only be places for consumers to refuel their cars, but also places to provide a more intimate, more convenient, more delicate and much better gas stations to our customers.

To implement refined services of gas station, in 2017, 120 gas stations were selected for the introduction of CEM Customer Experience Management and satisfaction survey was conducted on customers visiting these gas stations within 24 hours in the four aspects of "overall services", "service attitude", "refueling actions" and "refueling environment". By analyzing the feedback customers give, the operating environment of gas stations is analyzed to discover customer experience needs and to understand customer satisfaction of the service quality of the gas stations for focused review and improvement so as to provide satisfactory services. In addition, we also conducted the Activities for Enhancement of Gas



Station Service Quality, and assessment and evaluation were conducted through the software of the “gas station personnel” and “refueling services” and hardware of “appearance of gas stations” and “operational equipment” of CPC-owned gas stations to comprehensively improve the service quality of gas stations to strengthen the Company’s brand image.

To take the needs of the physically challenged people into consideration, the annual budget for public restrooms at the gas stations has been used to reconstruct for facilities for people with disabilities. We have promoted accessible facilities at 589 restrooms of CPC-owned gas stations by the end of 2017.

To care for the disadvantages groups, CPC has advocated the concept of “CPC with love and service without barrier”, and introduced the concept of Loving Gas Stations in 2001 and provided job opportunities to physically or mentally challenged people to help them restore confidence. As of 2017, CPC had employed 514 part-time workers with disabilities (accounting for 18% of all part-time works at CPC) in charge of refueling or car washing.

In response to changes in the market and the trends in the international market, we also develop diversification management items to increase service value of gas stations, providing drivers with one-stop and diversified value-added services, including rapid vehicle maintenance, car washing, merchandise sales, horizontal alliances (including multi-media advertising, collection service, solar power generation, battery exchange for electric scooters and so on), and as of 2017, there are a total of 264 gas stations providing car washing services (including car washing machines, manual wash and self-service car wash), 126 CPC-Life stores and simple stores, and 70 rapid vehicle maintenance stations. In addition, through product development, promotion of car wash skills, service refinement, promotion of product vouchers, provision of discounts on various diversified merchandises, promotion of fast maintenance services and the increase of collection services, we are leading and guiding customer spending to increase customers’ repurchase intention and loyalty.



Car washing service at Wulin Station



Car washing service at Xinshen N. Road Station



Rapid vehicle maintenance on Fuxin N. Road



CPC-Life store at Xinzhuang Station



CPC-Life store at Kenting Station



CPC-Life store at Namzhou Interchange Station



CPC-Life store at Chuchi Station



CPC-Life store at Loutung Station

5.2.3 Customer Satisfaction

CPC continues doing customers' satisfaction survey for CPC-owned gas stations and also uses the data as the reference to compare the difference in the satisfaction between franchised gas stations and FPCC gas stations. We will then review and improve the items of lower satisfaction.



Customer Satisfaction

Unit: point

Year		2015	2016	2017
Company Owned Gas Station		92.7	93.1	95.2
NG Supply Service		98.9	98.8	97.5
Product sales and Service	Solvent	92.0	90.7	91.6
	Lubricant	92.9	93.4	94.3

Customer Privacy

CPC has established mechanism to protect customer personal data and increase education and training to the employee (especially for gas station operators) in the awareness of "privacy protection" and "personal data safety".

Description of Customer Privacy Incident in 2017

- In 2017, there was one complaint of suspected customer data leakage at CPC. However, after investigation, it was verified untrue.
- Background of the incident: A customer handed over the credit card to the gas station staff and the staff member was suspected to take a photo of the personal information on the credit card in the toll booth. Such customer therefore asked for investigation.
- Review and Improvement: After investigation, it was found that on the day of this incident, it was the day for the staff member to select courses in his school. In order not to miss any message, he brought his mobile phone into the refueling area. At the time when he entered the toll booth, a message happened to come in. He then clicked on the mobile phone to see the message, and did not take any pictures. This customer was satisfied with our attitude in handling this matter with care. This incident was listed as customer complaint for the violation of occupational safety regulations, and relevant staff members were punished in accordance with Company regulations. The refueling staff left the service and the shift leader was sent to the Rewards and Disciplinary Committee for punishment.

5.3 Affiliated Partners

Stable supply is the iron rule of CPC management. Lately, CPC has been working hard on overseas exploration and investment and partnership with suppliers. CPC affiliated partners include suppliers and contractors. CPC has established superb partner management mechanism to maintain great partnership.

5.3.1 Characteristics of Overseas Procurement

About 99% of the crude oil refined by CPC relies on imports. The types of crude oil have to comply with the refining structure, and the procurement strategy has to provide a stable supply as top priority. Therefore,



we have focused the long-term purchasing contract on Middle East countries. In addition, to meet the national environmental protection requirements for low-sulfur crude oil, there is a certain percentage of low-sulfur crude oil purchased from West African, U.S. or other countries.

Crude Oil	Liquefied Natural Gas
<ul style="list-style-type: none"> ① Crude oil procurement strategy is based on both principles of the stable supply of oil and refining efficiency. ② There are more than 80 types of crude oil which are suitable for refining, with the supply sources from more than 10 countries. According to the data in 2017, the import crude oil are mainly from the Middle East countries (56% of imports), West African countries (20.92%), Australia and Southeast Asia (3.22%), Azerbaijan (8.13%), Brazil (9.15%), and the UK and the U.S. (2.58%). 	<ul style="list-style-type: none"> ① CPC's LNG is mainly supplied by long-term contracts with Qatar, Malaysia, Indonesia, Papua New Guinea and Australia, and the rest through the Master Agreement, which is supported by various suppliers from different countries to achieve the goal of stable supply and diversification of gas sources. In 2017, a total of 16.48 million tons of liquefied natural gas was imported from the worldwide gas sources.

Composition of suppliers other than crude oil and natural gas

Type of contract (based on company classification)	Purchase area	2015		2016		2017	
		number of suppliers	The proportion of the contract amount to the total contract amount (%)	number of suppliers	The proportion of the contract amount to the total contract amount (%)	number of suppliers	The proportion of the contract amount to the total contract amount (%)
Services (Contracts and services)	Domestic	987	28.80%	1,000	49.83%	1,102	48.66%
	Foreign	8	0.22%	10	0.22%	10	0.63%
Property (Raw materials)	Domestic	1,249	37.45%	1,218	27.77%	1,216	38.40%
	Foreign	57	16.10%	43	11.26%	45	4.75%
Construction work (Building and equipment)	Domestic	163	17.43%	149	10.92%	148	7.56%
	Foreign	0	0%	0	0%	0	0%
Total		2,464	100%	2,420	100%	2,521	100%

Note 1. Domestic area refers to Taiwan, foreign area refers to areas outside Taiwan (such as China, U.S. and Vietnam).

2. Repetitive suppliers and natural persons are not included in calculation.

3. Information was obtained from the government procurement information announcement system.



5.3.2 Contracts for Affiliated Partners

CPC attaches great importance to the cooperation between each other. Under the requirements of the Government Procurement Act, suppliers and contractors are required to jointly fulfill social, environmental and ethical responsibilities (such as providing more employment opportunities for vulnerable groups) to work together to enhance corporate social responsibility. In addition to ensuring the health and safety of work, CPC also expects the contractors' workers to be respected with dignity. In order to reduce occupational accidents of contractors and to maintain the safety of contractors' workers, in addition to actively conducting counseling and auditing of the contractors' safety management, we also work on occupational safety promotion activities to strengthen safety awareness of the contractors' workers. If there is any violation of the relevant provisions of the purchase contract, or violation of the Labor Standards Act or occupational safety and health or other relevant laws or regulations, when the circumstances are severe, the contract will be terminated, lifted or suspended.

For importing crude oil or liquefied natural gas from overseas suppliers, CPC always signs purchasing contracts, specifying that the suppliers should abide by their local regulations including labor right related ones. Suppliers have to provide the definite source for the crude oil or liquefied natural gas, and CPC can filter through it and make sure there are no violations of international regulation or involvement with commonly known wrongful oil or liquefied natural gas supply sources.

Management Mechanism for LNG Suppliers	Management Mechanism for Construction Work and Services Tasks
<ul style="list-style-type: none"> Set up "Imported LNG purchasing operation procedures". 	<ul style="list-style-type: none"> Follow the domestic procurement rules and regulations.
<ul style="list-style-type: none"> Establish "LNG purchasing plan review and advisory committee". 	<ul style="list-style-type: none"> Ask suppliers to abide by government rules and regulations in hiring employees.
<ul style="list-style-type: none"> Manage and screen the suppliers as well as check their capability of fulfilling the contract. 	<ul style="list-style-type: none"> Regularly check and audit suppliers.

The relevant tender documents of CPC show that the manufacturers should follow the principles of fair trade, environmental protection laws, Labor Standards Act, Occupational Safety and Health Act to protect workers' safety, health and human rights and further protect the vulnerable groups. The manufacturers shall employ with disabilities and aborigines in accordance with the People with Disabilities Rights Protection Act, Indigenous Peoples Employment Rights Protection Act and Government Procurement Act. In case of insufficient employment, the difference between the subsidies shall be paid regularly to the employment fund of the Aboriginal Comprehensive Development Fund established by the Central Authorities of the Indigenous Peoples and Disability and Equity Employment Fund established by the county (city) labor authorities respectively. In 2017, the CPC's procurement contracts all contained human rights provisions, with the proportion of 100%.



5.3.3 Human Rights Management of Important Investment

There is one emerging fixed asset investment projects in 2017: Kaohsiung Harbor Intercontinental Container Phase II Dalin Petrochemical Oil Storage and Transportation Center Investment Project. Six fixed asset investment projects included: (1) L10501 Natural Gas Business Division-New Investment Project of Offshore Pipeline Construction from Taichung Plant to Tongxiao Station, (2) L10502 Natural Gas Business Division-The Third Liquefied Natural Gas Receiving Terminal Investment Plan, (3) L10101 Natural Gas Business Division-Taichung Plant Phase II Investment Project, (4) M10101 Refining Business Division-Dalin Refinery Investment Plan for the Capacity Improvement of the Third Heavy Oil Hydrodesulfurization Plant, (5) M10001 Refining Business Division-Dalin Plant Distillation and Related Plant Renewal Investment Plan and (6) M9504 Refining Business Division-Taoyuan Plant Third Heavy Oil Hydrodesulfurization Plant Investment Plan.




To adhere to gender equality and basic human rights, CPC always follows regulations from authority. All the construction and labor procurement operations in each investment plan follow the relevant provisions of Government Procurement Law. It is stipulated in the contract or agreement that the contractors must abide by and enforce provisions concerning the working conditions and the human rights stipulated in "Labor Standard Law", "Labor Safety and Health Law" and "Gender Equity Act".

5.3.4 CSR Management of the Supply Chain

Sustainable Supply Chain Management Measures

As the world faces increasing stringent environmental and social challenges, supply chain management has become one of the necessary topics for companies to face sustainable development.

Sustainable Supply Chain Management Policies and Objectives

-  To strengthen the establishment of coexistence and co-prosperity with suppliers and build long-term partnership with the suppliers.
-  The quality, delivery time and prices of the supplier's products shall all meet the requirements of CPC.
-  To develop ISO management system for management.

Selecting New Suppliers

CPC is a 100% government-owned enterprise. When selecting suppliers, CPC asks them not only to follow Procurement Act, but also to abide by labor, Environmental Protection, human right and other related laws and regulations, hoping to request suppliers to jointly fulfill corporate social responsibility. In 2017, the ratio of the new suppliers who meet the selection criteria reached 100%.



New Supplier Selection Criteria	
	<ul style="list-style-type: none"> Tenders must follow Procurement Act. All documents must declare that tenderers would follow fair trade principles, environmental protection regulations, Labor Standard Law, and Labor Safety and Health Law.
	<ul style="list-style-type: none"> Suppliers must follow local government's regulations on environmental protection related laws and regulations, like air pollution prevention, water pollution prevention, and waste material and resource management. If there is any violations, improvement plans must be proposed.
	<ul style="list-style-type: none"> Suppliers must abide by People with Disabilities Rights Protection Act, Aborigine Employment Rights Protection Act, and Procurement Act to hire physically or mentally challenged people and aborigines.

Risk and Impact Evaluation Mechanism

Risk and Impact Evaluation Mechanism	
Risk Prevention	<ul style="list-style-type: none"> Build long-term strategic collaboration partnership with the suppliers and regularly check and coordinate with them for spare parts preparation mechanism.
	<ul style="list-style-type: none"> Establish safety stock according to spare part preparation schedule to ensure smooth and stable operation of the supply chain.
Post-accident Damage Control	<ul style="list-style-type: none"> Investigate damage of supplier's facilities, staff, up-stream material supplies and transportation for finished products right after an accident happens and summarize the results and organize related information and submit it to related department for reference.
	<ul style="list-style-type: none"> Convene emergency meeting after realizing the damage situation and adjust suppliers accordingly. Follow the development and evaluate new suppliers for supply chain support if needed.

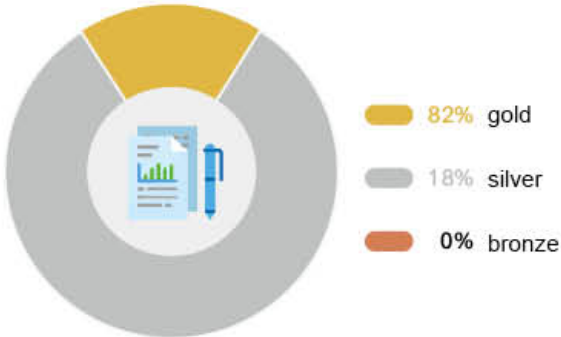
Supplier Evaluation

CPC attaches great importance to corporate sustainable development. In addition to strictly require the self-implementation of CSR responsibilities and commitments, it also leads its suppliers to commonly move toward sustainable development. Therefore, the CSR evaluation system provides the CSR self-assessment questionnaire that includes five aspects of environment, labor, human rights, social impact and product liability. In 2017, a total of 55 suppliers completed the CSR self-assessment questionnaire.

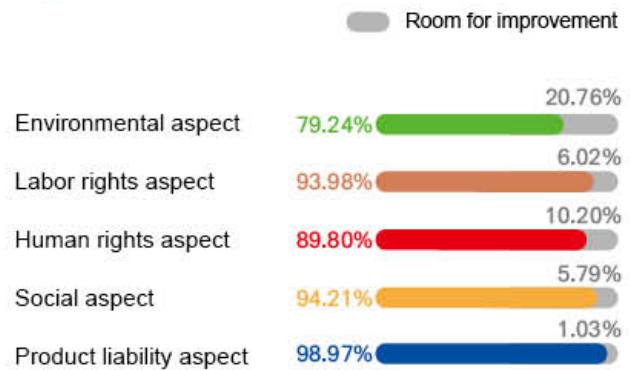
According to the results of the suppliers' self-assessment, the suppliers are divided into three grades: gold, silver and copper based on their scores. 82% of the suppliers scored over 85 points (gold) and 18% of them scored over 60 points (silver). This shows our efforts in supplier management. In the future, with the analysis results, we will perfect our procurement system and enhance our procurement efficiency, and will continue the promotion of the assessment of suppliers in other categories to meet the five aspects of CSR, enhancing our suppliers' implementation for the management of CSR.



Rating Level



Aspects



5.4 Cheering for Love

In addition to attaching importance to the economy and the environment, CPC also focus on social care, and its specific contributions include “community care”, “care for the disadvantaged”, “public welfare activities”, and “energy education and advocacy”, aiming at creating a harmonious society.

5.4.1 Social Care

CPC has been upholding the spirit of “Taken from the society, give back to the society”, and we are committed to promoting energy conservation, carbon reduction, environmental protection programs, helping local development, caring for vulnerable groups, assisting the development of national athletes and actively maintaining good interaction with local groups and residents, sparing no efforts in holding various public welfare activities. In 2017, the amount of good-neighborliness of the Company amounted NT\$ 395 million dollars, which include culture and education, scholarship, emergency aid, low income family support, benefits for the elderly and physically challenged and other charity events.

Social care and local community activities promoted by CPC

Category	Description
Environmental sustainability	🔦 Mountain and waters cleaning activity: Take care of Taiwan, protect the environment and cherish the earth.
	🔦 Planting trees and donating saplings: We work together with the public to afforest the community's living environment and protect the forest ecology.



Education	<ul style="list-style-type: none"> ① Smile Taiwan- selection of creative lesson plans: We worked with Commonwealth Magazine and jointly promoted and awarded the excellent teaching plan of the Green Energy Education to popularize and deepen green energy education. ② Green Dragon Creativity Summer Camp: We cultivated college students to serve as summer camp counselors to accompany elementary school students in the communities to lead them to pursue knowledge, stimulate their creativity and implement green life.
Care for the Vulnerable	<ul style="list-style-type: none"> ① Blood donation activity: To give back to the society and help solve the problem of blood shortage in the blood bank. ② Sponsorship of impoverished children: We encourage our employees to sponsor impoverished children each month (through Taiwan World Vision). ③ Love Gas Stations: We supported physically or mentally challenged people by hiring them as part-time workers. ④ New Life for Computers project: Our IT department repaired and refurbished computers for donation to assist elementary schools in remote areas and social welfare organizations with computer needs.
Community co-prosperity	<ul style="list-style-type: none"> ① “Diamond water”project: We enhance the recycling efficiency of cold drainage, raise the output value of breeding fisheries and create community co-prosperity.
Support for sports development	<ul style="list-style-type: none"> ① We provide scholarship to elite players to promote sports development. ② We assist sports teams in rural areas to foster sports talents in rural areas. ③ We sponsor major domestic sports events and support the policy of corporate investment in sports.



In respond to the service spirit of “giving blood, saving lives”, the public welfare event of blood donation has been conducted for the fifth year. In the first quarter in 2017, the blood donation activity was conducted in the Songgou Plaza of the CPC Building. Many executives, employees and citizens joined the blood donation activity. 166 people donated 63,000c. c. (that is 252 bags) of blood.



To bring art to the communities and schools, CPC has cooperated with Paperwindmill Theater Taiwan to present interesting child plays. In 2017, the Chicken Story had 5 sessions of performances with a full house of audience. In addition, due to the increasing serious drug abuse issues among teenagers, CPC also sponsored Paperwindmill Theater’s Teenager Anti-drug Drama Project to tour the play in 13 junior high schools in Kaohsiung City and Taoyuan City.





To cooperate with the activity on the Earth Day, CPC organized the "Loving Taiwan, Planting Trees by You and Me" seedlings giving event in 100 CPC-owned gas stations. Customers enthusiastically participated in this event to exchange seedlings with invoices or recycled batteries, and 20,000 seedlings were exchanged in less than 30 minutes.

CPC started holding the Green Dragon Creativity Summer Camp in 2013 and trains college students to go to communities and accompany school children to pursue knowledge, stimulate their creativity, and implement green life. In 2017, the main theme of the summer camp was "Creation", "Culture", "Aesthetics", and "Environmental Protection". We cultivated and trained 185 college students from all over Taiwan to serve as summer camp counselors and accompany nearly 3,700 elementary school students to experience different environment and energy education.



CPC held the joint hiking activity of "2017 Working Together" "Caring for the Land", and "Cleaning the Earth" in New Taipei City, Taichung City, and Kaohsiung City, with over 2,000 employees and their families, contractors, and community residents to hike on the trail, near the river mouth and surroundings of ecological park while picking garbage at the same time, purifying the mind and the environment.

CPC actively support potential athletes. In 2017, the champions of the tennis mixed doubles in 2017 Summer Universiade LeeChia Hsin (right) and the Li Jia Hou, tennis player ranked No. 1 in Badminton Junior ranking (left) are both elite athletes CPC supports. This sibling came to CPC to give their certificate to appreciate CPC. The then-president Liu Cheng-hsie accepted the certificate of appreciation on behalf of CPC .





5.4.2 Lively and Happy Homeland

In order to strengthen the friendly relations between the various units of the Company and the neighboring regions, we have formulated the "Points of Good Neighborhood" to enhance the well-being of the surrounding residents, promote local harmony and common prosperity. The amount of good-neighborliness of the Company amounted NT\$ 394.7 million dollars in 2017.

Assessment Key Points for New Investment Plan	
①	Assess the potential impacts of physical and chemical environments (weather and air quality, noise and vibration, hydrology and water quality, soil, waste and landform and geology).
①	Assess the potential impact for the ecological environment (land, waters and marine ecology).
①	Assess the potential impact of the socio-economic environment (population and employment, land utilization and local development).
①	Assess the impact on the transportation and cultural landscape environment and public concern.
①	For the investment plans with significant impact in 2017, CPC negotiated and conducted impact assessment with the local community.

Serious Leakage Incidents in 2017

Incident		Prevention and Actions
1	The 24-inch pipeline belongs to Kaohsiung Gas Supply Center of Southern District Business Office located at the intersection of Chengchin Rd. and Jue Mind Rd was broken, with approximately 142,246 m ³ gas loss.	<ul style="list-style-type: none"> ① The broken section has been repaired. ② To enhance the management and training of pipeline patrolling.
2	The leakage 16-inch Xinhua branch corroded pipeline belongs to Tainan Gas Supply Center of Southern District Business Office ,which located in front of No. 17, Hoping East Road in Yongkang District, results in approximately 22,835 m ³ gas loss.	<ul style="list-style-type: none"> ① To enhance the management and training of pipeline patrolling. ② The construction monitoring unit ensures pipeline to be operated safely.
3	The 8-inch northern linkage pipeline of Taipei Gas Supply Center of Northern District Business Office was accidentally damaged by the third party with tapping clamp and the gas loss was about 11,352 m ³ .	<ul style="list-style-type: none"> ① Noticing the related units, it's necessary that completes the drawing operation and site survey beforehand. (completed on April 21, 2017). ② To add patrol personnels to cope with the unexpected situations.



Incident	Prevention and Actions
<p>4 The 12-inch base line of Hsinchu Gas Supply Center of Northern District Business Office was damaged by the subcontractor Xinhua Engineering Co., Ltd. of the contractor JCF Construction Co. Ltd. in the County 115 Road Expansion Project of the Hsinchu County Government during the rail piling operations at 22K+839, causing cracks in pipelines and leakage of natural gas. The exhaust gas loss was about 27,679 m³.</p>	<ul style="list-style-type: none"> ① To improve the working quality of the personnels of pipeline patrolling. ② To require the inspectors to contact the contractor every day to understand the progress of the project. ③ Noticing the related units to inform CPC to complete the mapping materials, on-site survey beforehand. (Official document was sent on April 24, 2017)

5.4.3 Association Participation

All CPC divisions and departments actively join related business associations and organizations domestically or internationally. As of 2017, CPC participated in 70 associations and organizations.

International organizations:

CPC participated in 12 international organizations, including World Business Council for Sustainable Development (WBCSD), ROC-USA Business Council, International Group of Liquefied Natural Gas Importers (GIIGNL), Sino-Arabian Cultural & Economic Association, Sino-Indonesia Cultural and Economic Association and so on.

Domestic organizations:

CPC participated in nearly 60 domestic organizations, including Chinese Association for Energy Economics, Petrochemical Industry Association of Taiwan, BCSD-Taiwan and Cross-Strait CEO Summit and so on.





Special
Column

5

CPC Supports You- Assistance in Promoting of Agricultural Products



Protecting local agriculture and assisting in sales of agricultural products

In response to the government's policy of helping for farmers, from November in 2012, CPC started to sale agricultural products at self-owned gas stations, not for making profits but for helping farmers. CPC continues to provide services such as giving away cabbages after refueling or selling over-supply cabbages, bananas and guavas in season. In April, 2013, CPC signed the MOU for Cooperation in Agriculture Produce Sales with Agriculture and Food Agency, Council of Agriculture, Executive Yuan, and under the professional assistance of Agriculture and Food Agency, the direct marketing mechanism with the farmers was established through Agriculture and Food Agency. Customers can directly place their orders through this network, and the products harvested in the farms in the morning can be delivered to the gas stations in the afternoon increasing the marketing channels for the farmers when the produce is abundant in season, ensuring reasonable profits for them. CPC provides the public seasonal fruits and vegetables with the highest nutritional content and taste at preferential prices to fulfill its corporate social responsibility, creating win-win situations for the farmers, our consumers and CPC.



Giving hard-working farmers warm support from CPC in the sales of bananas

Due to fewer typhoons and good weather in 2017, there was prolific production of fruits, causing low fruit prices and sharp decline of farmers' income. To respect and show the gratitude to the farmers' hard work and to care for the livelihood of the farmers, CPC actively contacted the agricultural association of the place of origin, the Agriculture Bureau of the county, and city governments. Selected gas stations with high traffic volume and a large number of customers to assist farmers in selling abounding crops. Due to the perishable and difficult-to-preserve characteristics of agricultural products, during the event, the gas stations would arrange the venues and the staff members to actively promote sales to encourage our consumers to purchase and eat local fruits to assist public welfare activity and gain health benefits. CPC is striving to complete the sale of these fresh agricultural products within the most appropriate tasting period. Two marketing events were held in 2017, selling in-season bananas on November 3, 2017 and ponkan on December 26, 2017 respectively. In the two marketing events, 2,000 boxes of bananas (30,000 kg) and 4,000 boxes (14,400 kg) of ponkan were sold in the CPC-owned gas stations around Taiwan, and the marketing events were positively affirmed by the public.

CPC supports farmers and cheers for Taiwan

In the event of draggy sales of agricultural produce, CPC will actively contact the farmers' association and help market the products in accordance with the market conditions. In addition, we also plan to introduce small agricultural products or agricultural specialties of the farmers' associations in CPC-Life stores to make efforts to support Taiwan's agriculture. However, the purchase of a single company cannot achieve the purpose of stabilizing the prices of agricultural products. CPC hopes that through the non-profit activities of selling products at the cost price in the gas stations can encourage more enterprises to join together to stabilize the prices of abundantly produced in-season agricultural products. We also hope that when the public come to the gas station for refueling, they can feel the freshness and greenness at the stations and bring back some fresh fruits and vegetables for their health and supporting agriculture in Taiwan. CPC has been working for Taiwan for 72 years, being close to local culture through its gas station channels throughout Taiwan. We have done our best to care for the society by supporting local agricultural development, hiring people with physically and mentally challenged, searching for missing children and teenagers, maintaining the cleanliness of public restrooms and many more, making our utmost efforts for this land and for our environment.



6. Appendix

Appendix 1: Global Reporting Initiative, GRI Standards Version Reference Table(Include G4 Sector Disclosures Oil and Gas)

Appendix 2: Taiwan Stock Exchange Corporation Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies Reference Table

Appendix 3: UN Global Compact Reference Table

Appendix 4: Reference Table for ISO 26000 Social Responsibility Guide

Appendix 5: Sustainable Development Goals, SDGs Reference Table

Appendix 6: BSI (British Standards Institution)Assurance Statement



Appendix 1 : Global Reporting Initiative, GRI Standards Version Reference Table (Include G4 Sector Disclosures Oil and Gas)

「*」 Represent Major Issue

GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	omission/ Note
1. Organizational profile					
GRI 102: GENERAL DISCLOSURES 2016: Core	102-1	Name of the organization	Editing Principles	1	
	102-2	Activities, brands, products, and services	2.2.2 About CPC	38	
	102-3	Location of headquarters	2.2.2 About CPC	38	
	102-4	Location of operations	2.2.3 Operation Locations 2.4.2 Operation Overview	40 53	
	102-5	Ownership and legal form	2.2.2 About CPC	38	
	102-6	Markets served	2.2.3 Operation Locations	40	
	102-7	Scale of the organization	2.2.2 About CPC 2.4.1 Financial Achievement 2.4.2 Operation Overview	38 51 53	
	102-8	Information on employees and other workers	4.3.2 The Hire of Employees	117	
	102-9	Supply chain	5.3.1 Characteristics of Overseas Procurement	133	
	102-10	Significant changes to the organization and its supply chain	2.2.2 About CPC	38	
	102-11	Precautionary Principle or approach	2.3.4 Risk Management	48	
	102-12	External initiatives	Editing Principles 2017 Sustainability Achievements and Recognitions	1 9	
	102-13	Membership of associations	5.4.3 Association Participation	142	
2. Strategy					
GRI 102: GENERAL DISCLOSURES 2016:Core	102-14	Values, principles, standards, and norms of behavior	Our Ultimate Commitment	5	
GRI 102: GENERAL DISCLOSURES 2016:Comprehensive	102-15	Key impacts, risks, and opportunities	Our Ultimate Commitment 2.3.4 Risk Management	5 48	
3. Ethics and integrity					
GRI 102: GENERAL DISCLOSURES 2016 : Core	102-16	Mechanisms for advice and concerns about ethics 4. Governance	2.2.1 Objectives and Visions	37	
			2.3 Corporate Governance	41	
GRI 102: GENERAL DISCLOSURES 2016 : Comprehensive	102-17	Mechanisms for advice and concerns about ethics	2.3 Corporate Governance	41	
			2.3.1 Corporate Governance Structure	43	
			2.3.2 Adhering to Integrity and Ethical Values	46	
Governance					
GRI 102: GENERAL DISCLOSURES 2016:Core	102-18	Governance structure	2.3.1 Corporate Governance Structure	43	



「*」 Represent Major Issue

GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	omission/ Note
GRI 102: GENERAL DISCLOSURES 2016:Comprehensive	102-19	Delegating authority	1.1 Sustainable Management and Promotion	21	
	102-20	Executive-level responsibility for economic, environmental, and social topics	1.1 Sustainable Management and Promotion	21	
	102-21	Consulting stakeholders on economic, environmental, and social topics	2.3.1 Corporate Governance Structure	43	
	102-22	Composition of the highest governance body and its committees	2.3.1 Corporate Governance Structure	43	
	102-23	Chair of the highest governance body	2.3.1 Corporate Governance Structure	43	
	102-24	Nominating and selecting the highest governance body	2.3.1 Corporate Governance Structure	43	
	102-25	Conflicts of interest	2.3.1 Corporate Governance Structure	43	
	102-26	Role of highest governance body in setting purpose, values, and strategy	1.1 Sustainable Management and Promotion	21	
	102-27	Collective knowledge of highest governance body	2.3.1 Corporate Governance Structure	43	
	102-28	Evaluating the highest governance body's performance	2.3.1 Corporate Governance Structure	43	
	102-29	Identifying and managing economic, environmental, and social impacts	2.3.1 Corporate Governance Structure	43	
	102-30	Effectiveness of risk management processes	2.3.1 Corporate Governance Structure	43	
	102-31	Review of economic, environmental, and social topics	1.1 Sustainable Management and Promotion 2.3.1 Corporate Governance Structure	21 43	
	102-32	Highest governance body's role in sustainability reporting	Editing Principles	1	
	102-33	Communicating critical concerns	2.3.1 Corporate Governance Structure	43	
	102-34	Nature and total number of critical concerns	2.3.1 Corporate Governance Structure	43	
	5. Stakeholder engagement				
GRI 102: GENERAL DISCLOSURES 2016: Core	102-40	List of stakeholder groups	1.2.1 Identification of and Communication with Stakeholders	24	
	102-41	Collective bargaining agreements	4.3.1 Respecting Human Rights	114	
	102-42	Identifying and selecting stakeholders	1.2.1 Identification of and Communication with Stakeholders	24	
	102-43	Approach to stakeholder engagement	1.2.1 Identification of and Communication with Stakeholders 2.3.3 Transparency of Information Revelation	24 47	
	102-44	Key topics and concerns raised	1.2.1 Identification of and Communication with Stakeholders	24	



「*」 Represent Major Issue

GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	omission/ Note
6. Reporting practice					
GRI 102: GENERAL DISCLOSURES 2016 : Core	102-45	Entities included in the consolidated financial statements	2.4.4 Affiliated Business and Investment	57	
	102-46	Defining report content and topic Boundaries	1.2.2 Material Topics Identification and Analysis	28	
	102-47	List of material topics	1.2.2 Material Topics Identification and Analysis	28	
	102-48	Restatements of information	Editing Principles	1	
	102-49	Changes in reporting	Editing Principles	1	
	102-50	Reporting period	Editing Principles	1	
	102-51	Date of most recent report	Editing Principles	1	
	102-52	Reporting cycle	Editing Principles	1	
	102-53	Contact point for questions regarding the report	Editing Principles	1	
	102-54	Claims of reporting in accordance with the GRI Standards	Editing Principles	1	
	102-55	GRI content index	Appendix 1	146	
	102-56	External assurance	Editing Principles	1	

ECONOMIC

* ECONOMIC PERFORMANCE

GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis	28
			2.1 Sustainable Management Approach for Managing by Accountability	35
	103-2	The management approach and its components	2.1 Sustainable Management Approach for Managing by Accountability	35
103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment	11	
		2.1 Sustainable Management Approach for Managing by Accountability	35	
GRI 201: Economic Performance 2016	201-1	Direct economic value generated and distributed	2.4.1 Financial Achievement	51
	201-2	Financial implications and other risks and opportunities due to climate change	3.3.1 Climate Change Risks and Opportunities	77
	201-3	Defined benefit plan obligations and other retirement plans	4.3.1 Respecting Human Rights	114
	201-4	Financial assistance received from government	2.4.1 Financial Achievement	51



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GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	omission/ Note
MARKET PRESENCE					
GRI 202: Market Presence 2016	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	4.3.1 Respecting Human Rights	114	
	202-2	Proportion of senior management hired from the local community	4.3.2 The Hire of Employees	117	
* INDIRECT ECONOMIC IMPACTS					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis	28	
			2.1 Sustainable Management Approach for Managing by Accountability	35	
	103-2	The management approach and its components	2.1 Sustainable Management Approach for Managing by Accountability	35	
GRI 103: MANAGEMENT APPROACH 2016	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment	11	
			2.1 Sustainable Management Approach for Managing by Accountability	35	
GRI 203: Indirect Economic Impacts 2016	203-1	Infrastructure investments and services supported	2.4 Operational Achievement	51	
			5.2.2 Leading and Innovative Gas Stations	130	
GRI 203: Indirect Economic Impacts 2016	203-2	Significant indirect economic impacts	5.4.1 Social Care	138	
			2.5 Cooperate in Coordination of National Policies	57	
PROCUREMENT PRACTICES					
GRI 204: Procurement Practices 2016	204-1	Proportion of spending on local suppliers	5.3.1 Characteristics of Overseas Procurement	133	
*ANTI-CORRUPTION					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis	28	
			2.1 Sustainable Management Approach for Managing by Accountability	35	
	103-2	he management approach and its components	2.1 Sustainable Management Approach for Managing by Accountability	35	
GRI 103: MANAGEMENT APPROACH 2016	103-3	Evaluation of the management approach Sustainable Development Goals and Sustainability Assessment	Sustainable Development Goals and Sustainability Assessment	11	
			2.1 Sustainable Management Approach for Managing by Accountability	35	
GRI 205: ANTI-CORRUPTION 2016	205-1	Operations assessed for risks related to corruption	2.3.2 Adhering to Integrity and Ethical Value	46	
	205-2	Communication and training about anti-corruption policies and procedures	2.3.2 Adhering to Integrity and Ethical Value	46	
	205-3	Confirmed incidents of corruption and actions taken	2.3.2 Adhering to Integrity and Ethical Value	46	
*ANTI-COMPETITIVE BEHAVIOR					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis	28	
			2.1 Sustainable Management Approach for Managing by Accountability	35	



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GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	omission/ Note
GRI 103: MANAGEMENT APPROACH 2016	103-2	The management approach and its components	2.1 Sustainable Management Approach for Managing by Accountability	35	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 2.1 Sustainable Management Approach for Managing by Accountability	11 35	
GRI 206: ANTI-COMPETITIVE BEHAVIOR 2016	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	2.3.2 Adhering to Integrity and Ethical Value	46	

ENVIRONMENTAL

***MATERIALS**

GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 3.1 Environmental Harmony and Sustainable Management Policy	28 69	
	103-2	The management approach and its components	3.1 Environmental Harmony and Sustainable Management Policy	69	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 3.1 Environmental Harmony and Sustainable Management Policy	11 69	
GRI 301: MATERIALS 2016	301-1	Materials used by weight or volume	3.2.3 Environmental Footprint in 2017	76	
	301-2	Recycled input materials used	3.4.2 Circular Economy and Green Products	97	
	301-3	Reclaimed products and their packaging materials	3.4.2 Circular Economy and Green Products	97	

***ENERGY**

GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 3.1 Environmental Harmony and Sustainable Management Policy	28 69	
	103-2	The management approach and its components	3.1 Environmental Harmony and Sustainable Management Policy	69	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 3.1 Environmental Harmony and Sustainable Management Policy	11 69	
GRI 302: ENERGY 2016	302-1	Energy consumption within the organization	3.3.2 Energy and Electricity Saving	79	
	302-3	Energy intensity	3.2.2 Environmental Cost and Benefits 3.3.2 Energy and Electricity Saving	73 79	
	302-4	Reduction of energy consumption	3.3.2 Energy and Electricity Saving 3.4.1 Green Office	79 96	
	302-5	Reductions in energy requirements of products and services	3.4.1 Green Office	96	



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GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	omission/ Note
*WATER					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 3.1 Environmental Harmony and Sustainable Management Policy	28 69	
	103-2	The management approach and its components	3.1 Environmental Harmony and Sustainable Management Policy	69	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 3.1 Environmental Harmony and Sustainable Management Policy	11 69	
GRI 303: WATER 2016	303-1	Water withdrawal by source	3.3.5 Management of Water Resources	85	
	303-2	Water sources significantly affected by withdrawal of water	3.3.5 Management of Water Resources	85	
	303-3	Water recycled and reused	3.3.6 Waste Water Pollution Prevention	86	
*BIODIVERSITY					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 3.1 Environmental Harmony and Sustainable Management Policy	28 69	
	103-2	The management approach and its components	3.1 Environmental Harmony and Sustainable Management Policy	69	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 3.1 Environmental Harmony and Sustainable Management Policy	11 69	
GRI 304: BIODIVERSITY 2016	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	3.3.10 Emphasizing Biodiversity	92	
	304-2	Significant impacts of activities, products, and services on biodiversity	3.3.10 Emphasizing Biodiversity	92	
	304-3	Habitats protected or restored	3.3.10 Emphasizing Biodiversity	92	
	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	3.3.10 Emphasizing Biodiversity	92	
*EMISSIONS					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 3.1 Environmental Harmony and Sustainable Management Policy	28 69	
	103-2	The management approach and its components	3.1 Environmental Harmony and Sustainable Management Policy	69	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 3.1 Environmental Harmony and Sustainable Management Policy	11 69	



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GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	omission/ Note
GRI 305: EMISSIONS 2016	305-1	Direct (Scope 1) GHG emissions	3.3.3 Greenhouse Gas Reduction Management and Achievement	81	
	305-2	Energy indirect (Scope 2) GHG emissions	3.3.3 Greenhouse Gas Reduction Management and Achievement	81	
	305-4	GHG emissions intensity	3.2.2 Environmental Cost and Benefits 3.3.3 Greenhouse Gas Reduction Management and Achievement	73 81	
	305-5	Reduction of GHG emissions	3.3.3 Greenhouse Gas Reduction Management and Achievement	81	
	305-6	Emissions of ozone-depleting substances (ODS)	3.3.4 Air Pollution Prevention and Control	83	
	305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	3.3.4 Air Pollution Prevention and Control	83	
	* EFFLUENTS AND WASTE				
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 3.1 Environmental Harmony and Sustainable Management Policy	28 69	
	103-2	The management approach and its components	3.1 Environmental Harmony and Sustainable Management Policy	69	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 3.1 Environmental Harmony and Sustainable Management Policy	11 69	
GRI 306: EFFLUENTS AND WASTE 2016	306-1	Water discharge by quality and destination	3.3.6 Waste Water Pollution Prevention	86	
	306-2	Waste by type and disposal method	3.3.8 Management of Wastes	90	
	306-3	Significant spills	3.3.7 Prevention and Remediation of Soil and Ground Water Pollution 3.3.9 Management of Hazardous Materials 5.4.2 Lively and Happy Homeland	89 91 141	
	306-4	Transport of hazardous waste	3.3.8 Management of Wastes 5.4.2 Lively and Happy Homeland	90 141	
	306-5	Water bodies affected by water discharges and/or runoff	3.3.10 Emphasizing Biodiversity	92	
*ENVIRONMENTAL COMPLIANCE					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 3.1 Environmental Harmony and Sustainable Management Policy	28 69	
	103-2	The management approach and its components	3.1 Environmental Harmony and Sustainable Management Policy	69	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 3.1 Environmental Harmony and Sustainable Management Policy	11 69	
GRI 307: ENVIRONMENTAL COMPLIANCE 2016	307-1	Non-compliance with environmental laws and regulations	3.2.1 Implementation of Environmental Management	72	



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GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	omission/ Note
SUPPLIER ENVIRONMENTAL ASSESSMENT					
GRI 308: SUPPLIER ENVIRONMENTAL ASSESSMENT 2016	308-1	New suppliers that were screened using environmental criteria	5.3.2 Contracts for Affiliated Partners 5.3.4 CSR Management of the Supply Chain	135 136	
	308-2	Negative environmental impacts in the supply chain and actions taken	5.3.4 CSR Management of the Supply Chain	136	
SOCIAL					
*EMPLOYMENT					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 4.1 Sustainable Management Approach for a Happy Workplace	28 103	
	103-2	The management approach and its components	4.1 Sustainable Management Approach for a Happy Workplace	103	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 4.1 Sustainable Management Approach for a Happy Workplace	11 103	
GRI 401: EMPLOYMENT 2016	401-1	New employee hires and employee turnover	4.3.2 The Hire of Employees	117	
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	4.3.4 Employees' Rights and Benefits	120	
	401-3	Parental leave	4.3.1 Respecting Human Rights	114	
* LABOR/MANAGEMENT RELATIONS					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 4.1 Sustainable Management Approach for a Happy Workplace	28 103	
	103-2	The management approach and its components	4.1 Sustainable Management Approach for a Happy Workplace	103	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 4.1 Sustainable Management Approach for a Happy Workplace	11 103	
GRI 402: LABOR/MANAGEMENT RELATIONS 2016	402-1	Minimum notice periods regarding operational changes	4.3.1 Respecting Human Rights	114	
* OCCUPATIONAL HEALTH AND SAFETY					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 4.1 Sustainable Management Approach for a Happy Workplace	28 103	



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GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	omission/ Note
GRI 103: MANAGEMENT APPROACH 2016	103-2	The management approach and its components	4.1 Sustainable Management Approach for a Happy Workplace	103	
GRI 403: OCCUPATIONAL HEALTH AND SAFETY 2016	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 4.1 Sustainable Management Approach for a Happy Workplace	11 103	
GRI 403: OCCUPATIONAL HEALTH AND SAFETY 2016	403-1	Workers representation in formal joint management worker health and safety committees	4.2.1 Occupational Safety and Health Management 4.2.2 Workplace Safety Education, Training and Advocating	106 109	
	403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	4.2.3 Workplace Safety Performance	110	
	403-3	Workers with high incidence or high risk of diseases related to their occupation	4.2.4 Healthy Work Environment	112	
	403-4	Health and safety topics covered in formal agreements with trade unions	4.2.1 Occupational Safety and Health Management	106	

*TRAINING AND EDUCATION

GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 4.1 Sustainable Management Approach for a Happy Workplace	28 103	
	103-2	The management approach and its components	4.1 Sustainable Management Approach for a Happy Workplace	103	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 4.1 Sustainable Management Approach for a Happy Workplace	11 103	
GRI 404: TRAINING AND EDUCATION 2016	404-1	Average hours of training per year per employee	4.3.3 Human Resources Development and Training	119	
	404-2	Programs for upgrading employee skills and transition assistance programs	4.3.3 Human Resources Development and Training	119	
	404-3	Percentage of employees receiving regular performance and career development reviews	4.3.3 Human Resources Development and Training	119	

DIVERSITY AND EQUAL OPPORTUNITY

GRI 405: DIVERSITY AND EQUAL OPPORTUNITY 2016	405-1	Diversity of governance bodies and employees	2.3 Corporate Governance 2.3.1 Corporate Governance Structure 4.3.2 The Hire of Employees	41 43 117	
	405-2	Ratio of basic salary and remuneration of women to men	4.3.1 Respecting Human Rights	114	



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GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	omission/ Note
NON -DISCRIMINATION					
GRI 406: NON-DISCRIMINATION 2016	406-1	Incidents of discrimination and corrective actions taken	4.3.1 Respecting Human Rights	114	
			4.3.2 The Hire of Employee	117	
FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING					
GRI 407: FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING 2016	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	4.3.2 The Hire of Employee	117	
			5.3.2 Contracts for Affiliated Partners	135	
CHILD LABOR					
GRI 408: CHILD LABOR 2016	408-1	Operations and suppliers at significant risk for incidents of child labor	4.3.2 The Hire of Employee	117	
			5.3.2 Contracts for Affiliated Partners	135	
FORCED OR COMPULSORY LABOR					
GRI 409: FORCED OR COMPULSORY LABOR 2016	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	4.3.1 Respecting Human Rights	114	
			5.3.2 Contracts for Affiliated Partners	135	
SECURITY PRACTICES					
GRI 410: SECURITY PRACTICES 2016	410-1	Security personnel trained in human rights policies or procedures	4.2.1 Occupational Safety and Health Management	106	
RIGHTS OF INDIGENOUS PEOPLES					
GRI 411: RIGHTS OF INDIGENOUS PEOPLES 2016	411-1	Incidents of violations involving rights of indigenous peoples	4.3.1 Respecting Human Rights	114	
HUMAN RIGHTS ASSESSMENT					
GRI 412: HUMAN RIGHTS ASSESSMENT 2016	412-1	Operations that have been subject to human rights reviews or impact assessments	4.3.1 Respecting Human Rights	114	
	412-2	Employee training on human rights policies or procedures	4.3.1 Respecting Human Rights	114	
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	5.3.2 Contracts for Affiliated Partners 5.3.3 Human Rights Management of Important Investment	135 136	
* LOCAL COMMUNITIES					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 5.1 Sustainable Management Approach for a Friendly Society	28 127	
	103-2	The management approach and its components	5.1 Sustainable Management Approach for a Friendly Society	127	



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GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	omission/ Note
GRI 103: MANAGEMENT APPROACH 2016	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment	11	
			5.1 Sustainable Management Approach for a Friendly Society	127	
GRI 413: LOCAL COMMUNITIES 2016	413-1	Operations with local community engagement, impact assessments, and development programs	3.3.11 Carrying out Environmental Evaluation	94	
			5.4.1 Social Care	138	
			5.4.2 Lively and Happy Homeland	141	
	413-2	Operations with significant actual and potential negative impacts on local communities	3.3.11 Carrying out Environmental Evaluation	94	
SUPPLIER SOCIAL ASSESSMENT					
GRI 414: SUPPLIER SOCIAL ASSESSMENT 2016	414-1	New suppliers that were screened using social criteria	5.3.2 Contracts for Affiliated Partners	135	
			5.3.4 CSR Management of the Supply Chain	136	
	414-2	Negative social impacts in the supply chain and actions taken	5.3.4 CSR Management of the Supply Chain	136	
PUBLIC POLICY					
GRI 415: PUBLIC POLICY 2016	415-1	Political contributions	2.3.2 Adhering to Integrity and Ethical Value	46	
*CUSTOMER HEALTH AND SAFETY					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis	28	
			5.1 Sustainable Management Approach for a Friendly Society	127	
			5.1 Sustainable Management Approach for a Friendly Society	127	
	103-2	The management approach and its components	5.1 Sustainable Management Approach for a Friendly Society	127	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment	11	
			5.1 Sustainable Management Approach for a Friendly Society	127	
GRI 416: CUSTOMER HEALTH AND SAFETY 2016	416-1	Assessment of the health and safety impacts of product and service categories	5.2.1 Providing Clean and Diversified Products	129	
			5.2.1 Providing Clean and Diversified Products	129	
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	5.2.1 Providing Clean and Diversified Products	129	
* MARKETING AND LABELING					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis	28	
			5.1 Sustainable Management Approach for a Friendly Society	127	
	103-2	The management approach and its components	5.1 Sustainable Management Approach for a Friendly Society	127	



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GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	Omission/ Note
GRI 103: MANAGEMENT APPROACH 2016	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 5.1 Sustainable Management Approach for a Friendly Society	11 127	
	417-1	Requirements for product and service information and labeling	5.2.1 Providing Clean and Diversified Products	129	
	GRI 417: MARKETING AND LABELING 2016	417-2	Incidents of non-compliance concerning product and service information and labeling	5.2.1 Providing Clean and Diversified Products	129
417-3		Incidents of non-compliance concerning marketing communications	5.2.1 Providing Clean and Diversified Products	129	
*CUSTOMER PRIVACY					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 5.1 Sustainable Management Approach for a Friendly Society	28 127	
	103-2	Explanation of the material topic and its Boundary	5.1 Sustainable Management Approach for a Friendly Society	127	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 5.1 Sustainable Management Approach for a Friendly Society	11 127	
GRI 418: CUSTOMER PRIVACY 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	5.2.3 Customer Satisfaction	132	
*SOCIOECONOMIC COMPLIANCE					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 2.1 Sustainable Management Approach for Managing by Accountability	28 35	
	103-2	The management approach and its components	2.1 Sustainable Management Approach for Managing by Accountability	35	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 2.1 Sustainable Management Approach for Managing by Accountability	11 35	
GRI 419: SOCIOECONOMIC COMPLIANCE 2016	419-1	Non-compliance with laws and regulations in the social and economic area	2.3.2 Adhering to Integrity and Ethical Values	46	

GRI G4 Supplement Guide for Oil and Gas Industry

Materials	G4-OG1	Volume and type of estimated proved reserves and production	2.4.2 Operation Overview	53	
	G4-OG2	Total amount invested in renewable energy.	2.4.3 Research and Development	55	
Energy	G4-OG3	Total amount of renewable energy generated by source.	Special Column 1: CPC- the First Domestic Production Enterprise Issuing Green Bonds	59	



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GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	Omission/ Note
Biodiversity	G4-OG4	Number and percentage of significant operating sites in which biodiversity risk has been assessed and monitored.	3.3.10 Emphasizing Biodiversity	92	
Effluents and Waste	G4-OG5	Volume and disposal of formation or produced water.	3.3.6 Waste Water Pollution Prevention	86	
	G4-OG6	Volume of flared and vented hydrocarbon.	3.3.4 Air Pollution Prevention and Control	83	
	G4-OG7	Amount of drilling waste (drill mud and cuttings) and strategies for treatment and disposal.	3.3.8 Management of Wastes	90	
Products and Services	G4-OG8	Benzene, lead and sulfur content in fuels.	3.3.4 Air Pollution Prevention and Control	83	
Indigenous Rights	G4-OG9	Operations where indigenous communities are present or affected by activities.	5.4.2 Lively and Happy Homeland	141	
Local Communities	G4-OG10	Number and description of significant disputes with local communities and indigenous peoples.	5.4.2 Lively and Happy Homeland	141	
	G4-OG11	Number of sites that have been decommissioned and sites that are in the process of being decommissioned.	5.4.2 Lively and Happy Homeland	141	
Involuntary Placement	G4-OG12	Number of sites that have been decommissioned and sites that are being decommissioned.	5.4.2 Lively and Happy Homeland	141	
*Asset Integrity and Safety Drills					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary.	1.2.2 Material Topics Identification and Analysis 4.1 Sustainable Management Approach for a Happy Workplace	28 103	
	103-2	The management approach and its components.	4.1 Sustainable Management Approach for a Happy Workplace	103	
	103-3	Evaluation of the management approach.	Sustainable Development Goals and Sustainability Assessment 4.1 Sustainable Management Approach for a Happy Workplace	11 103	
Asset Integrity and Safety Drills	G4-OG13	Number of process safety events, by business activity.	4.2.1 Occupational Safety and Health Management	106	
*Alternatives to fossil fuels					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis 3.1 Environmental Harmony and Sustainable Management Policy	28 69	
	103-2	The management approach and its components	3.1 Environmental Harmony and Sustainable Management Policy	69	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment 3.1 Environmental Harmony and Sustainable Management Policy	11 69	



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GRI 102 GENERAL DISCLOSURES:2016

Category / Topic	No.	Disclosure	Related CSR Section	Page(s)	omission/ Note
Alternatives to fossil fuels	G4-OG14	Volume of biofuels produced and purchased meeting sustainability criteria.	3.4.2 Circular Economy and Green Products	97	
*Emergency Prevention					
GRI 103: MANAGEMENT APPROACH 2016	103-1	Explanation of the material topic and its Boundary	1.2.2 Material Topics Identification and Analysis	28	
			4.1 Sustainable Management Approach for a Happy Workplace	103	
	103-2	The management approach and its components	4.1 Sustainable Management Approach for a Happy Workplace	103	
	103-3	Evaluation of the management approach	Sustainable Development Goals and Sustainability Assessment	11	
			4.1 Sustainable Management Approach for a Happy Workplace	103	

Appendix 2 : Taiwan Stock Exchange Corporation Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies Reference Table

Item 2 of Article 4	Respective Section or Chapter	Page(s)
Listed companies within the chemical industry shall disclose the specific effective mechanism and actions that the listed companies and their supply chains adopt to decrease the negative impact of their products, activities, or services on the environment, to protect the personnel's vocational health and safety and the interested public's lives and property security. The disclosure shall include at least the management of the production or delivery of the raw material, supplies, end products, emergency response measures against accidents inside and outside the factories and the relevant performance indicator.	4.2.1 Occupational Safety and Health Management	106



Appendix 3 : UN Global Compact Reference Table

Item	Article	Respective Section or Chapter	Page(s)
1. Human right			
1	Businesses should support and respect the protection of internationally proclaimed human rights	5.2.3 Customer Satisfaction	132
2	Business should make sure that they are not complicit in human rights abuses	4.3.1 Respecting Human Rights 4.3.2 The Hire of Employees	114 117
2. Labor			
1	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	4.3.1 Respecting Human Rights	114
2	Businesses should uphold the elimination of all forms of forced and compulsory labor	4.3.1 Respecting Human Rights	114
3	Businesses should uphold the effective abolition of child labor	4.3.1 Respecting Human Rights 4.3.2 The Hire of Employees	114 117
4	Businesses should uphold the elimination of discrimination in respect of employment and occupation	4.3.1 Respecting Human Rights	114
3. Environment			
1	Businesses should support a precautionary approach to environmental challenges	3.3 Fulfillment of Environmental Responsibility	77
2	Businesses should undertake initiatives to promote greater environmental responsibility	3.1 Environmental Harmony and Sustainable Management Policy	69
3	Encourage the development and diffusion of environment friendly technologies	3.4 Green Effects	96
4. Anti-corruption			
1	Businesses should work against corruption in all its forms, including extortion and bribery	2.3.2 Adhering to Integrity and Ethical Values	46



Appendix 4 : Reference Table for ISO 26000 Social Responsibility Guide

Item	Article	Respective Section or Chapter	Page(s)
1 Organizational Governance			
1.1	The decision-making system when the organization is marching toward its goals	1.1 Sustainable Management and Promotion	21
2. Human Rights			
2.1	Due diligence	4.3.1 Respecting Human Rights	114
2.2	Human rights risk situations	4.3.1 Respecting Human Rights	114
2.3	Avoidance of complicity	5.3.3 Human Rights Management of Important Investment	136
		5.3.4 CSR Management of the Supply Chain	136
2.4	Resolving grievances	1.2.1 Identification and Communication with Stakeholders	24
2.5	Discrimination and vulnerable groups	5.4.1 Social Care	138
2.6	Civil and political rights	4.3.1 Respecting Human Rights	114
2.7	Economic, social and cultural rights	4.3.1 Respecting Human Rights	114
2.8	Fundamental principles and rights at work	4.3.4 Employees' Rights and Benefits	120
3.Labor Practices			
3.1	Employment and employment relationships	4.3.2 The Hire of Employees	117
3.2	Conditions of work and social protection	4.3.4 Employees' Rights and Benefits	120
3.3	Social dialogue	4.3.4 Employees' Rights and Benefits	120
3.4	Health and safety at work	4.2 Sustainable Workplace	106
3.5	Human development and training in the workplace	4.3.3 Human Resources Development and Training	119
4. The Environment			
4.1	Prevention of pollution	3.3 Fulfillment of Environmental Responsibility	77
4.2	Sustainable resource use	Special Column 2: Construction of CPC Smart Green Gas Stations- Integrated Community Green Energy Supply Center	63
4.3	Climate change mitigation and adaptation	3.3.1 Climate Change Risks and Opportunities	77
4.4	Protection of the environment, biodiversity and restoration of natural habitats	3.3.10 Emphasizing Biodiversity	92



Item	Article	Respective Section or Chapter	Page(s)
5. Fair Operating Practices			
5.1	Anti-corruption	2.3.2 Adhering to Integrity and Ethical Values	46
5.2	Responsible political involvement	2.5 Cooperate in Line with of National Policies	57
5.3	Fair competition	2.3 Corporate Governance	41
5.4	Promoting social responsibility in the value chain	5.3.4 CSR Management of the Supply Chain	136
5.5	Respect for property rights	2.3 Corporate Governance	41
6. Consumer Issues			
6.1	Fair marketing, factual and unbiased information and fair contractual practices	5.2 Customers and Us	129
6.2	Protecting consumers' health and safety	5.2.1 Providing Clean and Diversified Products	129
6.3	Sustainable consumption	5.2.2 Leading and Innovative Gas Stations	130
6.4	Consumer service, support, and complaint and dispute resolution	5.2.3 Customer Satisfaction	132
6.5	Consumer data protection and privacy	5.2.3 Customer Satisfaction	132
6.6	Access to essential services	5.2.3 Customer Satisfaction	132
6.7	Education and awareness	5.2 Customers and Us	129
7. Community Involvement and Development			
7.1	Community involvement	5.4 Cheering for Love	138
7.2	Education and culture	5.4 Cheering for Love	138
7.3	Employment creation and skills development	2.4 Operational Achievement	51
7.4	Technology development and access	Special Column 3: Recycling and Reuse of Wastewater - Membrane Bioreactor Technology	99
7.5	Wealth and income creation	2.4.1 Financial Achievement	51
7.6	Health	5.4.1 Social Care	138
7.7	Social investment	5.4 Cheering for Love	138



Appendix 5 : Sustainable Development Goals, SDGs Reference Table

Item	Goal	Respective Section or Chapter	Page(s)
Goal 1 NO POVERTY	End poverty in all its forms everywhere.	5.1 Sustainable Management Approach for a Friendly Society	127
Goal 2 ZERO HUNGER	End hunger, achieve food security and improved nutrition and promote sustainable agriculture.	5.1 Sustainable Management Approach for a Friendly Society	127
Goal 3 GOOD HEALTH AND WELL- BEING	Ensure healthy lives and promote well- being for all at all ages.	3.3 Fulfillment of Environmental Responsibility	77
		5.1 Sustainable Management Approach for a Friendly Society	127
Goal 4 QUALITY EDUCATION	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	4.1 Sustainable Management Approach for a Happy Workplace	103
		5.1 Sustainable Management Approach for a Friendly Society	127
Goal 5 GENDER EQUALITY	Achieve gender equality and empower all women and girls.	4.1 Sustainable Management Approach for a Happy Workplace	103
Goal 6 CLEAN WATER AND SANITATION	Ensure availability and sustainable management of water and sanitation for all.	3.1 Environmental Harmony and Sustainable Management Policy	69
Goal 7 AFFORDABLE AND CLEAN ENERGY	Ensure access to affordable, reliable, sustainable and modern energy for all.	3.1 Environmental Harmony and Sustainable Management Policy	69
Goal 8 DECENT WORK AND ECONOMIC GROWTH	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	2.1 Sustainable Management Approach for Managing by Accountability	35
		4.1 Sustainable Management Approach for a Happy Workplace	103
Goal 9 INDUSTRY, INOVATION AND INFRASTRUCTURE	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.	3.1 Environmental Harmony and Sustainable Management Policy	69
Goal 10 REDUCED INEQUALITIES	Reduce inequality within and among countries.	4.1 Sustainable Management Approach for a Happy Workplace	103
Goal 11 SUSTAINABLE CITIES AND COMMUNITIES	Make cities and human settlements inclusive, safe, resilient and sustainable.	5.1 Sustainable Management Approach for a Friendly Society	127
Goal 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Ensure sustainable consumption and production patterns.	3.1 Environmental Harmony and Sustainable Management Policy	69
Goal 13 CLIMATE ACTION	Take urgent action to combat climate change and its impacts.	3.1 Environmental Harmony and Sustainable Management Policy	69
Goal 14 LIFE BELOW WATER	Conserve and sustainably use the oceans, seas and marine resources for sustainable development.	3.1 Environmental Harmony and Sustainable Management Policy	69
Goal 15 LIFE ON LAND	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	3.1 Environmental Harmony and Sustainable Management Policy	69
Goal 16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	2.1 Sustainable Management Approach for Managing by Accountability	35
Goal 17 PARTNERSHIPS FOR THE GOALS	Strengthen the means of implementation and revitalize the global partnership for sustainable development.	1.1 Sustainable Management and Promotion	21



Appendix 6 : BSI (British Standards Institution) Assurance Statement

INDEPENDENT ASSURANCE OPINION STATEMENT

CPC Corporation, Taiwan 2018 Sustainability Report

The British Standards Institution is independent to CPC Corporation, Taiwan (hereafter referred to as CPC Corporation, Taiwan in this statement) and has no financial interest in the operation of CPC Corporation, Taiwan other than for the assessment and assurance of this report.

This independent assurance opinion statement has been prepared for CPC Corporation, Taiwan only for the purposes of assuring its statements relating to its corporate sustainability (CSR), more particularly described in the Scope below. It was not prepared for any other purpose. The British Standards Institution will not, in providing this independent assurance opinion statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used, or to any person by whom the independent assurance opinion statement may be read.

This independent assurance opinion statement is prepared on the basis of review by the British Standards Institution of information presented to it by CPC Corporation, Taiwan. The review does not extend beyond such information and is solely based on it. In performing such review, the British Standards Institution has assumed that all such information is complete and accurate.

Any queries that may arise by virtue of this independent assurance opinion statement or matters relating to it should be addressed to CPC Corporation, Taiwan only.

Scope

The scope of engagement agreed upon with CPC Corporation, Taiwan includes the followings:

1. The assurance scope is consistent with the description of CPC Corporation, Taiwan 2018 Sustainability Report.
2. The evaluation of the nature and extent of the CPC Corporation, Taiwan's adherence to all three AA1000 AccountAbility Principles in this report as conducted in accordance with type 1 of AA1000AS (2008) assurance engagement and therefore, the information/data disclosed in the report is not verified through the verification process.

This statement was prepared in English and translated into Chinese for reference only.

Opinion Statement

We conclude that the CPC Corporation, Taiwan 2018 Sustainability Report provides a fair view of the CPC Corporation, Taiwan CSR programmes and performances during 2017. The CSR report subject to assurance is free from material misstatement based upon testing within the limitations of the scope of the assurance, the information and data provided by the CPC Corporation, Taiwan and the sample taken. We believe that the 2018 economic, social and environmental performance indicators are fairly represented. The CSR performance indicators disclosed in the report demonstrate CPC Corporation, Taiwan's efforts recognized by its stakeholders.

Our work was carried out by a team of CSR report assurers in accordance with the AA1000 Assurance Standard (2008). We planned and performed this part of our work to obtain the necessary information and explanations we considered to provide sufficient evidence that CPC Corporation, Taiwan's description of their approach to AA1000 Assurance Standard and their self-declaration of 'in accordance' with the GRI Standards (2016); the Core option were fairly stated.

Methodology

Our work was designed to gather evidence on which to base our conclusion. We undertook the following activities:

- review of issues raised by external parties that could be relevant to CPC Corporation, Taiwan's policies to provide a check on the appropriateness of statements made in the report.
- discussion with managers on approach to stakeholder engagement. However, we had no direct contact with external stakeholders.
- 28 interviews with staffs involved in sustainability management, report preparation and provision of report information were carried out.
- review of key organizational developments.
- review of the findings of internal audits.
- review of supporting evidence for claims made in the reports.
- an assessment of the organization's reporting and management processes concerning this reporting against the principles of Inclusivity, Materiality and Responsiveness as described in the AA1000 AccountAbility Principles Standard (2008).

Conclusions

A detailed review against the AA1000 AccountAbility Principles of Inclusivity, Materiality and Responsiveness and



the GRI Standards (2016) is set out below:

Inclusivity

This report has reflected a fact that CPC Corporation, Taiwan has continuously sought the engagement of its stakeholders. The participation of stakeholders has been initiated in developing and achieving an accountable and strategic response to sustainability. The reporting systems are being developed to deliver the required information. There are fair reporting and disclosures for economic, social and environmental information in this report, so that appropriate planning and target-setting can be supported. In our professional opinion the report covers the CPC Corporation, Taiwan's inclusivity issues.

Materiality

CPC Corporation, Taiwan publishes sustainability information that enables its stakeholders to make informed judgements about the organization's management and performance. In our professional opinion the report covers the CPC Corporation, Taiwan's material issues.

Responsiveness

CPC Corporation, Taiwan has implemented the practice to respond to the expectations and perceptions of its stakeholders. An Ethical Policy for CPC Corporation, Taiwan is developed and provides the opportunity to further enhance CPC Corporation, Taiwan's responsiveness to stakeholder concerns. Issues that stakeholder concern about have been responded timely. In our professional opinion the report covers the CPC Corporation, Taiwan's responsiveness issues. However, the future report should be further enhanced by the following areas:

- Encouraging to work towards a type 2 of AA1000AS (2008) engagement with a view to providing the reliability of sustainability performance information that stakeholder concerns.

GRI Sustainability Reporting Standards (GRI Standards)

CPC Corporation, Taiwan provided us with their self-declaration of 'in accordance' with the GRI Standards (2016): the Core option (For each material topic covered by a topic-specific GRI Standard, comply with at least one topic-specific disclosure). Based on our review, we confirm that social responsibility and sustainable development disclosures with reference to the GRI Standards' disclosures are reported, partially reported or omitted. In our professional opinion the self-declaration covers the CPC Corporation, Taiwan's social responsibility and sustainability issues.

Assurance level

The moderate level assurance provided is in accordance with AA1000 Assurance Standard (2008) in our review, as defined by the scope and methodology described in this statement.

Responsibility

This CSR report is the responsibility of the CPC Corporation, Taiwan's chairman as declared in his responsibility letter. Our responsibility is to provide an independent assurance opinion statement to stakeholders giving our professional opinion based on the scope and methodology described.

Competency and Independence

The assurance team was composed of Lead Auditors experienced in industrial sector, and trained in a range of sustainability, environmental and social standards including AA1000 AS, ISO14001, OHSAS18001, ISO14064 and ISO 9001. BSI is a leading global standards and assessment body founded in 1901. The assurance is carried out in line with the BSI Fair Trading Code of Practice.

For and on behalf of BSI:

Peter Pu
Managing Director BSI Taiwan
2018-05-06



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