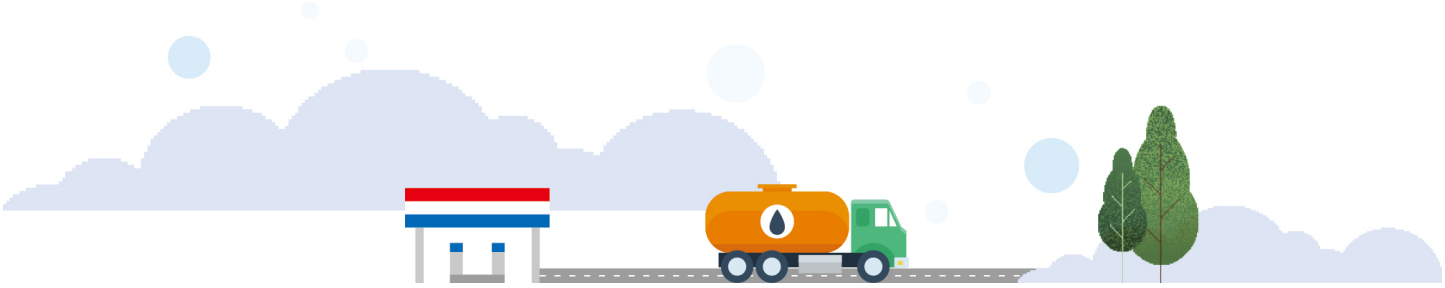
CPC Corporation, Taiwan

Response to Climate Change & Ecological Conservation

Conference of Parties 25 (COP 25) hosted by United Nations Climate Change Conference in 2015 passed the Paris Agreement, which was signed by 171 countries to curb the trend of global warming together. The common goal is to limit the temperature increase of global warming within 1.5°C or 2°C by the end of the century. Thereby, countries stand together to mitigate the impact of climate change. Nations around the world have enacted regulations to set net zero targets, while corporations have also set short- and long- term carbon reduction targets to mitigate climate-related impacts. CPC has set its phased and long-term goals of to 49.5% emission reduction target compare with the 2005 in 2030, to achieve net zero carbon emissions by 2050 and will continue monitoring climate change risk and opportunity.



Risks and Opportunities from Climate Change

CPC pays constant attention to the latest global trends and development as a response to climate change and related impacts. Meanwhile, TCFD (Task Force on Climate-related Financial Disclosures), published by the Financial Stability Board (FSB) in June 2017, is progressively being incorporated into the management system for information disclosure. CPC's original risk management policy has been integrated with the climate risk and opportunity framework proposed by TCFD. An inventory of climate risks and opportunities has been conducted for policy, regulation, market, physical risks, and R&D of low-carbon product to formulate an adaptation strategy.

Governance

The risk of climate change has been incorporated into the risk assessment of CPC's operations. The Risk Management Committee holds regular meetings every year to review the effectiveness of risk management of each unit. The risk management team of each unit has formulated its own "Risk Management Standard Operating Procedures" according to its business attributes. Meanwhile, CPC also established an energy conservation organization to address climate change issues.

Strategy

Each year, through interdepartmental discussions and identification of climate risks and opportunities, each department evaluates the risks and opportunities it faces and presents them to the management for a material assessment. CPC formulates strategies to address the major climate risks and opportunities. In response to the risk of climate change, CPC is currently actively investing in the low-carbon transformation of its operations. Although the investment cost has increased, it has helped CPC to meet the future trend of the energy industry.

Risk management

The TCFD framework integrates the operational risk management process of CPC to establish the climate risk identification process. Based on the results of climate risk identification and risk matrix ranking, it is able to establish the response plan related to climate change. The climate risk identification and assessment are incorporated into the enterprise risk management (ERM) process.

Indicators and Objectives

Based on the results of risk identification, CPC sets management indicators related to climate change and regularly reviews the progress. CPC also regularly checks the GHG emissions in accordance with ISO 14064-1 to review the impact of operations and potential impacts.

Climate Change Risks of CPC

Aspect	Items	Impacts on CPC	Countermeasures

Physical risks	Instant And Long-term	Flooding	Climate change has led to an increase in the probability and intensity of heavy rainfall (in the middle of the century), which may cause damage to some operating facilities and increase equipment maintenance costs.	After inventory of the vulnerability of the facilities, the assessment must be carried out with strategies such as elevated equipment and additional pumps, and an adjustment of strategy should be formulated through the guidance of the Industrial Technology Research Institute to strengthen operational resilience.
		Strong winds	Climate change has led to an increase in the intensity of typhoons (at the end of the century), which may cause damage to some operating facilities and increase equipment maintenance costs.	After inventory of the vulnerability of the facilities, CPC will evaluate strategies such as structural reinforcement and the establishment of a backup system, and formulate an adjustment strategy through the guidance of the Industrial Technology Research Institute to strengthen operational resilience.
		Prolonged drought without rain	The water restrictions lead to a reduction in production or shutdown of the plant, resulting in production interruptions.。	1. Recycled water is recycled through advanced wastewater treatment to improve water efficiency and enhance operational resilience.

				2. Purchase of reclaimed water.
Transition risks	Policies and laws	Carbon related fees	1. In response to the international trend of net zero carbon emission, it is expected that the proportion of carbon cost to total cost of products will increase in the future. 2. The proposed amendment to the Greenhouse Gas Control Act will include a carbon fee system, which will impose a greenhouse gas emission management fee, resulting in an increase in input operating costs. 3. In 2021, the company's total greenhouse gas emissions were 7.686 million tons, with an annual carbon fee of NT$100 to NT$300 per ton. The annual carbon fee was estimated to be NT$769 million to NT$2.31 billion.	1. We will track the content and progress of the amendment to the Environmental Protection. Administration and express our position in the process of the amendment to the law, and strive for the most favorable charging method and system for the company. 2. We plan to implement product carbon footprint inventory and verification in 2022. 3. We will continue to promote energy saving and carbon reduction in manufacturing processes, improve energy utilization efficiency, and introduce net-zero emission related technologies and clean energy to develop low-carbon operation models and services.
		Amendments to renewable	In response to the Renewable Energy	Cross-unit research company reaches a legal

		energy related laws and regulations	Development Ordinance, which came into force in 2021, the operating costs increased. In 2021, we invested NT$71.24 million in R&D of solar power technology.	green power construction projection. As of 2021, the company completed 11.417 MW of installation capacity and more than 230 PV sites; and has obtained 19 renewable energy site certifications and 2,394 renewable energy certificates for self-generation.
	Market	Changes in Consumer Preferences	The rise of the electric vehicle industry has affected consumer demand and will affect the company's revenue.	CPC will achieve the smart green transformation of gas stations. In accordance with the "Smart Electric Vehicle Energy Replenishment Facilities Popularization Plan", the company completed the installation of 774 charging and switching stations and 4 smart & green e-stations to provide diversified services and create new green business opportunities. CPC generated revenue of NT$21.21 million in 2021 from the charging and switching facilities and gas stations.

Opportunities in Climate Change of CPC

Aspect	Items	Effects on CPC	Implementation Performance
Energy and Resources Integration	Promote regional energy-resources integration such as the use of nitrogen, steam, fuel gas, hydrogen, caustic soda, and fuel oil	Enhance energy and resource efficiency and reduce site pollution to effectively reduce environmental impact and improve environmental quality.	• Purchase steam, nitrogen from China Steel Co. and caustic soda from others to reduce energy consumption. • Sell fuel gas, hydrogen, and fuel oil, and enhance energy and resource utilization efficiency.
Product, market, and service	High-value Petrochemical products	Make optimal use of oil by-products and turn low-value fuel into high-value materials.	Turn viable contents of pyrolysis gasoline into materials for livelihood necessities.
	Additional electric vehicle (motorcycle) recharging stations at gas stations	Smart & Green e-Stations to provide diversified services and create new green business opportunities.	A total of 774 recharging stations and 4 Smart & Green e-Stations were completed in accordance with the “Smart Electric Motorcycle Energy Recharging Station Plan".
Low carbon transition of energy and resources	Expansion of natural gas supply	Expand the use of natural gas to replace oil market demand and create a clean energy supply chain for CPC.	Construction (expansion) of LNG receiving terminals to enhance natural gas import, storage, and supply capacity.

Since 2018, CPC signed up to the “Climate Change Adaptation Strategy and Guidance Program for Energy Sector” by the Bureau of Energy to conduct risk and resilience assessment for strong winds, rainfall, flooding and other risk factors according to refinery plant’s locations and elevations. CPC also simulated the impact of a disaster and finally integrated the occurrence probability and impact assessment results to risk matrix and identify the climate change risk of

CPC. CPC have completed climate risk inventories for 24 energy supply regions (covering refineries, LNG receiving stations, oil supply centers, and gas supply centers) within the period from 2018 to 2020. A total of 1,451 operating facilities were inventoried, 19 of which were rated as medium to high risk or higher. CPC will continue to improve and enhance the facilities each year and will propose adaptation strategies to strengthen the high-risk facilities.

CPC's Ecological Conservation

Adhering to sustainable co-existence, CPC spare no effort to maintain and implement ecological conservation and environmental protection education. CPC hopes to maintain the sustainable development of society, nature, and business altogether. In order to fulfill the commitment of the environmental assessment of Guantang Industrial Park (Port) development project, the "Guantang Industrial Park (Port) Ecological Conservation Committee" was established in 2018 to actively carry out ecological conservation measures in the Guantang area. The committee fulfills the corporate responsibility to maintain coastal cleanliness and regularly conduct coastal cleanup in the Datan area. Through community participation, CPC actively engage communities, experts, scholars and government agencies to establish ecological conservation partnerships in order to realize ecological and environmental conservation. At the same time, through the education of the next generation, the concept of environment and ecological conservation is passed on to the next generation. Both CPC Kaohsiung Refinery Environmental Education Park and Taiwan Oil Field Exhibition Hall provide a learning channel for future generations.

Target Groups and Relevant Objectives and Actions of Ecological Conservation

Response set 1

Respense set 2

Response set 3

Response set 4

SDGs

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