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Pollution Prevention & Environment Protection



In order to fulfill its corporate responsibility, CPC has long been dedicated to a variety of environmental protection efforts, including the improving: wastewater disposal; air pollution; waste treatment, and soil and groundwater contamination; the implementation of environmental protection policies; the active prevention of pollution; strengthening the control of the sources of pollution; the utilization of low pollution production processes; and the latest pollution control facilities. The best available control technology (BACT) and equipment are used to reduce pollution that may be caused by production, as well as transportation and storage processes, in its new projects.

Ecological protection and implementation of environment policies

In recent years, CPC has further deepened its commitment to ecologically beneficial measures that include improving the quality of its petroleum products, reducing energy consumption and waste, and adapting to climate change. In order to prevent pollution, energy and waste reduction, and help create a sustainable environment, CPC has invested more than NT\$50 billion in its environmental protection efforts since 1989. Since 1995, all of the Company's business units introduced the ISO 14001 standard of environmental management system. As of the end of 2021, 24 units had received official certification. In response to the global trend, CPC has deployed an environmental accounting system in 2004 to improve its environment protection performance.

In all its development projects, CPC has followed through on commitments written into the respective environmental impact assessment (EIA), introducing the appropriate environmental protection measures in response to the potential risks posed by specific development undertakings, maintaining comprehensive monitoring systems designed to protect environmental quality and biological diversity around its facilities, and achieving standards in the quality of their atmospheric emissions higher than those stipulated in current national environmental protection regulations, in order to improve its environment protection performance.

With regard to ecology preservation, CPC set up the Guantang Industrial Park (Port) Ecological Preservation Committee on November 7, 2018 for consultation and review of its environment protection efforts and achievements, with the aim of achieving the goals of marine environmental conservation and sustainable community development. In the monitoring of algal reef ecology, six stations have been set up throughout Taiwan. In 2021, the Taoyuan algal reefs coast survey results showed that there were 42 algal species in total: 20 macroalgae and 22 crustose coralline algae. The total number of algae species in the Guanxin Algae Reef is the highest, at 37 species; there are 34 algae species in the Datan Algae Reef and 25 in the Baiyu Algae Reef. Guanxin Algae Reef has the highest number of crustose coralline algae (22 species); there are 19 crustose coralline algae species at Datan algal reef and the lowest was 10 crustose coralline algae at the Baiyu algae reef.

In addition to the regular monitoring and surveying of algal reef ecology, CPC has completed habitat restoration for little terns since 2019. CPC has worked with the Wild Bird Society of Taoyuan and the Taoyuan City Government, and the reproductive

success rate increased significantly from 17%-30% to 68% recently. In 2021, the reproduction success rate for little terns in Taoyuan, moreover, increased to 72%, which shows that CPC has spared no effort in ecological conservation. It also shows that cooperation with environmental protection organizations has made fruitful conservation achievements.

Significant reduction of greenhouse gases and carrying out climate risk assessments

Taiwan's Greenhouse Gas Reduction and Management Act was formally promulgated on July 1, 2015. CPC has set goals to reduce greenhouse gases in compliance with national policies, and it continues to monitor its emissions through the calculation of its greenhouse gas inventory. In order to achieve the national goal of long-term greenhouse emissions reduction, CPC introduced the ISO 14064-1 system in 2004 for the calculation of its greenhouse gas inventory, actively implemented its energy saving carbon emission reduction plan, and set targets and timelines for carbon emission reduction for its existing plants. CPC has also imposed reduction measures according to the plan with use of clean fuel, clean production, equipment efficiency improvement, energy saving and waste reduction, etc. In recent years, CPC has used the latest technology to effectively improve the energy efficiency of its plants. As a result, the company's reduction in greenhouse emissions from 2005 to 2020, which was verified by a third-party, was about 38.6%.

In addition, CPC has implemented electricity conservation in its offices in compliance with the guidelines on the management plan for power usage effectiveness for government agencies and schools laid down by the Executive Yuan, saving 1.5% electricity costs from 2021 from Jan. to Nov., according to the statistics of the Ministry of Economic Affairs, and achieving its annual power consumption goal. CPC's offices of monitored units had switched to all-LED lighting by September, 2020. In response to the risks from climate change, the company has participated in the climate change adaptation strategy and guidance program for the energy sector; climate risk assessments and reports of 24 plants were completed between 2018 and 2020.

Reducing air pollution and establishing environmental education facilities

CPC's air pollutants come mainly from its oil refineries and petrochemical plants. The pollutants include total suspended particulate (TSP), sulfur oxides (SOx), nitrogen oxides (NOx), volatile organic compounds (VOCs), etc. In 2020, there was a significant

fall of air pollutant emissions at the company's oil refineries and petrochemical plants as their capacity decreased, which resulted in an overall drop in air pollution from the refineries and plants over the last three years. In terms of the average emission of air pollutants in the last two years, Flue Gas quality has also been better than the national standard. CPC will continue to implement a variety of measures to reduce air pollution.

Since the enactment of the Environmental Education Act in 2011, CPC has actively promoted environment-related education and similar activities, and the concepts of environmental protection and of cherishing Taiwan's natural resources. It has called on the public to come together on local ecological issues, shown concern for the development of local communities, and taken concrete actions, like park and forest adoption, supporting garbage clean-ups and marine pollution remediation, in order to leave a clean environment for future generations. In further educational developments in recent years, CPC's Taiwan Oil Field Exhibition Hall at Chuhuangkeng in Miaoli County was officially certified as an environmental education facility on August 22, 2017. It is the only educational facility for oil extraction. Another company-developed environmental education site is the CPC Kaohsiung Refinery Environmental Education Park, which was certified as the only petrochemical industry environmental educational facility on January 22, 2018.

CPC is deeply loyal to its home country and so is passionate about protecting the nation's environment. In that cause, it will strive to raise its environmental performance by deploying the latest pollution-control technology, actively introducing highly efficient processes, investing in the circular economy, waste recycling and increasing value—all in the pursuit of developing sustainability in its operations and the sharing of good health and prosperity with citizens.

Continued compliance with regulatory requirements for pollution remediation

Following the promulgation of the Soil and Groundwater Pollution Remediation Act by the President in 2000, Taiwan's Environmental Protection Agency (EPA) has introduced related Enforcement Rules, subsidiary legislation and related control standards for the Soil and Groundwater Pollution Remediation Act. Many CPC plant locations have been listed as sites for pollution response, pollution control or pollution remediation. CPC has proposed appropriate and respective pollution response, control and remediation plans, and the company has implemented related soil and groundwater pollution

surveys and pollution remediation measures in accordance with related regulations. In 2021, CPC has one site listed for implementing response measures; 28 sites listed for pollution control; and eight sites listed for remediation. Meanwhile, remediation had been completed at 43 sites by the end of 2021.

CPC's Kaohsiung Refinery was shut down at the end of November 2015. As it was an old facility and had been in operation for many years, almost all of the soil and groundwater across its total area were classified as contaminated and in need of remediation due to pollution of different levels. CPC presented a pollution control plan to Environmental Protection Bureau of Kaohsiung City Government for its review, which the bureau approved on December 16, 2016. The overall pollution improvement period is 17 years. However, in order to speed up the revitalization of Kaohsiung Refinery land, CPC signed an administrative contract with Kaohsiung City Government on May 13, 2021, entrusting Kaohsiung City Government to remediate and complete the delisting of polluted sites.

2022

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