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2021

CPC Corporation,
Taiwan





Quality-Exploration

Domestic exploration

105

yield 105 million cubic meters of natural gas

2,170

2,170 kiloliters of condensate

Overseas exploration

5.0183

5.0183 million barrels of crude oil

398

398 million cubic meters of natural gas

7.1

7.1 thousand barrels of LPG



Service-Products

16,982

Total domestic oil product sales of 16,982 kiloliters

282.2

Total sales revenue of NT\$282.2 billion



Contribution-Social Responsibility

440

Regional education activities and care for the disadvantaged NT\$440 million

12,041

Blood donation activity 12,041 person/times

475

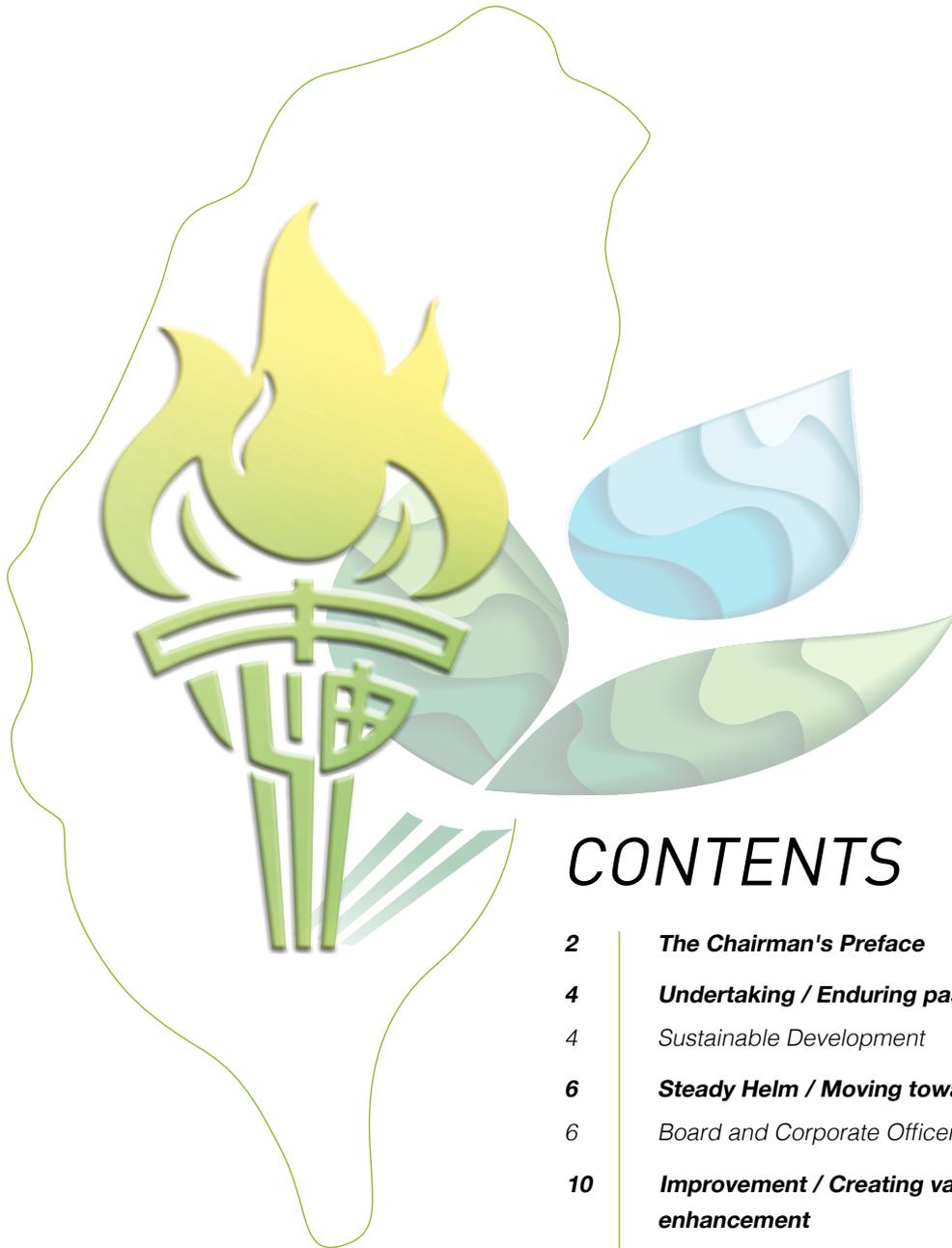
Donation of 475 recycled computers

22,872

22,872 visitors to the CPC Petroleum Discovery Museum

2.436

Donation of NT\$2.436 million by employees to sponsor poor children



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The Chairman's Preface

Overcoming adversity, setting up new milestones Turning challenges into opportunities

As COVID-19 swept the globe in early 2020, countries around the world moved to prevent its spread through multiple pandemic control measures, including lockdowns and border closures. Global economic activity came to a halt and tourism, airline and manufacturing industries were the first to suffer the painful blow, causing sharp decrease for energy demand. International crude oil prices continued to collapse; oil futures even traded at negative prices in April, 2020 and did not stabilize until October, 2020. Thanks to strong pandemic control in Taiwan and the combined efforts of all our employees, we were able to maintain consistent supply of energy and petrochemical raw materials to domestic consumers. As the government implemented multiple policies for stabilization of overall prices and relief plans to domestic industries and people, CPC still managed to deliver decent operational performance. Though the performance was not as solid as in 2016-2019, considering the force majeure of the COVID-19 pandemic, this was the tremendous achievement.

In 2020, CPC implemented pandemic prevention and control measures in accordance with government policies in order to ensure the well-being of our staffs and business operation. In addition to coordination between production and sales on a rolling-plan basis, we continued to carry out our international exploration projects, national major energy infrastructure projects, and a variety of domestic investment plans. CPC managed to achieve the annual budget implementation goals, made significant achievements in terms of its business performance and received multiple awards. In regard of international cooperation for exploration projects, the Oryx Block in Chad, where CPC served as an operator for the first time, has begun production. The first batch of crude oil arrived at Taiwan in early December of 2020, marking a milestone for CPC's international exploration and production efforts. In regard of innovative gas station services, CPC formally launched e-payment and third-party payment service in all domestic gas stations throughout Taiwan; CPC also launched its own-branding coffee service named CUP&GO to further diversify its business scope and strengthen its market share through differentiated marketing strategy; and CPC has continued to set up battery swapping/charging stations and completed the construction of the third and fourth demonstration sites for Smart & Green e-Station (located at Guanfu of Hualien and Chiedung at Taoyuan respectively). CPC gas stations have won the Reader's Digest Trusted Brand Award in the category of gas stations for 20 consecutive years.

In terms of product quality enhancement, CPC Engine Oil API SP received API SP certification in 2020; its AWS series of hydraulic oil received international certification by Parker Denison, an established pump manufacturer in the U.S.; CPC lubricants have won the Gold Award of Trusted Brand in the category of lubricants and related products for automobiles for the second time. In respect of product R&D and innovation, its GTRI became a gold medal winner of Invention Contest, Taiwan Innotech Expo with its R&D achievements in seaweed cultivation and biomass oil production in 2020.

CPC has endeavored to fulfill its corporate social responsibility, to protect the environment, to continuously contribute to the society and has made remarkable, innovative achievements in 2020. In respect of environment protection and ecology conservation, we obtained an international third-party certificate for Carbon Neutral LNG, receiving for the first time, two LNG shipments in March and November equivalent to the carbon sequestration volume of about 1,098 Taipei Daan Forest Parks in one year, to fulfill our vision of balancing environmental protection and economic development. As CPC moves toward the construction of the third LNG Receiving Terminal, a low-carbon energy facility, it has allocated an area as a habitat of Little Terns, which proves the company's commitment to ecology conservation. CPC has also played a leading role among the state-owned enterprises in promoting Fengcha (tea service) activity, providing branch offices and gas stations as tea service sites in order to boost the environmental protection action of "plastic reduction from sources."

For many years, CPC has spared no effort in caring about underprivileged people, innovating energy-related education practices, sponsoring a variety of sport events and supporting elite athletes. In 2020, we organized the CPC soccer team in order to cultivate athletes with concrete actions. The CPC soccer team won the championship of the Taiwan Second Division Football League and was promoted to the 2021 Taiwan Football Premier League. CPC has continued to donate second-handed computers to schools in remote areas for remote teaching/learning in order to increase digital applications and improve the quality of education. In addition, CPC has also teamed up with Panasonic Taiwan for hosting the "2020 Green Life Creative Design Competition," which mobilized the resources from the industry, academia and government to encourage students to demonstrate their creativity on green-life related applications, leading to a novel smart and green lifestyle.

CPC's continuing dedication to fulfillment of CSR has earned public recognition in 2020 with the honor from 2020 Asia Responsible Enterprise Awards in two categories: "Circular Economy Leadership" and "Investment in People," as well as a certificate of "Carbon Reduction Championship." CPC has also won the biggest award of "Leadership - Industry Champion of the Year" and awarded "Sustainability - Asia's Best Workplace" in Asia Corporate Excellence & Sustainability Awards. In addition, CPC has also won the "Comprehensive Performance Award-Taiwan TOP50 Sustainability Corporate Award" and "Corporate Sustainability Report Awards-Energy Industry Platinum Award" of 2020 TCSA Taiwan Corporate Sustainability Award. CPC's long-term endeavors to pursue mutual developments of economy, environment and society have been well recognized as evident in the record high numbers of awards received.

Safety and environment protection are the foundation of our business development. In 2020, CPC continued to improve its system, equipment and execution of industrial safety measures and, through organization restructuring, set up a dedicated unit responsible for the improvement of maintenance, operation and management of long-distance pipelines and facilities in order to upgrade safety practices for operation. At the same time, CPC implemented an individual responsible region system and supervised each department to improve professional capabilities of their on-site supervisors with thorough in-depth training aimed at increasing risk awareness of all employees. In respect of environment protection, its efforts included re-inspection and testing of old equipment such as storage tanks and pipelines for risk control, further reduction of VOC leakage rate of its equipment components, compliance with government policy of reducing greenhouse gas emission with continued implementation of its voluntary greenhouse gas reduction plan; compliance with the Renewable Energy Development Act to create units responsible for related issues; undertaking of several important tasks to prevent pollution of wharves, seashores, and oceans nearby our operation sites throughout 2021.

Regarding the trend of the global energy market development, domestic sectors are undergoing the key stages of transition, in which the repertoire of energy selections further limited by the COVID-19 pandemic. CPC has not only ensured stable supply of oil and natural gas to domestic consumers to cope with the important role of natural gas during the transition; but also expanded existing and new LNG import, storage and transmission facilities, to optimize the supply and transmission system across northern, central, and southern Taiwan for improved operational capacity. As conversion of excessive petroleum and diesel fuels to petrochemical raw materials will inevitably become a trend of global petroleum refining industry in the future, CPC has adopted COTC (Crude Oil to Chemical) strategy to optimize oil and petrochemical refinery integration and set up stage-wise plans to build up facilities to produce high-value derivatives to further increase product value. In response to reduced demand for automotive fuels, CPC will take advantage of its operation of Smart & Green e-stations and its comprehensive distribution network to accelerate transformation of gas stations with a vision for future development.

As “Net Zero Emission by 2050” has become an international consensus, different countries have set the deadlines for selling gasoline-automobiles. International Big Oils have successively invested in the development of green energy, and Big Tech companies of smart phones and social network have announced their plan to enter the market of electric vehicles, thereby shifting the energy consumption structure gradually. To prepare for such changes, CPC has drawn up forward-looking strategies, such as speeding up the integration of R&D resources and projects to grasp market opportunities through cooperation with domestic and overseas industries; CPC has also utilized its core technologies to work with external parties for the integration of software and hardware resources to achieve industrial upgrading, including the project of the demonstration facility for soft carbon production. In compliance with government policies regarding green energy, CPC has sped up the research, assessment, and development of geothermal resources at peripheral areas of Mt. Datun and evaluated the feasibility of geothermal power generation in the Tuchang area of Yilan, with or without partnering with private sectors, to bring along transformation of the company.

During the wintertime of 2020, the COVID-19 pandemic has worsened again, and many countries have tightened their epidemic prevention measures. Looking forward to the following year, the rapidness of vaccine adoption will determine the degree of recovery in terms of economic and production activities. Given uncertainties caused by the pandemic and unpredictability of global energy prices, CPC is still facing high risks with regards to business operation. In addition to the implementation of epidemic prevention measures to safeguard the health of our employees and maintain steady operation of our facilities, CPC also needs to stay ahead of market trends and grasp changes in energy consumption models caused by lifestyle alteration from the pandemic to make dynamic adjustments to its operation model, in order to improve performance and ensure sustainable operation.

Lee, Shun-chin

President
double as acting Chairman



Undertaking

／ *Enduring passion*

Sustainable Development

CPC's timeline of innovative development

1949

Following the ROC government's relocation to Taiwan in 1949, the corporate headquarters was set up in Taipei, and the company's affiliation was transferred to the Ministry of Economic Affairs. Its business scope and facilities carry out throughout Taiwan, encompassing import; procurement; exploration; production; refining; storage, and distribution of oil and gas. In addition, CPC produces petrochemical raw materials.

1946

CPC was established in Shanghai on June 1, 1946, initially under the aegis of the Council of Resources - the precursor of today's State-owned Enterprise Commission, Ministry of Economic Affairs.



2003

In line with both the global trend and environmental protection, in 2003, CPC instituted a policy for its sustainable development.

2007

On February 9, 2007, the board of directors approved to change the company's English name from "Chinese Petroleum Corporation" to "CPC Corporation, Taiwan"

2016

On June 17, 2016, the board of directors approved the revision of the company's articles of association and moved the headquarter from Taipei City to Kaohsiung City.

CPC's Sustainable Operation Policy

- Comply with both Taiwan's governmental regulations and international protocols.
- Practice comprehensive clean manufacturing methodology to protect the environment.
- Conserve water and energy resources through efficient utilization.
- Place importance on fulfilling CSR commitments and expand the service area.
- Establish indicators of environmental protection while keeping information transparent.
- Actively research and develop products while expanding new areas of business.



2020

Affirmation and honors

- 1st in Management Magazine's Ideal Brand Gas Station in the Minds of Consumers for the 16th year in succession.
- Reader's Digest Trustworthy Brand Platinum Award for 20th year in succession.
- Readers Digest Trustworthy Brand Gold Award, Lubrication Oil Product Category for 2nd year in succession.



- Received nine major awards in the 2020 Taiwan Corporate Sustainability Awards (TCSA) including Comprehensive Performance Award – Taiwan Top 50 Sustainability Corporate Award, Corporate Sustainability Report Awards-Energy Industry Platinum Award, and seven Outstanding Case awards.
- Received eight major awards in the 17th National Brand YusShan Award including Outstanding Enterprise, Outstanding Enterprise Leader and Best Product Design, winning the most awards of any state-owned enterprise for the second year in a row.

In 2005, CPC set up the Sustainable Operations Promotion Committee – with the focus of strategy formulation and objectives setting to address sustainable operation issues. The company's actions for sustainable operation fall into four major fields: environmental and ecological conservation; social care; strategy formulation and development; and, environmental accounting and information. The Committee's level was upgraded in 2007 and has been directed by CPC's Chairman personally. CPC's President holds the post as associate director of the committee, and Vice Presidents and CEOs of the five major business units serve as committee members. Since 2008, it has recruited external scholars and experts as its members. The committee convenes three times a year to discuss reports and proposal regarding the aforementioned four fields. In this way, the committee is able to gain a timely grasp of the social pulse, promote sustainability issues and keep track of implementation progress.

In regard to the communication with the stakeholders, apart from providing related information in a specific section of its website for this purpose and issuing annual reports, CPC has released annual Sustainability Reports since 2007 for explanation and disclosure purposes and has shown the determination to communicate with all stakeholders. Such efforts have been acclaimed by society with multiple awards. In the future, CPC will apply the UN's Sustainable Development Goals (SDGs) as benchmarks for its own sustainable development program, continue to highlight sustainable operation issues through the work of the Sustainable Operations Promotion Committee, and disclose the information related to sustainable development. CPC strives to create a win-win-win situation for "environmental protection", "economic development", and "social care" and work with all circles to create a better future.

Steady Helm

／ Moving toward our vision

Board and Corporate Officers



Board of Directors

Chairman & Standing Director |
Shun-Chin Lee (acting)

Directors

Standing Director | Shun-Chin Lee
 Standing Director & Independent
 Director | Ming-Chang Hsu
 Independent Director | Chih-Chreng Shen
 Syang-Peng Rwei
 Engel Wu
 Pei-Li Chen
 Peggy L. Lin
 Chung-Hsien Chen
 Chao-Chung Kuo
 Chih-Chang Chen
 Kuo-Cheng Chou
 Sheng-Ching Huang

Supervisors

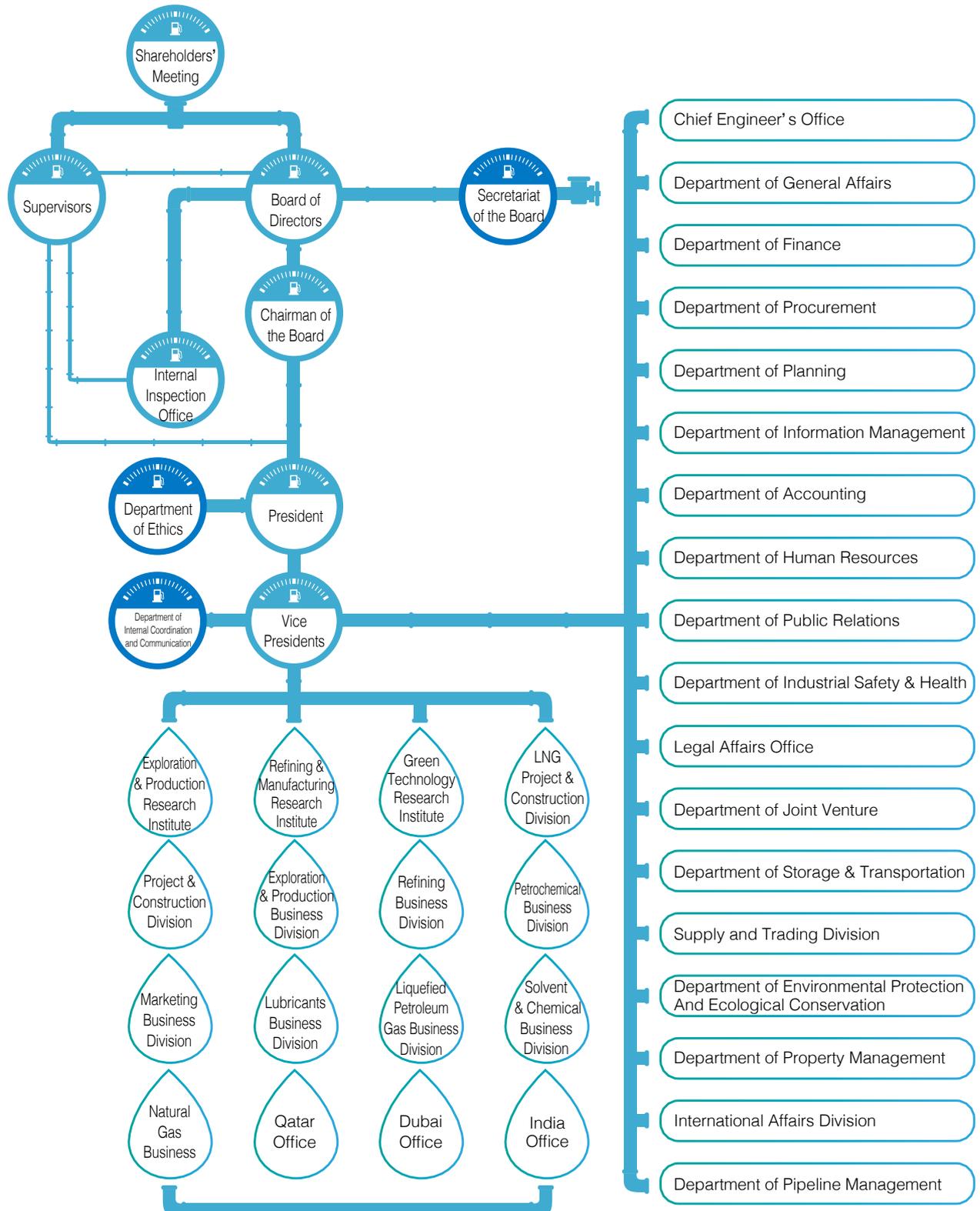
Boyang Kao
 Hui-Shan Wei
 Feng-Yuan Chien



Corporate Officers

President Shun-Chin Lee
 Vice Presidents Jeng-Zen Fang
 Jen-Hung Huang
 Chia-Shou Chiu
 Hui-chen Liao
 Spokesman Ray-Chung Chang
 CEO, Exploration & Production
 Business Division Michael Chang
 CEO, Refining Business Division Henry Hsu
 CEO, Petrochemical Business
 Division Kuo-Tung Chen
 CEO, Marketing Business Division Po-Tung Lo
 CEO, Natural Gas Business Huang-Chang Li
 CEO, Lubricants Business
 Division Chung-Liang Lin
 CEO, Liquefied Petroleum Gas
 Business Division Feng-Cheng Chu
 CEO, Solvent & Chemical
 Business Division Angela Ko-Ju Lin
 Director, Refining &
 Manufacturing Research Institute Ming-Chang Tsai
 Director, Exploration & Development
 Research Institute Ta-lin Chen
 Director, Green Technology
 Research Institute Tung-Li Huang
 Director, LNG Project Division Rong-Yuh Huang
 Director, Project & Construction
 Division Jack S.J. Wang

Organization Chart



Corporate Officers



Kuo-Tung Chen

CEO, Petrochemical
Business Division

Ray-Chung Chang

Spokesman

Chia-Shou Chiu

Vice President

Jen-Hung Huang

Vice President

Shun-Chin Lee

President
double as acting
Chairman



Jeng-Zen Fang

Vice President

Hui-chen Liao

Vice President

Michael Chang

CEO, Exploration
& Production
Business Division

Po-Tung Lo

CEO, Marketing
Business
Division

Henry Hsu

CEO, Refining
Business
Division

Huang-Chang Li

CEO, Natural Gas
Business

Improvement

／ *Creating value with quality enhancement*



Upstream Operations

Expand international cooperation to raise the level of energy autonomy

Exploration and Production

Taiwan has limited indigenous energy resources; therefore, it depends on import for most of its fossil fuel needs. As a result, CPC has cooperated with the government's "furthering energy supply security mechanism and forging international energy cooperation" policy. CPC is dedicated to improvement of its performance of new energy development, expansion of upstream operations and increase of oversea production to stabilize the supply of crude oil and natural gas of the domestic market and alleviate the impact brought by oil price fluctuation.

In order to improve overall strategic planning, on the basis of active expansion and focus, CPC has adopted exploration and production strategies which aim for expanding foreign operations and exploiting domestic operation, simultaneous undertaking of merger/acquisition and exploration/production and the training of talent for new breakthroughs, in hope of gradually increasing the ratio of self-owned energy reserves within its full sourcing range.

Exploration of onshore oil and gas resources and capacity of geothermal energy

Currently, the company's 28 onshore producing oil and gas wells are located in and around Mt. Tiezhen, Qingcao Lake, Jinshui, Chuhuangkeng and Guantian. In 2020, they yielded 105 million cubic meters of natural gas and 2,170 kiloliters of condensate. In 2020, CPC carried on domestic onshore oil and gas resources exploration projects and completed a 115.86 km 2D seismic survey of geological structures on Pingtung Plain and 83-square-kilometer geologic surveys including a surface geology survey running from Chiayi to west of the Pingxi Fault in Tainan and a geothermal geology survey of the Mt. Datun area. In order to support national energy policy and actively participate in development of the green energy industry, CPC has also successfully completed the drilling of Tuchang No. 14 and No.15 geothermal wells and is now evaluating their potential of geothermal power generation.

Cooperation for deep-water exploration and self-reliant exploration and production

CPC, Total E&P Chine (TOTAL), and China National Offshore Oil Corporation (CNOOC) signed the Petroleum Contract of Taiyang Block on May 3, 2017. TOTAL, as the Operator, has conducted over 8,000 km 2D seismic survey data acquisition and completed the data processing as of 2020. The interpretation work will continue in 2021.

CPC has also worked with Husky Energy International Corporation to search for oil and gas in deep-water areas within the Block Deep Water 1 (DW-1) in the Tainan basin and completed joint research on the source rock in 2020. Refinement of seismic interpretation of collaborated source rock study and assessment for resource scale of prospects are ongoing in 2021.

In order to increase the percentage of domestically produced energy and gas and oil resources, CPC is evaluating the upside hydrocarbon potential of Tainan and Taihsi Basins Taiwan as the reference for the further exploration on those areas. It has utilized multiple latest technologies, including broadband seismic survey, pre-stack depth migration and a new model for interpretation of seismic survey results for re-processing of available seismic survey information and subsequent consolidation of interpretation and assessment. CPC has also reviewed several sites with exploration potential and planned related operations like boring with the aim to discover resources in national sea areas as soon as possible.



2020 Domestic natural gas production

105 million cubic meters



2020 Domestic condensate production

2,170 kiloliters



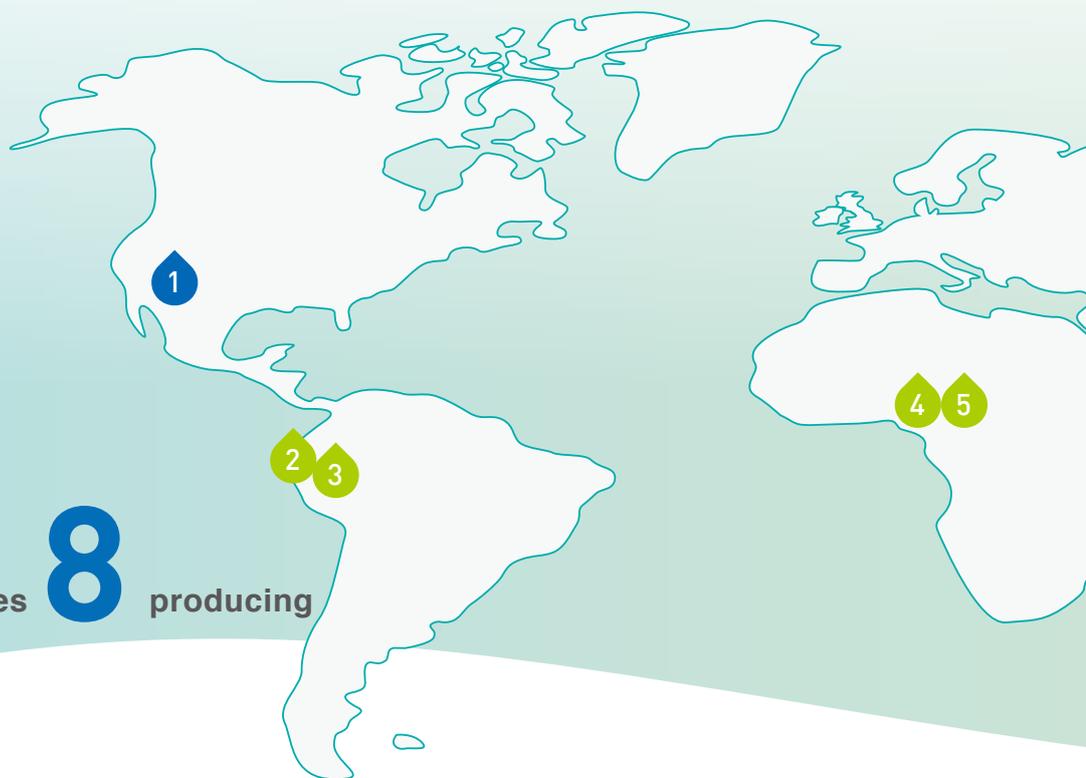
ongoing

6

countries

8

producing



 **Fields under development or now producing**

 **Fields under ongoing exploration**

1 Guardfish, U.S

OPIC (50%)
Operator: CRPC (50%)

2 Ecuador 16

OPIC (31%)
Operator: Repsol (35%)
China Petrochemical
Development Corporation (20%)
CCPC (14%)

3 Ecuador 17

OPIC (30%)
Operator: PetroOriental (70%)

4 Agadem Grand EEA, Niger

OPIC (20%)
Operator: CNPCNP (65%)
Niger government (15%)

5 Oryx, Chad

Operator: OPIC AFRICA (35%)
CEFC (35%)
SHT (30%)

6 Ichthys, Australia

OPIC (2.625%)
Operator: INPEX (66.245%)
Others (31.13%)

6 WA-285-P, Australia

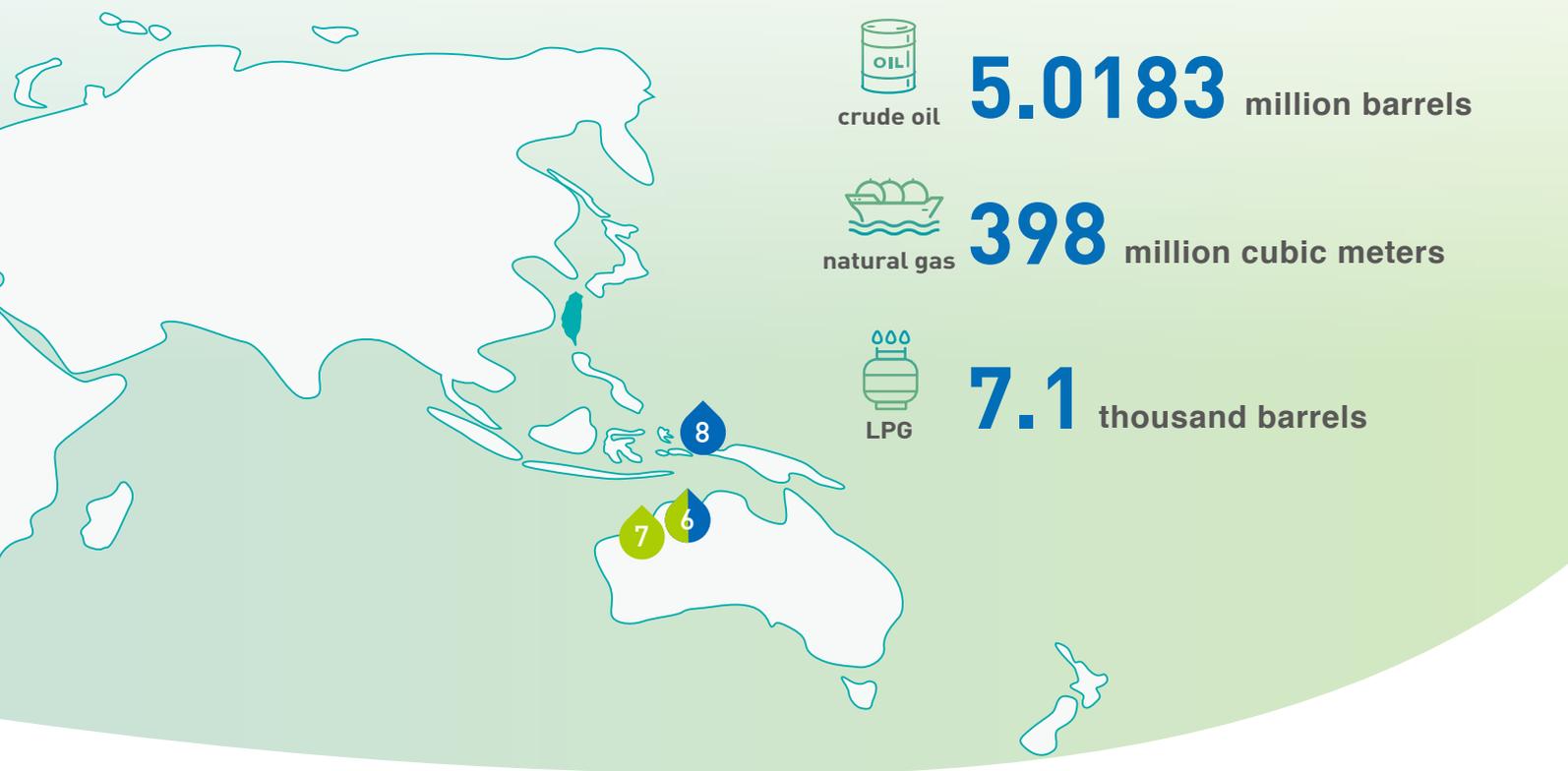
OPIC (2.625%)
Operator: INPEX (66.245%)
Others (31.13%)

7 Prelude, Australia

OPIC (5%)
Operator: SHELL (67.5%)
Others (27.5%)

8 East Seram, Indonesia

OPIC (40%)
Operator: Balam Energy (60%)



Continuing progress on foreign exploration projects

In 2020, CPC was engaged in oil and gas exploration and production joint-ventures with international energy companies and operated eight projects in six countries. According to the proportion of royalty interest, 5.0183 million barrels of crude oil, 398 million cubic meters of natural gas and 7.1 thousand barrels of LPG were allocated to CPC. The oil and gas are from the development and operation fields in Ecuador, Niger, Australia, and Chad.

CPC has continuously moved toward the goal of increasing domestic sources and stability of energy supply. Its important achievements in this regard include committing to Niger development plan with the aim of exporting its crude oil as soon as possible. The Ichthys project in Australian launched the phase 2 development plan in 2020 and continually keep the stable production, which has bright prospects. The Chad field, which CPC is the operator of certain blocks since 2006, entered into production in February 2020. The first cargo of oil produced from Oryx concession arrived in Taiwan at the end of November 2020.

The fact that Taiwan's onshore oil and gas reserves could be depleted within 10 years from now drives CPC's continued engagement in overseas exploration and production as well as M&A activities. CPC has also reset its overseas exploration strategy in line with both the government's New Southbound Policy and with trends in the international energy industry – which means being active in joint-ventures and/or acquisitions

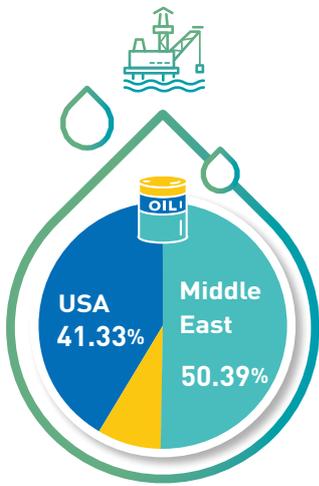
pertaining to oil and natural gas producing assets in places such as Southeast Asia and the United States and then developing them for commercial production. Exploration for conventional oil and gas is currently focused on America (including California, Paraguay and the Gulf of Mexico), Southeast Asia, Australia and offshore West Africa; for unconventional resources, the focus is on acquiring shale oil and gas assets in the United States, building up relevant technical capabilities and gradually increasing cooperation on unconventional resources with other countries. In all of the aforementioned activities, CPC is working vigorously to deploy its available resources to best advantage, on core overseas target areas that hold out the possibility of discovering oil and gas resources with commercial production value and that will materially raise the degree of self-sufficiency.

CPC's upstream operations were launched in 1959. Today, it comprises exploration and production in both onshore and offshore oil and gas fields in Taiwan, the Taiwan Strait and overseas. To date, CPC has yielded the value of over NT\$200 billion. Looking to the future, CPC actively enhances the asset value of production sites and plans M&A activities that is centered on exploration and raising its level of ownership over core oil and gas reserves. CPC will endeavor to acquire assets with high upside production potential, above all those with low risk by industry standards. In parallel with this, CPC will develop diversity in the company's scope of business and to be a player in the green energy industries, aiming to be a very valuable international oil and gas exploration production business.



Imports crude oil

128.4 million barrels



● Africa 8.28%

Downstream Operations

Being responsible for stable domestic oil and gas supply

Importing & Refining

As Taiwan's domestic production of crude oil yields only extremely low volumes, CPC needs to import virtually all of the crude it refines to supply its domestic market. To ensure stability, CPC works to both maximize procurement on long-term contracts and to diversify its sources of crude.

Imports in 2020 amounted to 128.4 million barrels; of that total, 50.39% came from the Middle East, 41.33% from the USA, 8.28% from Africa. In recent years, imports of low-sulfur crude have been maintained at a set ratio of the total to enable compliance with Taiwan's ever more stringent environmental protection standards.

To import crude oil, CPC has installed offshore mooring pontoons for unloading large oil tankers: at Shalun in Taoyuan and at Dalinpu in Kaohsiung. The company has also built dedicated tanker loading/unloading berths in the ports of Kaohsiung, Taichung and ShenAo.

Quality and output value increase

CPC now operates two refineries in Taiwan — at Taoyuan and Dalin— with a combined daily refining capacity of 600,000 barrels of crude. Under government policy for industry relocation, Kaohsiung Refinery, an integrated refining and petrochemical production and storage complex with a daily refining capacity of 220,000 barrels of crude as well as 500,000 tons of ethylene annually, ceased operations in late 2015. Upon closure, its refining activity was transferred to the expanded Dalin refinery and its ethylene production to the then new Third Naphtha Cracker in the Linyuan Petrochemical Complex.



The Dalin Refinery became operationally independent from the Kaohsiung Refinery in 1996. After expansion, there are 4 offshore mooring buoys as well as large and small wharves for handling both imports and exports, holding the daily capacity of up to 400,000 barrels of crude now. The Taoyuan Refinery came on stream in 1976; after engineering modifications and the addition of the second topping unit, its daily refining capacity now amounts to 200,000 barrels of crude. In 2020, the total of refined products was 8,256 kiloliters of gasoline, 1,715 kiloliters of aviation fuel, 5,558 kiloliters of diesel, 2,245 kiloliters of fuel oil, and 367 kiloliters of LPG.

Taiwan's increasingly stringent standards of environmental protection are largely in response to the demands of its people out of concern for their quality of life. At the same time, they exhibit increasing demand for a diverse range of oil-derived products and CPC has moved to enhance the quality of those goods and increase their value. Going further, the company has, in recent years, raised the production value of its products by building additional and more technologically-advanced refining facilities such as reforming units, isomerization units, and gasoline/diesel desulfurization plant, an aviation fuel processing facility, together with n-alkane, alkylation and residual fluid catalytic cracking (RFCC) units. CPC also plans to build VDU, SDA units and aromatic hydrocarbon extraction units in order to offer domestic consumers even better products and improve its production efficiency.

High value refining Reduced emissions

In response to the EPA's call for certain reductions in the area of fuel quality in 2011: of the sulfur content of gasoline and diesel fuel to under 10ppmw, of the

aromatic hydrocarbon content of gasoline and diesel fuel to 35vol% and of the alkene content of gasoline to 18 vol%, CPC constructed a 30,000 barrels per day gasoline pyrolysis and hydro-desulfurization unit at the Taoyuan Refinery by 2008, a 20,000 barrels per day gasoline pyrolysis and hydro-desulfurization unit at the Dalin Refinery by 2009 and a 40,000 barrels per day diesel hydro-desulfurization unit at the Dalin Refinery by 2010. Furthermore, an 18,000 barrels per day gasoline pyrolysis and quality improvement unit was moved in 2011 from the Kaohsiung Refinery to the Dalin plant.

In 2006, CPC began increasing its heavy oil conversion rate by construction of RFCC unit with capacity of an 80,000 barrels per day at the Dalin Refinery and completed its testing and kicked off its volume production in 2013. Olefin produced by the RFCC unit in the Dalin Refinery after completion of the construction can be not only be provided to downstream businesses of the industry directly, but also used as the raw material of alkylated gasoline. CPC completed testing of the unit and kicked off its volume production in the mid 2013; its operation has increased the value of our product and improved gasoline quality. In addition, to cope with the problem of acid gas generated in the production process and reduce the emission of the pollutant, CPC invested in the construction of a sulfur plant with a daily output of 250 tons, which started to produce qualified sulfur products at the end of June 2014.

In addition, CPC carried out an expansion of the No. 3 Hydro-desulfurization Unit at the Dalin Refinery to increase its high-sulfur crude refining capacity which increased from 30,000 to 40,000 barrels per day, lower the cost of crude oil procurement cost and stabilize the quality of the RFCC-unit's feedstock. The expanded unit began production in March 2017.





To cope with the consequences of the Kaohsiung Refinery closure, the Dalin plant's capacity was expanded with the following: a 150,000 barrels per day atmospheric crude oil distillation unit (CDU), a 50,000 barrels per day light crude fractionating unit (CFU), a 40,000 barrels per day diesel hydro-desulfurization (DHDS) unit and a 30,000 barrels per day kerosene hydro-desulfurization (HDS) unit. These units completed performance testing and began mass production in 2018, in so doing eliminating worries about shortage of the raw materials (due to the closure of the Kaohsiung Refinery) needed for the future survival and development of Taiwan's petrochemical industry. With the completion of that expansion project, the 100,000 barrels per day No. 9 Topping Unit at the Dalin Refinery, which had been operating for some 40 years, was shut down. The capacity of the Dalin Refinery was boosted from 300,000 barrels per day to 400,000 barrels per day at present, raising CPC's overall daily crude oil refining capacity to 600,000 barrels per day.

To improve the refining configuration of Dalin Refinery, meet the standards of marine fuel oil for IMO 2020, and increasingly strict requirements imposed by domestic environment regulations for emissions of air pollutants and strengthen our competitiveness in asphalt market, CPC plans to construct a 30,000 barrels per day vacuum distillation unit (VDU) and a 8,000 barrels per day solvent deasphalting (SDA) unit at Dalin Refinery along with Polymer-Modified Asphalt and asphalt cutback production facilities, asphalt storage facilities, an asphalt blending system, revamping of No.9 diesel hydrodesulfurization unit, and associated equipment. CPC aims to increase its competitiveness in oversea

and domestic market by these efforts.

As the awareness of environment protection public and concern of air pollution in our society, the Environment Protection Administration ("the EPA") has enforced stricter standard for automobile gasoline; since July 1, 2020, benzene levels in petroleum have to be gradually reduced from 1.0 vol.% to 0.9 vol.%. The EPA plans to reduce benzene to less than 0.8 vol.% in future. In response to energy transition and the regulatory limit for benzene content of gasoline, CPC first invested in the project of creating a 0.3 wt. % ultra-low sulfur fuel oil and asphalt cutback production center. In 2020, it came up with the investment plan for production of gasoline with reduced benzene content and high quality products. The company will build a unit for extraction of aromatics content from pyrolysis gasoline with capacity of 32,000 barrels per day (including aromatization unit) and its accessory equipment, including storage tanks and public systems, in order to make its gasoline products comply with regulatory requirements and increase CPC's competitiveness in domestic and overseas markets.

CPC in Petrochemicals

CPC's major petrochemical production facilities are its Linyuan Petrochemical Plant run by the Petrochemical Business Division as well as the Taoyuan and Dalin refineries operating under its Refining Business Division. The RFCC units in two refineries in Dalin and Taoyuan can produce propylene products, and the naphtha crackers and butadiene extraction units of Linyuan Petrochemical Plant can produce ethylene, propylene and butadiene products. Aromatics extraction units



can produce benzene, toluene and mixed xylene. Currently, CPC's annual production capacities for basic petrochemical raw materials are 1.07 million metric tons of ethylene, 1.194 million tons of propylene, 158 thousand metric tons (KTA) of butadiene, 274 KTA of benzene, 321 KTA of toluene and 507 KTA of mixed xylene.

As a pioneer of the upstream petrochemical business in Taiwan, CPC has continued to invest in a variety of upstream petrochemical businesses to drive development of domestic petrochemical industry, which has in turn contributed to economic miracle of Taiwan. In recent years, it has been dedicated to equipment upgrade and capacity expansion in order to reduce the shortage of petrochemical raw materials supply. Starting in 2005, CPC implemented the project of "New No. 3 Naphtha Cracker" in Linyuan Petrochemical Complex, with total investment of over NT\$40 billion. This new No. 3 Naphtha Cracker started to produce ethylene that meets specific standards in 2013 with ethylene capacity of 720 KTA, propylene capacity of 370 KTA and butadiene capacity of 100 KTA. It is a supplier of petrochemical raw materials to both downstream businesses in Linyuan Industrial Park, and businesses in Renda Industrial Park, whose supply was originally provided by the No.5 Naphtha Cracker, creating economic benefits that worth NTD 60 billion per year. In the future, CPC will continue to take the advantage of its new production processes, low energy consumption

and economies of scale for our crackers to ensure sufficient supply of basic petrochemical raw materials to downstream customers.

Refinery-petrochemicals integration Industrial transformation

In response to the growth of global electric vehicles market and support government's energy transition policy, CPC has conducted integration of its refining and petrochemical businesses, and has reduced its production of gasoline and diesel and has produced more chemicals. In addition, CPC has reduced the severity of pollution from the plants and has decreased energy consumption of its operations and has strengthened safety at its facilities through supply of raw materials among different business units and the plan to create synergy of its resources and public facilities through high-degree integration.

CPC organizes and supports the circular economy to create a win-win situation

In the face of the challenges posed by climate change and depletion of natural resources, CPC actively follows the government's "Circular Economy" Policy by turning petrochemical by-products used as fuel or previously regarded as industrial waste into value-added products. CPC aims to create a win-win situation

between economic development and environmental protection by adhering to the principles of sustainable operations – also an important element in its efforts to surmount the challenge of industrial transformation.

Marketing CPC Petroleum Products

CPC's sale of refined petroleum products in its domestic market is primarily focused on the transportation sector – specifically the gasoline, diesel, fuel oil and aviation fuel. In 2020, its sales of those products in Taiwan totaled 16,982 kiloliters in volume and generated revenue of approximately NT\$282.2 billion. Automotive gasoline accounted for the largest share at approximately 58.1%, followed by diesel at about 26.0%, fuel oil at about 10.1% and aviation fuel at around 5.8%.

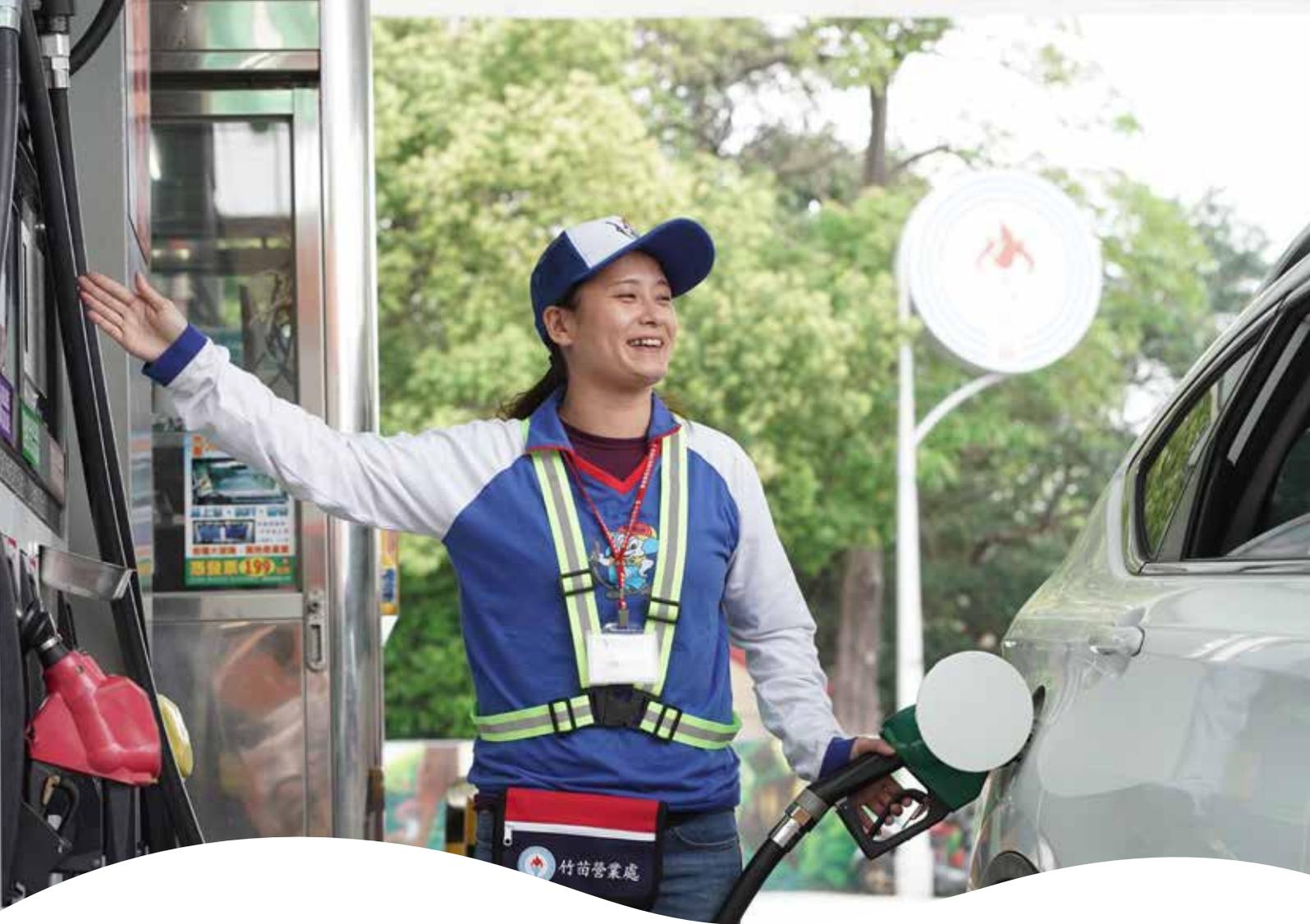
Taiwan's internal market of refined petroleum products has two major players, CPC and the Formosa Plastics Group. CPC has worked hard at leveraging the advantage of its marketing network to maintain its market share by maintaining the business performance of its gas station network: As of the end of 2020, of the 2,494 gas stations in Taiwan, 616 were directly run by CPC, 1 was jointly run by CPC and another party, and 1,281 were privately-owned by CPC franchisees, adding up to a total of 1,898. Their sales as a part of the total market volume break down as gasoline 79.5%, diesel 77.4%, fuel oil 94.9% and aviation fuel 63.6%, with the overall market share being 78.9%.

Improving storage and transportation to meet the needs

In terms of the storage and transportation, CPC not only runs its gas stations, but also operates aviation fueling stations at all of Taiwan's airports - Songshan, Taoyuan, Kaohsiung, Taichung, Hualien, Taitung, Kinmen, and Penghu. Around the coast, it has marine bunkering stations for international vessels at Keelung, Suao, Taichung, Kaohsiung, and Hualien ports.

As of the end of 2020, CPC operated 14 product distribution centers, located country-wide at Keelung, Shimen, Hsinchu, Taichung, Taichung Harbor, Wangtian, Minxiong, Tainan, Fengde, Qiaotou, Suao, Hualien, Huxi, Kinmen. They supplied products to gas stations in their surrounding areas with a total of 19,826 kiloliters of product over the course of the year. It has three chemical analysis centers/petroleum laboratories in Keelung, Taichung and Kaohsiung, plus six testing laboratories, which are in charge of testing products for quality control and altogether handled 28,738 samples in 2020. The transportation department transported 12,291 kiloliters of oil in 2020, and the mileage was 20,856,000 kilometers.





Mobile payment, optimization of services

In terms of gas station operation, CPC is unquestionably the market leader by virtue of offering the consumers superior-quality services across the board, that differentiates it from its competitors. The company further leverages its service advantage by implementing total customer experience management: having created and maintained the culture of hygiene of lavatories; vigorously promoting VIP membership cards; introducing new business lines and services in line with contemporary trends; and reinforcing customer relationship management. CPC has taken the lead in offering card-based self-service refueling as a means of lowering operating costs and working around the difficulty of recruiting filling station attendants; at the same time as it has promoted this multi-service business model featuring a diversity of offerings, the company has boosted non-operating income by strengthening cross-industry alliances.

Because of the popularity of mobile payments, CPC introduced and promoted contactless payment (Near-field Communications, NFC) in June 2018. With a view to optimizing the program of Mobile payment, strengthening the loyalty of VIP membership, integrating the payment tools and so on, CPC's own payment tool, CPC Pay, was released on November 12, 2019, and it can be considered as the pioneer of exclusively designed for making payments at gas stations. "CPC Pay" combines diverse functions such as payment, VIP membership services, special offers, services related to vehicle use, such as query of parking lot, gas station, fuel price and eTag toll fee. Users can grasp a variety of information efficiently by "CPC Pay", and the value of CPC and satisfaction and loyalty of consumers are improved.

In order to provide customers a variety of way to pay, customers of CPC gas stations are able to use Line Pay, Line Pay Money, Pi Mobile Wallet, JKOPay, O'Pay, GAMA PAY and the third-party payment service for e-payment transactions at the full-service areas since July 15, 2020. CPC provides more convenient petrol-filling service to its customers with wireless barcode reader, which allows customers to accomplish the payment without leaving their cars.

In order to improve user experience of CPC Pay, customers have been able to add VISA/MasterCard/JCB credit cards to their CPC Pay since December 29, 2020. CPC has kept optimizing the functions of CPC Pay and launched the promotion campaigns that features its use in order to increase customers' willingness and in turn forge brand identity to its customers.

Drive Thru Coffee fragrance fills the air of the community

The multi-service business model for gas stations comprises the provision of car-washing, quick maintenance, CUP&GO coffee, on-site convenience stores and the sale of superior-quality automotive and consumer products. In a proactive response to the government's policy for establishing environmental protection energy applications, CPC has established 558 battery-charging and battery-switching stations for electric motorcycles in the past three years. It plans to establish more such stations and increase the number of the gas stations that sell coffee in 2021. Currently, coffee is served at a total of 29 gas stations. Sales of a range of CPC products through the gas stations in 2020 included 2.1 million bottles of Kuo-Kuang brand intake-system cleaner for motorcycles, automobiles and diesel vehicles; 0.77 million bottles and 0.17 million bottles of See Clean Eco-Friendly Laundry and Dishwashing Detergents, a record-high 0.134 million mooncake gift boxes and over 0.16 million cups of coffee. Revenues from car washing and quick-maintenance services also set new highs. Overall gross profit from these diverse operations exceeded NT\$1.28 billion for the year, abundantly manifesting both the value of CPC-branded gas stations as a sales and marketing channel and the fact that their range of services meets with customer approval.



In regard to customer service, CPC set up the 0800-036-188 customer hotline in 2000 for coordinated handling and response of customer issues after integration of a variety of professional services provided by different internal units. The 1912 CPC service hotline came into use in 2011, English service was added in 2020 and Taiwanese service in 2021, expanding the company's window for communication with the public.



Excellent results in promotion of green architecture

Within the global trend towards environmental protection, there is now an emphasis on constructing buildings in a way that serves the cause of sustainability. variously termed “ecological buildings” in Japan, “eco buildings” or “sustainable buildings” in Europe and “green buildings” in the USA and Taiwan. No matter how you name such buildings, they all aim to protect ecological systems, encourage a mutually beneficial relationship between the structures and the environment, conserve energy and reduce both pollution and the overall environmental impact. These sustainable design and green concepts align with CPC’s dedication to achieving sustainability in its operations. CPC launched a program to green its gas stations in 2013. As of December 2020, 65 gas stations had received “green building” certification.



Location Of CPC Gas Stations With ‘Green Building’ Certification



Diamond Level

Badu Gas Station (Keelung City)
 Guishan Station (Taoyuan City)
 Xinzhuangzi Station (Hsinchu County)
 Kenting Station (Pingtung County)
 Fengang Station (Pingtung County)
 Matai'an Station (Hualien County)

Houbi Station (Tainan City)
 Guangzhou Station (Tainan City)
 Ziqiang Road Station (Miaoli County)
 Danhai New Town Station (New Taipei City)
 Puyan Station (Changhua County)



Silver Level

Bailing 4th Road Station (Taipei City)
 Badu Gas Station (Keelung City)
 Tai Po Station (New Taipei City)
 Shinyuan Station (Pingtung County)
 Shengchang Road Station (Tainan City)
 Changzhi Station (PingTung County)



Gold Level

Guiren High Speed Rail Station (Tainan City)
 Heping Station (Taichung City)
 Wugu Industrial Park Station (New Taipei City)
 Dongshan Road Station (Taichung City)
 Yunhe South Road Station (Kaohsiung City)

Qianfeng Station (Tainan City)
 Yongan Station (Kaohsiung City)
 Anping Fort Station (Tainan City)
 Tsaotun XinFeng Station (Nantou County)



Broze Level

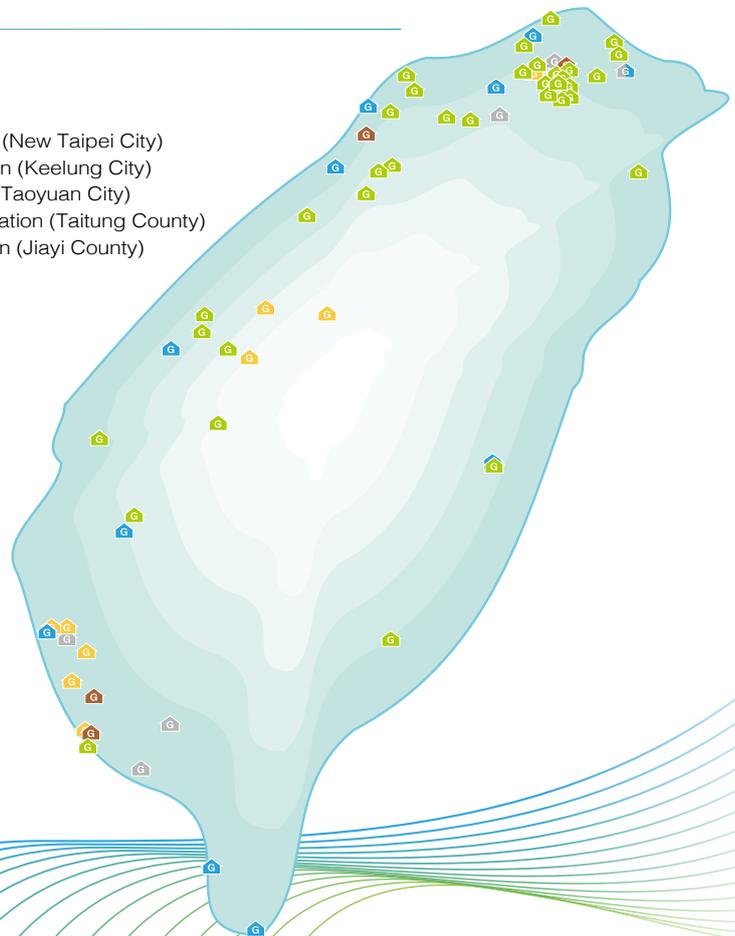
Dazhi Station (Taipei City)
 Qiaotou Station (Kaohsiung City)
 Zhongzheng 3rd Road Station (Kaohsiung City)
 Minhua Station (Hsinchu City)



Certified Level

Muzha Station (Taipei City)
 Luzhou Station (New Taipei City)
 Tingzhou Road Station (Taipei City)
 Xizhi Station (New Taipei City)
 Binjiang Dazhi Station (Taipei City)
 Xinsheng North Road Station (Taipei City)
 Changhua Zhongshan Road Station, (Changhua County)
 Taishan Station (New Taipei City)
 Sanzhi Station (New Taipei City)
 New Hukou Station (Hsinchu County)
 Beipu Station (Hsinchu County)
 Nanchuang Station (Miaoli County)
 Emei Station (Hsinchu County)
 Dadu Station (Taichung City)
 Fenyuan Station (Changhua County)
 Jhonghe Station (New Taipei City)
 Huanhe South Road Station (Taipei City)
 Jhonglun Station (Taipei City)
 Guanyinsanhe Station (Taoyuan City)
 Dasi Station (Taoyuan City)
 Jianlong Station (Taoyuan City)
 Guangfu Station (Hualien County)
 Linnei Station (Yunlin County)
 Jhuangwei Station (Yilan County)
 Yunlin Dongshih Station (Yunlin County)
 Bali Station (New Taipei City)
 Qian zhen Station (Kaohsiung City)
 Da feng Station (New Taipei City)
 Gongguan Station (Miaoli County)
 Fuyang Street Station (Taipei City)

Wangli Station (New Taipei City)
 Sawulun Station (Keelung City)
 Xinwu Station (Taoyuan City)
 Kwanshang Station (Taitung County)
 NanJing Station (Jiayi County)





Natural Gas

CPC promotes natural gas as the fuel of the future in keeping with Taiwan's policy aim of energy diversification. It is based on its inherent advantages in terms of high thermal efficiency, low pollution profile and convenience for safe handling. A new era of clean energy for Taiwan was ushered in with the completion of the country's first LNG receiving terminal in Kaohsiung's Yongan District in 1990. To cope with growing demand, its capacity was later boosted to 4.5 million tons annually; and a second-phase expansion project was completed in December 1996. A third-phase expansion project to satisfy demand from independent power producers (IPP) as well as consumer and industrial end-users in northern Taiwan commenced in July 1996. In addition to terminal-area expansion, this involved laying a 36-inch diameter, 238 km long undersea pipeline from the Yongan plant to Tongxiao. Its completion in December 2002 expanded CPC's annual LNG handling capacity to 7.44 million tons.

Building up Taiwan's natural gas production, transmission and storage infrastructure

Taiwan's aforementioned second LNG receiving terminal is sited close to Taichung's Port West Pier 13 and the hinterland. With the primary purpose of supplying natural gas to Taiwan Power Company's (Taipower) industrial firms and household users in central and northern Taiwan, CPC built an annual LNG handling capacity of 3.0 million tons, three LNG storage tanks each of 160 thousand-kiloliter capacity; gasification and gas supply facilities; and a 135-kilometer, 36-inch sea long-distance gas transportation pipeline from Taichung Harbor through the Tongxiao distribution center to the Datan metering plant. This plan was launched on July 13, 2009. The recently-completed Taichung LNG Terminal Phase II Investment Project calls for the construction of three additional 160 thousand-kiloliter above-ground storage tanks plus another gasification facility at the terminal itself; a 26-inch, 21.8 km terrestrial gas pipeline between the terminal and the Wuxi



Natural gas transmission and distribution system comprised of

2,189 kilometers of terrestrial trunk pipeline

Separation Station; and a further switching station linked to the existing 26-inch pipeline at the Wuxi site. The project will boost the annual LNG handling capacity of the Taichung terminal to over 5.0 million tons and ensure a stable, dependable supply of natural gas during the winter's often inclement monsoon period as well as-and partly because of-greater storage capacity in terms of the number of days' supply of LNG on hand.

Further expansion of the Taichung LNG Terminal's capacity is under way. Currently, Taiwan government policies for phasing out nuclear power plants and for reducing greenhouse gas emissions mandate a 50% share for natural gas in fueling Taiwan's total electricity generation by 2025. To help reach this target, CPC will lease Wharves 11 and 12 and their associated facilities from the Port of Taichung to create the Taichung LNG Terminal's second dedicated LNG-unloading wharf; and execution of its Phase III expansion module will add two 180 thousand-kiloliter above-ground storage tanks and their associated gasification plant. These projects are scheduled for completion in 2022 and 2026 respectively to improve the unloading energy and gas supply stability.

In order to comply with the "Capacity of Self-provided Storage Tanks for Natural Gas Production or Import Enterprises" revised on August 27, 2019, the requirements for increasing the number of storage tank capacity days and business inventory days year by year, CPC will get on with Taichung Receiving Terminal New Pier & Terminal Expansion exterior Taichung Harbor Investment Project (add four above-ground full-capacity LNG storage tanks of 180 thousand-kiloliter, gasification facilities and two LNG-unloading wharfs and other related facilities) after the completion of land reclamation of North Reclamation Area (III) and South Reclamation Area (IV)-2, and use the Nanti Rd.-crossing pipelines to connect to the existing plant area to support each other. It is expected that after the completion of the end of 2028, the overall equipment utilization rate can be reduced and the gas supply stability and safety can be improved.

CPC has constructed an extensive natural gas transmission and distribution system on Taiwan's western side. It comprises approximately 2,1 thousand kms of terrestrial trunk pipeline, extending from Pingtung in the south to Keelung in the north; and which includes

8 supply centers, one transfer center and 50 distribution stations along its length. Current plans are centered on the goal of constructing interlocking ring-shaped networks to produce a figure-8 configuration; this will involve laying down a 238-kilometer undersea pipeline from the Yongan LNG Terminal to Tongxiao and a 500-kilometer terrestrial pipeline onwards from Yongan to Taoyuan. In addition, after the 36-inch undersea gas pipeline from the Taichung LNG plant to the Datan power station has come on stream, it will be linked with terrestrial pipelines in central and northern Taiwan to form another circular formation-thus completing the planned island-wide, integrated figure-8 natural gas transmission network.

Active expansion and assuring secure gas supply

Complying the government policies for phasing out nuclear power plants and creating an environmental-friendly, low carbon environment, CPC plans to set up four gas-fired generating units in Datan Power Station. To generate abundant energy for Datan Power Station, commodity sectors in the north and other customers of the power station, CPC plans to set up the third LNG terminal in Kuantang Industrial Centre, comprising reception facilities which can hold up to 3 million metric tons of import quantum, two LNG storage tanks each of 160 thousand-kiloliter capacity; gasification and gas supply facilities to connect with the existing gas supply system.

CPC's Third LNG Terminal project got under way in 2016 and is currently scheduled to come on stream in October 2022. Otherwise CPC gets on with Third LNG Terminal phase II expansion project(planning to build six 180 thousand-kiloliter above-ground storage tanks, a second LNG-unloading wharf and gasification facilities) in Third LNG Terminal offshore reclamation areas. The overall project is expected to be completed by the end of 2030. At that point, with the three terminals-one in each of northern, central and southern Taiwan-supplying natural gas to users in their respective areas, there should be some reduction in the cost and risk of transmitting gas over long distances-in that figure-8 combined undersea and terrestrial gas pipeline network will enhance the safety and stability of gas supply through its transfer and backup functions. Completion of this third LNG receiving terminal project will enable CPC to construct and operate national level natural gas supply system that is fully-functional, stable and safe.

Global arrangement, stabilization of gas supply

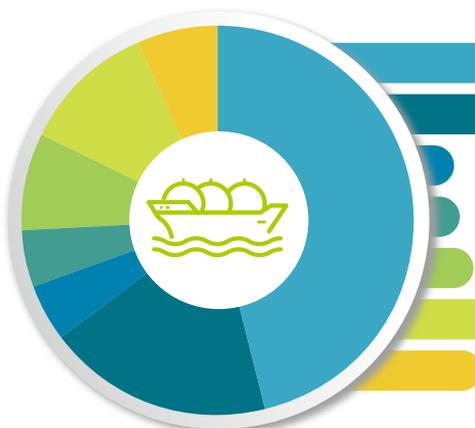
CPC has devoted considerable effort to diversifying its LNG sources to ensure a reliably stable supply of natural gas for Taiwan. The source of imports includes the Middle East, the Asia-



Total domestic sales of natural gas in 2020 are

23.5 billion cubic meters

CPC's LNG sources Global distribution



The United States	Distance: 13,236 nautical miles	⌚ Shipping Time:32days
Qatar	Distance: 5,298 nautical miles	⌚ Shipping Time:13 days
Malaysia	Distance: 1,300 nautical miles	⌚ Shipping Time:3.5~4days
Indonesia	Distance: 1,400 nautical miles	⌚ Shipping Time:4 days
Australia	Distance: 2,290 nautical miles	⌚ Shipping Time:6 days
Papua New Guinea	Distance: 3,200 nautical miles	⌚ Shipping Time:7.5~8.5 days
Russia	Distance: 1,835 nautical miles	⌚ Shipping Time:6 days

Pacific region, Russia, Australia, North America, Central and South America, Africa and Europe. The procurement comes from all over the world.

In addition to long-term LNG procurement contracts, CPC acquires yet more supplies through medium/short-term/spot transactions to achieve the goal of stable supply and decentralized gas supply. In 2020, CPC imported most of its LNG from Qatar, Papua New Guinea and Australia, with some coming from Russia.

Other Products

Liquefied petroleum gas-making use of great quality and achieving excellence

CPC's long-standing monopoly in the LPG market was broken when the government opened it up to competition in 1999. Formosa Petrochemical Corp. as a producer and importer began competing with CPC. In response to market competition, CPC has maintained its leading market share in the household gas market by making full use of its quality advantages, north-south transport, storage systems, comprehensive marketing, retail network, full grasp of international market price fluctuations and reduction of procurement costs. In selling industrial gas, the company aims at raising the quality of its customer service and promoting the value of its products so as to both retain existing customers and win new ones. CPC cooperates with the government's LPG safety reserve policy to increase the storage tanks turnover rate and revenue; at the same time, it endeavors to reinforce both occupational safety and environmental protection protocols for the mission of stabilizing the LPG supply in the domestic market and delivering operational performance.



CPC LUBRICANTS: internationally recognized, honorable brand

CPC's Lubricants Business Division (LBD) was founded in 1999, March 16. Now CPC is the leader in Taiwan's lubricants market with its dual brand- "CPCLUBE" (branding slogan: a brand with mission) "Mirage" (branding slogan: professional automotive lubricants) in Taiwan and sells its products to both domestic and overseas consumers. In terms of the domestic market, the LBD now has over 30 distributors and sells its products at over 600 domestic gas stations directly operated by CPC and leading hypermarket chains, providing comprehensive, convenient and diversified after-sales support.

Since 2011, the LBD has operated an automated precision blending system, unique in Taiwan, for its products. Located in Chiayi, its construction was completed in 2016, taking five years. This plant has sharply lifted the level of efficiency and product quality in lubricants production, which runs at an annual output of up to 90 thousand kiloliters. After the installation of lubricating grease production machinery with an annual output of more than 3,300 tons as part of a renovation project, CPC's lubricant production equipment and capacity is second to none, not only in Taiwan but also in the wider Asia-Pacific region.

Efficiency and product quality in lubricants production, which runs at an annual output of up to

90,000 kiloliters

In addition, CPC has set up a highly efficient logistics network with four warehouses for finished products in northern, central and southern Taiwan, which works as a distinct competitive advantage in terms of sales performance. Since 2018, CPC has carried out a two-phase construction project of storage facilities for base oils at Taichung Port to facilitate its domestic supply and export. In future, CPC will not only increase supply capacity of base oil and launch differentiated marketing, but also apply for bonded storage facilities to be used as operation center of our oil products for international trading. In addition to cultivating its domestic market, the LBD is also vigorously expanding in the Asia-Pacific region. China, Philippines, Indonesia, Vietnam, Myanmar, India, Thailand, Australia, Congo and Surinam have distribution outlets and direct customers. To circumvent the ASEAN tariff barrier to non-members, CPC has recently set up Maxihub





Corporation in Vietnam's Tong-Nai province with joint-venture. This company will operate facilities for receiving and warehousing of petrochemicals and lubricant blending. Production is projected to begin in the end of 2021. In the future, CPC will use the Maxihub Co. as its second production base and move toward the operational model of diversified international trade of oil-derived products as a means of expanding its presence in overseas markets.

With the gradual rise of electric vehicles and shrinking of automotive lubricants market, marine engine oil becomes an important direction of future development for LBD. In the past few years, the certification team has overcome difficulties and completed complex testing processes to obtain multiple important international certifications, including MAN ES, WinGD, YANMAR, Daihatsu, Mitsubishi, KEMEL and Wartsila stern shaft seal compatibility, with unwavering efforts and great teamwork. Aforesaid breakthroughs have been the model and innovation indicators for CPC. The aforementioned achievement is a key milestone of innovation in the history of CPC.

In addition, LBD has also been committed to the establishment of a brand image in recent years. In both 2019 and 2020, CPC's lubricant products were not only awarded the National Brand YuShan Award for Best Product, but also won the "Reputable Brand" gold award of lubricant category by Reader's Digest. It shows that LBD's trustworthy brand image is now affirmed by the general public after the Company's hard work on quality control over the years.

LBD will continue to leverage its core competencies in production, channel distribution, logistics and warehousing, quality control and testing as well as technical support and endeavor to develop high-quality products, provide sophisticated, services and comprehensive technical support to better meet market and customer needs. Looking to the future, the LBD's vision encompasses maintaining its lead over the competition in the domestic market and make the lubricant brands-CPCLUBE and Mirage, become well-known worldwide.

SOLVENTS & CHEMICALS – dominant home market position is the basis for Asia-Pacific export ambition

CPC holds a dominant market share position in Taiwan's solvents and chemicals sector: around 74% in solvents, 43% in toluene, 46% in xylene, 49% in asphalt and 50% in sulfur.

CPC's Solvents & Chemicals Business Division aims to achieve its expansion-oriented operational objectives in a number of ways. This initially involves taking a vigorous and rigorous approach to providing efficient customer service, as well as expanding exports to promising markets such as Mainland China, Vietnam, and other promising ASEAN/Asia Pacific markets - which is very much in line with the central government New Southbound Policy. There is also much effort going into a number of initiatives, such as enhancing product quality and image, continuous improvement of the refining process and lowering production costs. Most important of all, at Solvents & Chemicals they are developing new and innovative products and new areas of business.



• *Ease of mind*

／ *Moving toward a better future*



Industrial safety & health

Risk management-Comprehensive implementation of safety regulations

Petroleum products and natural gas are highly flammable substances. In handling them, CPC places heavy emphasis on industrial and health safety, as well as on fire prevention, in order to maintain continuity in operations, and prevent harm to employees, local communities and properties of local people. Apart from compliance with Taiwan's relevant laws and regulations, CPC has also drafted – and strictly enforces – its own safety and loss prevention protocols by reference to those of the advanced countries of the Europe, USA and Japan. Such protocols have been suitably adapted to reflect local conditions and operational characteristics.

Safety disciplines and priority-Safety management get first

Industrial safety is the key for the continued sustainable future of CPC. To achieve the goal of 100% industrial safety, zero accidents; CPC has constantly and actively strengthened its safety culture through implementation of a policy based on safety disciplines “All staff safety awareness, Risk management and Health care”. CPC's industrial safety performance has been recognized by the society; it has also often been a recipient of the annual Excellence in Organizational and Personnel Promotion of Occupational Safety and Health awards from Taiwan's Ministry of Labor.

Key points in CPC's industrial safety & health policies

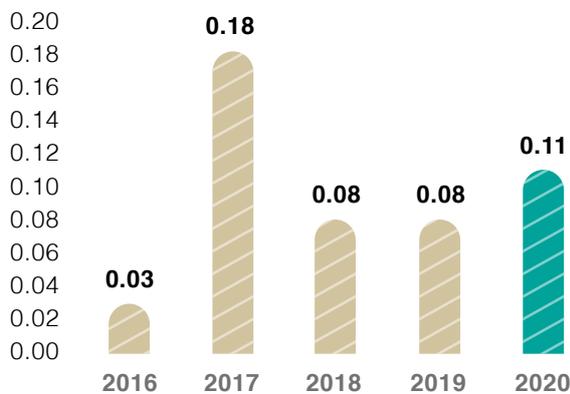
In line with its emphasis on a culture of industrial safety, CPC is putting particular effort into the following focal points. The company has continued raising awareness of issues to both its employees and external vendors in the interest of creating a safe and comfortable working environment with collective efforts.

- Implementation of the Taiwan Occupational Safety and Health Management System (TOSHMS) and continuous improvement with respect to its operational environment. In 2020, all 34 CPC units received ISO45001 reversion verification, aligning with international norms.
- To reinforce industrial safety practice mandates, CPC established “inspection and auditing teams” to go to construction sites for non-scheduled on-site inspection and auditing, and set “Management procedures for safety and health of contractors” and “Guidance on safe work permit”. We also established contractor evaluation system in order to urge the implementation of self-management and reduce occupational accidents among their employees on CPC sites.
- In conjunction with the implementation of occupational safety laws, conducting periodic reviews of industrial safety and health rules as well as continuous reviewing and revising standard operating procedures.
- Strengthening industrial health management protocols, scheduling regular employee health checkups, analyzing and tracking those health checkup results, promoting a healthy lifestyle and emphasizing the importance of employees' mental health.
- Implementing risk management and process safety management (PSM) and establishing equipment safety management processes – periodic, regular thorough inspection of oil tanks and pipelines and the installation of monitors and leak detection systems along their extended sections.
- Strengthening fire prevention and response capabilities, organizing local joint emergency response teams, ensuring that the manpower, facilities and emergency response and rescue gear used by all units are mutually supportive in application, so as to minimize losses due to fire and other disasters.
- Implementing on-site safety inspections with graded results, continuously improving system, equipment and implementation through observation of their preparedness and raising awareness of the importance of industrial safety disciplines.
- Empowering industrial safety inspections team with “management by walking around” by senior managers, professional industrial safety inspections, pre-operational industrial safety inspections of new and renovated workplaces, all deficiencies discovered are tracked through the information system until remedial improvements have been completed.
- Planning and execution of safety and health training and awareness programs, developing and providing online study courses and establishing an industrial safety test-question database, and compiling and publishing industrial accident case study-based teaching materials.

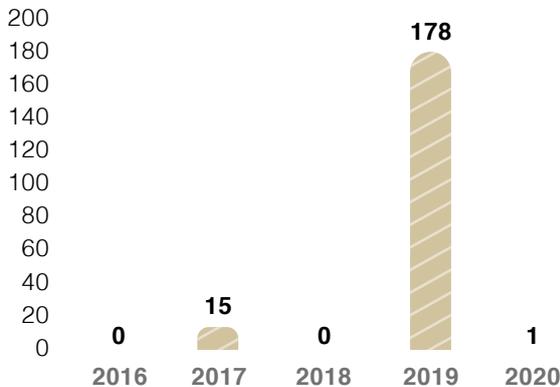
- Based on classifying the identified emergencies, developing the plan of various emergency response drills and regularly conducting emergency simulations to strengthen contingency and disaster prevention capacity. In 2020, CPC held a total of 364 disaster prevention drills, including 7 no-warning emergency response drills and 4 large-scale emergency drills.

CPC's occupational accident statistics for the past five years

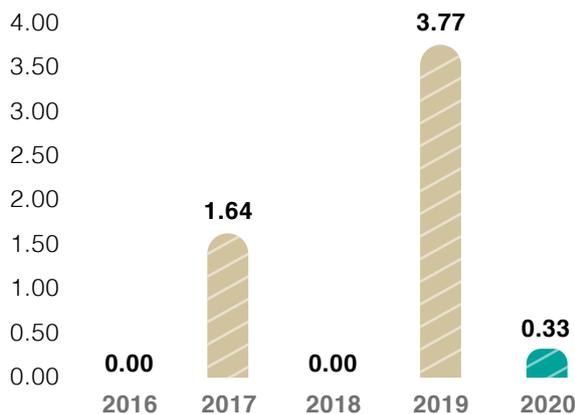
Frequency of Disabling Injury



Severity of Disabling Injury



Occupational Injury Frequency-Severity Index



Improvement in industrial safety: always better, never the best

In 2020, CPC has investigated and analyzed all workplace incidents and accidents to find the root cause, drawn up action plans, improvement plans and schedule follow-ups. The action plans and improvement plans are as follows:

Action plans

- Implementing PSM to all units in CPC: There were five key facilities establishing PSM in Linyuan, Dalin, Taoyan, Yongan and Taichung separately in 2019. The next step is to carry out all-round implementation to all units in CPC in 2021.
- E-management: CPC has introduced the use of digital platforms, which allows construction workers to provide work permits and allow inspectors to confirm the tasks by the computer or mobile phones or tablet, in order to work efficiently and safety.
- Enhancement of training for contractors: we have enhanced safety and technical training for contractors on high-risk operations; including scaffold safety training, equipment maintaining safety training and aerial work platform safety training. Only qualified contractors which have completed the training can start their work in CPC.

Improvement plans

- Enhancement of training for contraction supervisors: CPC provided training to the contraction supervisors in northern, central and southern of Taiwan and improve their professional knowledge and capabilities about recognizing hazard and risk.
- Procurement control: CPC has strengthened its review of job description documents for procurement activities to contractor and urging contractors to conduct self-management.
- Utilization of AI technology: CPC has utilized technology tools to improve its contractor management performance. For example, CPC has integrated its access control measures for its contractors, carried out inspection for operation safety purpose and installed a CCTV system for continuously supervise at-risk behaviors or site safety.

Pollution Prevention and Environmental Protection

Adopting international technology, achieving sustainability

Implementation of environmental protection and energy conservation

In order to fulfill its corporate responsibility, CPC has long been dedicated to a variety of environmental protection efforts, including improvement of wastewater disposal, air pollution, waste treatment and soil and groundwater contamination, implementation of environmental protection policies, active prevention of pollution, strengthening control of source of pollution, utilization of low pollution production processes and the latest pollution control facilities and use of the best available control technology (BACT) and equipment to reduce pollution that may be caused by production, as well as transportation and storage processes in its new projects. On top of that, CPC has further deepened its commitment to ecologically beneficial measures that include improving the quality of its petroleum products, reducing pollutant and energy waste and adapting to the climate change. In order to implement the environmental policy of pollution prevention, energy and waste reduction and 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 have been required to comply with the standards of ISO 14001 environmental management system. As of the end of 2020, 22 of them had received official certification. In response to global trend, CPC deployed an environmental accounting system in 2004 to improve its environment protection performance.

Ecological protection Every effort made

In all its development projects, CPC follows through on the commitments written into the respective environmental impact assessment (EIA) results, introduces the appropriate environmental protection measures in response to the potential risks posed

by specific development undertakings, maintains comprehensive monitoring systems designed to protect environmental quality and biological diversity around its facilities and aims to achieve 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. The 3rd LNG terminal investment plan is no exception. In order to demonstrate its determination to protect and preserve the environment, 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 are set up from the south to the north. In 2020, the Taoyuan algal reefs coast survey results show that the total number of algal species is 40 species, 15 macroalgae, and 25 crustose coralline algae. The total number of algae species in the Guanxin Algae Reef is the highest (36 species), while the total number of algae species in the Datan Algae Reef and Baiyu Algae Reef is 30. In terms of the number of crustose coralline algae, Guanxin Algae Reef exhibited the highest number of crustose coralline algae (23 species), and the number of algae species Datan algal reef exhibited is the second (19 species). The number of crustose coralline algae the Baiyu algae reef exhibited is the least (16 species).

In addition to the regular monitoring and survey 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 has increased from 17 ~ 30% to 68% recently. In 2020, reproduction success rate, moreover, increased to 92%.



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.

Taiwan's Greenhouse Gas Reduction and Management Act was formally promulgated on July 1, 2015 with the goal of reducing national greenhouse gas (GHG) emissions per year to no more than 50% of the 2005 level by 2050. Since 2005, CPC has calculated its greenhouse gas inventory, actively implemented its energy saving carbon emission reduction plan, and set targets and timelines of carbon emission reduction for its existing plants, 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, we have used the latest technology to effectively improve the energy efficiency of our plants. As a result, the company's reduction in greenhouse emissions from 2005 to 2019, which was verified by a third-party, exceeded 25%. In addition, CPC has already implemented electricity conservation in its offices according to the guidelines on Power usage effectiveness management plan for government agencies and schools laid down by the Executive Yuan, saving 8.1% electricity in 2020 compared with 2019, according to the statistics of the

Ministry of Economic Affairs. Our offices of monitored units had switched to all-LED lighting by September, 2020. In response to the risk incurred by climate change, the company has participated in the climate change adaptation strategy and guidance Program for the energy sector; by the end of 2020, climate risk assessments and reports of the 24 plants had been completed.

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. The tables below show the air pollution emissions of the oil refineries and the petrochemical plants. There has been a fall of TSP, NOx and VOCs. The Flue Gas quality is also superior to the national standard, indicating that the measures have an effective outcome.

Creating an environmentally friendly business and pursuing a position as benchmark for environmentally friendly oil products

Since the enactment of the Environmental Education Act in 2011, CPC has actively promoted



Comparison between CPC Refinery Environmental Quality Control Standards and Their National Equivalents

Unit: metric ton



Note 1:

SOx emission of CPC's oil refineries and the petrochemical plants increased in 2019 due to year-round operation without annual repairs.

Note 2:

the emission levels of 2018 and 2019 are approved amounts of emission, while the emission level of 2020 is the reported amount of emission.





environment related education and similar activities and eco-experiences and teaching are used to popularize the concepts of environmental protection, of cherishing Taiwan's natural resources and of committing to leave a clean environment for the generations that will follow. The company takes the lead in calling on communities to come together on local ecological issues and in showing concern for local commercial development to be environment friendly; also, in practical measures like park and forest adoption, supporting garbage clean-ups and marine pollution remediation. In further educational developments, 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 in pollution-control technology, systematizing its processes for higher efficiency and greater added-value, investing in the circular economy and waste recycling and value increase – all in the pursuit of developing sustainability in its operations and the sharing of good health and prosperity with citizens.

Adapting proactively to reduce pollution

Following the promulgation of the Soil and Groundwater Pollution Remediation Act by the administration of President in 2000, Taiwan's Environmental Protection Agency (EPA) of the Executive Yuan has introduced the Enforcement Rules, subsidiary legislation and related control standards of 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 the related soil and groundwater pollution surveys and pollution remediation measures in accordance with related regulations. In 2020, CPC has 3 sites listed for pollution response, 29 listed for pollution control and 8 listed for remediation, while remediation has been completed at 39 sites by the end of 2020.

Kaohsiung Port Terminal site (Wharves No 19 and No 20) was leased by CPC from the Port of Kaohsiung and used for loading and unloading crude oil until those operations were suspended in 1996 and the land was returned to the Port of Kaohsiung, Taiwan International Ports Corporation. On October 14, 2013, Port of Kaohsiung, Taiwan International Ports Corporation notified CPC to address the problem of

contaminated soils at Wharves No 19 and No 20 and presented the plan of necessary measures for response to Environmental Protection Bureau of Kaohsiung City Government for its review. The Bureau approved the aforementioned plan on December 23, 2015. As of the end of December, 2015, the work to improve the pollution did not meet the expectation. On December 23, 2015, Environmental Protection Bureau of Kaohsiung City Government listed the Terminal as a soil remediation site and announced that CPC was the polluter, and was required to present a pollution plan for its review. After the action plan proposed by the company was approved by the EPA of Kaohsiung City Government on November 1, 2016 (with a 36-month deadline to improve the pollution), CPC immediately carried out soil classification and off-site soil handling according to the approved plan. A total of 124,134 tons of contaminated soil of the site received off-site handling then; 100,000 tons of the soil were taken to a dumping facility at Chienzhen for stacking, screening and handling. CPC had removed all the contaminated soil at the site by January 2, 2018 and took another 24,475 tons of contaminated soil to the bioremediation site of its Kaohsiung facility for ongoing bioremediation work. The site's monitoring status with the EPA of Kaohsiung City Government was lifted on April 12, 2018.

CPC's Kaohsiung Refinery was shut down at the end of November 2015. As it was an old facility and was 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 pollutions of different levels. CPC presented the pollution control plan to Environmental Protection Bureau of Kaohsiung City Government for its review and the bureau approved the aforementioned plan on December 16, 2016. The company is currently dismantling the above-ground structures (including process plant, pipework and related facilities) and also removing pipelines from where they were buried two meters underground. In addition, CPC is using gas

pumping/injection pollution control technology and strengthening the downstream gas injection interception system to prevent pollutants from flowing out of the site. The overall remediation process will take about 17 years to complete; and the plan calls for the work to be carried out across separate areas in phases. In principle, CPC will start the pollution improvement work from the upstream of the underground water and later moved on toward the downstream in its implementation of the strategy for dissolution of control in different phases.

Effluent* is the monthly average

Item	Year		
	2020 Levels	Current National Standards Effluent	Current National Standards Ocean Effluent
COD (ppm)	<65	100	280
Oil (ppm)	<1	10	20
SS (ppm)	<15	30	100
Phenol (ppm)	<0.05	1.0	1.0

2020 Environmental Footprint

Material investment

Water Usage	30,707	Thousand kiloliters
Crude oil	20,543	Thousand kiloliters
Fuel Oil	102	Thousand kiloliters
Fuel Gas	1,534,249	Thousand cubic meters
Natural Gas	1,171,043	Thousand cubic meters
Gasoline additives (MTBE)	516	Thousand kiloliters
Purchased Electricity	1,965,747	Thousand kWh

Material emissions

Gas emissions	CO ₂	7,347,667 ^註	Tons
	NO _x	2,730	Tons
	SO _x	634	Tons
	TSP	163	Tons
	VOC	3,698	Tons
	COD	390	Tons
Waste Water	11,477	Thousand cubic meters	
Waste	101,011	Tons	

Note: the amount of CO₂ emission is 2019 figure.

Refinery/petrochemical output

Diesel	5,556	Thousand kiloliters
Fuel oil	2,888	Thousand kiloliters
Vehicle fuel	8,691	Thousand kiloliters
Jet fuel	2,347	Thousand kiloliters
Liquefied petroleum gas	354	Kilotons
Ethylene	1,004	Thousand kiloliters
Propene	931	Kilotons
Butadiene	144	Thousand kiloliters

Innovation

／ *The energy driving transformation*



R&D and Information Management

Research and Development

Research and Development (R&D) has been the core value for both technological innovation and corporate sustainability of CPC. Three major institutes are responsible for the R&D in respective domains including the Exploration & Development Research Institute (EDRI) in Miaoli, the Refining & Manufacturing Research Institute (RMRI) in Chiayi and the Green Technology Research Institute (GTRI) in Kaohsiung while the Department of Planning in head office is responsible for the management and supervision of company-wide R&D operations.

EDRI primarily focuses on the analysis of domestic and foreign geological/stratigraphic data for the evaluation of oil and gas reserves, as well as technological development on exploration methodology and drilling/extraction technology. RMRI plays a leading role in the R&D of high value-added petrochemicals, promotion of the circular economy, pollution control, improvement of refinery structure/configuration and debottlenecking on-site production problems. GTRI is dedicated to the R&D related to biofuels, renewable energy and green materials and is responsible for the pilot production on advanced projects.

CPC's expenditure on R&D in 2020 amounted to about NT\$3.378 billion. The R&D achievements are described below:

Exploration & Development Research Institute

- Updated the 3D geological model, reservoir characterization and OOIP (Original Oil in Place) of the Oryx oil field in the Republic of Chad for suggestion and risk assessment regarding the locations for infill well drilling.
- Completed the analysis of the geological framework and petroleum system of the Zagros fold belt in the Middle East and the comparison of the plays in the Zagros fold belt with western foothills of Taiwan to propose a future exploration direction.
- Completed the cause analysis of production shut-in of the existing well strings in Chuhuangkeng field. Proposed a re-production scenario and the liquid loading issue of 20 wells in Chuhuangkeng field to select the optimal deliquification technique. We evaluated the remaining reserve of the main producing layers. The results could be applied to the in-situ operation of low pressure production.
- Completed the productivity test and obtained the enthalpy value of geothermal liquid. Established a water quality database from the analysis of the water composition in Jen-Tse area. Conducted a scaling prevention study based on the database and exploration experience from Qing-Shui Geothermal Power Plant.



- With detailed chemical composition of the geothermal fluid from Datun Volcano area, we analyzed the corrosion tendency of alloys such as stainless steels, nickel alloys and titanium alloys with different proportional content of chromium and molybdenum. The data of corrosion rate of the alloys helps to select suitable material of casing and wellhead equipment under acidic geothermal fluid.
- Successfully developed and applied GC/FID with thermal desorption system - a technology of fast detecting the total petroleum hydrocarbons (TPHs) in soil. This screening tool can be easily moved to the investigated site. With only 2 to 5 minutes for each sample, the accurate TPH concentration can be obtained. The advanced technology can immediately provide useful data for us to determine on site investigation, emergency response, or excavation treatment problems.
- Assisted the Lubricants Business Division to investigate the soil and groundwater of the Gaoping Military Installation and conducted an analysis of the groundwater and soil samples.

Refining & Manufacturing Research Institute

- Developments of new production processes: including the introductory assessment of a new light diesel engine motor oil formulation to meet the European Automobile Manufacturers Association (ACEA) C3 5W/40 standards; the development and application

of CPC amorphous soft carbon anode vehicular battery research; electrochemical/mechanical hybrid shear exfoliation graphene of artificial graphite; environmentally-friendly precision machinery cutting oil; the on-site application of chemical oxidation technology in Xinguang Community; the development of styrene recycling technology; the establishment of alicyclic polycarboxylate hydrogenation technology; the development of high-frequency PCB substrate materials; the planning of the trial production process for refined bitumen; the development and application of magnetic filters and packing technology.

- Completed the commercial gasoline and diesel quality and performance evaluation study, heavy-duty diesel engine testing, gasoline and diesel fuel additive cleaning performance tests and the promotion of natural gas heating value integration and stove specification unification standardization for environmental protection.
- Completed groundwater soil remediation and detecting services in refinery polluted sites; airborne volatile organic compounds (VOC) monitoring; VOC recovery of gasoline filling exhaust; health risk assessment; and planning for special waste-liquid pretreatment and waste-water recycling.
- Continuous surveillance of the effect on pipelines of stray electric currents from the Kaohsiung and Taipei MRT systems and assistance in diagnosing refinery boiler pipe problems in order to ensure pipeline safety
- Successful conversion of CPC-own heavy oil through a self-developed refining process to exploit a long-life amorphous soft carbon material as a powerful lithium ion battery in the anode material.





- Implementation and operation of Smart & Green e-station: completed the planning and construction of the “Taoyuan Jiadong Smart & Green Demo e-Station”, deployed mobile Life battery modules for not only the verification of CPC-own soft carbon materials, but also the potential application in emergency rescue in distress areas; conducted ongoing solar power generation and the verification of the Smart EMS (Energy Management System) in “Chiayi Xinyi Smart & Green Demo e-Station”.
- Conducted research on optimization of the gasoline/ diesel and petrochemical raw material production processes and offered related advisory services to resolve on-site problems, and to enhance operational efficiency in order to achieve energy-saving goals.
- Technology transfer of newly-formulated CPC Marilube, Guoguang brand low-alkali marine motor oil, environmentally-friendly metalworking fluid, and long-life equipment oil.
- Development of CPC Racing CVT, Mirage PRO CVTF, CPC Superpower C3/SN Fully Synthetic Motor Oil 5W/30, CPC Racing C3/SN Fully Synthetic Motor Oil 5W/30, CPC Racing MB SN Fully Synthetic Motor Oil 5W/40 and American Petroleum Institute (API) ST 0W/20 passenger car engine oil and related products.
- Development of the synthetic technology on diffusion and elastic micro particles, with the ongoing incorporation with well-known global companies for the promotion of eye-protection lamp products.
- Development of bio-based and bio-degradable plastics in compliance with the national plastics restriction policy. Bio-based plastics use biomaterials as feedstock, and bio-degradable plastics undergo further microbial decomposition to carbon dioxide and water. In terms of R&D on bio-degradable plastics, we focused on polylactic acid (PLA) as the short-term target, and polyhydroxyalkanoates (PHAs), which is more environmental friendly, as the focus of our long-term effort, in order to reduce pollution caused by synthetic plastics. In regard to feedstock selection, non-food sources, such as lignocellulose, methanol

or natural gas are also among our research scope for the mutual benefit of economic development and environmental protection.

- Development of novel biomaterials, including whitening and antimicrobial ingredients in cosmetics as well as in medical products to break into the retail market.

Green Technology Research Institute

- Completed the installation of solar photovoltaic systems on more than 210 sites with a total capacity greater than 10.96MW in compliance with national energy transition policy.
- Established a cloud-based management system to monitor and maintain the operation of photovoltaic power stations, and built up a big data system of PV electricity generation capacity all around Taiwan. The state of power generation has been monitored in all the photovoltaic power stations by the cloud-based management system, and with the introduction of standard operation procedure (SOP) for maintenance, operation efficiency and safety can be further improved.
- Implementation and operation of Smart & Green e-stations: completed the planning and construction of the “Hualien Guangfu Smart & Green Demo e-Station”, deployed a mobile LTO energy storage system in order to provide emergency power support to local communities; conducted ongoing verification of the multiple power supply system in “Tainan Qianfeng Smart & Green Demo e-Station”.
- Development of bio-based carbon materials for supercapacitor from biomass waste with proprietary production technology and patent portfolio. Completed the trial production of supercapacitor samples (capacitance: 1200F) meeting the 40138 size specification with similar performance to commercial products.
- Developed proprietary transesterification process technology for further pilot production of fatty acid esters that can be widely used in the application of biodiesel, bio lubricants and specialty chemicals.



- Acquisition of the critical technologies for 5-Hydroxymethylfurfural (HMF) production process and completed the development of continuous process at lab-scale.
- Demonstration of lithium titanate (LTO) anode material production plant with an annual capacity of 1,000 tons and continued to improve the cost, production process and quality management to increase the energy density of lithium titanate materials, to develop low-cost formula and to enhance production process stability.
- Development of environmentally friendly, low VOC heavy anti-corrosion coatings which has obtained ISO 12944-CX certification, the highest international anti-corrosion standards, and can be used in heavy anti-corrosion coatings for offshore wind power and marine industries in the future.
- Development of fluorinated paint with high solid content, which can increase life cycle of the paint and reduce the level of volatilization to as low as 40% of the regulatory limit, and technology transfer of the paint formula and production process.
- Cultivation of seaweeds using the cold seawater drainage from the Yongan LNG terminal of the Natural Gas Business Division, with an annual production capacity of 2 tons, fully using cold energy and water resources to fulfill the cross-industrial circular economy. This research won the Gold Medal Award at Taiwan Innotech Expo in 2020.
- Development of the technology of extracting functional compounds of seaweed and verified its effects with biological models. These marine-derived active ingredients from seaweed proved to be able to revive hair follicle cells and enhance wound healing, and showed potential in the applications in biotechnological and medical products in the future.
- Establishment of an improved carbon material pilot production process with automation and continuous operation. The annual production capacity of soft carbon now reaches 18 tons, which allows us to provide sufficient supply to battery cell manufacturers for pilot production and functional verification.
- Completion of the design and planning of a pilot plant for dicyclopentadiene (DCPD) purification for further verification of pilot production.

Information Management

Introducing smart technology to strengthen, information security

CPC's vision for information development comprises free-flowing information over secure networks, precise real-time settlements, universal access to information. By providing user-oriented and convenient services as pursuing the fulfillment of information security, CPC concretely accomplishes its goal of "being close to the market and customers". Faced with the new era of rapid informatization, digitization, and globalization, CPC is building up its overall information capability based on the enterprise resource planning, customer relationship management, business intelligence, knowledge management and information communications infrastructure. As it endeavors to enhance the competitiveness as the goal, CPC's overall information development focus on the continuous integration of corporate information systems, provision of real-time management information for decision-making, and expansion of the industry value chain by integrating physical and virtual channels. The company will move towards the goals of smart production and digital transformation as it responds the policy of promoting 5G and AIoT application.

In regard to information management, CPC has strengthened external customer relationship management, provided exquisite services and decreased the time for settlement through the implementation of integrated operation processes and specialized information technology. CPC has run its operation processes through an integrated IT resource operating platform and synchronized integration of internal IT resources, processes and infrastructure. It has followed the policy of providing a thematic open data set platform, promoting the open document format (ODF-CNS15251), prepared smart government action plan and continue to enhance IT organization and control. Owing to promoting information security governance system and cultivating IT/OT personnel's talent, CPC owns a strong constitution of cyber security and continuously achieve ISO 27001 certification accordingly.

In regard to information system, CPC has used information technology to enhance various information operation processes and enable complete settlement every month, developed and promoted POS of gas stations, integrated e-commerce systems for petroleum product, diversified its business scope, deployed a refining and petrochemicals information system, integrated production information and oil bookkeeping system, deployed big data platform for storage, transportation and sales information, deployed exploration information system and 3D pipeline system, integrated exploration and production management and geographic information. These operations are core tasks of the IT department. In addition, CPC has also continued to promote web pages and mobile e-commerce services of its application system. In response to developments in Big Data, artificial intelligence, the internet of things, cloud computing, virtual reality, augmented reality, Industry 4.0, and other new technologies, CPC has speeded up the introduction of smart technologies, carried out intelligent data analysis, built experiment facilities, promoted commercial intelligent applications, and speeded up process innovation in order to improve quick decision-making response ability and enhance overall operating performance.

In the area of information and communications network, working with the government's Internet Protocol Upgrade Promotion Program, CPC has also upgraded its Internet and fiber optic backbone systems to IPv6. It has strengthened the infrastructure and the communications integration work for mobile e-commerce, continued to improve equipment performance, overall operation efficiency and remote backup mechanism in order to ensure business continuity, facilitate delivery of services and improve continuous availability of operation. It has consolidated hardware and software resources, employed broadband networks to provide digital services, adopted cloud technology and implemented server virtualization to increase its efficiency. CPC has also upgraded its fiber optic backbone systems, provided services that integrate voice system and multi-media communications and gradually creates a mobile e-commerce operating environment through combination of mobile communications technology and services with its optic backbone system based on the existing transmission system and e-environment.

In the field of protection of information security, CPC has conducted related protection baseline, improved information security measures and capabilities, launched security operation center (SOC), managed all firewalls and implemented solutions such as intrusion detection system and APT preventing mechanism. It has also introduced the information sharing and emergency response mechanism to enhance the capabilities and protection framework of industrial control system to ensure the core business operation of critical information infrastructure.





Human Resources

Lead the development of enterprises by strengthened incentive measures

CPC aims to fully develop the potential of every one of its current (as of the end of December 2020) 16,123 employees through long-term training and career guidance, while at the same time making both incentives and standard benefits more attractive. Managerial talent is selectively assessed with the aim of ensuring continuity in both corporate development and leadership through participation by talented people of outstanding ability.

In terms of human resource utilization, CPC has recently engaged in organizational and process reengineering as well as formulating and carrying out a policy whereby selected employees are rotated through different jobs, units and departments in order to use its human capital effectively. It has also actively recruited a cohort of young professionals to both inject new blood and to provide a smooth transfer of technical and operational knowledge, as well as commercial and competitive skills in order to increase competitiveness of its employees and prepare for a wave of retirements.

In addition to using professional qualifications and personal traits as the basis for the selection of entrants to its supervisors, CPC provides management and leadership development training to help its employees achieve their full potential and contribute to accomplishing corporate growth objectives. At the same time, the company is strengthening its on-the-job training programs at all levels, and has integrated pre-existing training systems into the establishment of the CPC Corporate University (CPCCU). This system offers beginner, intermediate and advanced level courses in exploration, refining, marketing and engineering areas - the four key areas comprising CPC's core competencies. CPC has systematically enhanced employees' specific professional expertise through experiences passed by senior employees which has helped them develop a broader range of skills for optimization of workforce utilization. The company also encourages its employees to take national skill-qualification examinations and helps them obtain professionally-required certification in industrial safety, environmental protection and other relevant disciplines. In the context of its corporate transformation process, the company is also strengthening its secondary-skill training programs. Beyond this, employees are selectively sent abroad for higher education, research assignments and internships, as well as to participate in conferences and seminars on a range of topics.



Experience inheritance and professional talent cultivation

In recent years, CPC has cultivated new employees with comprehensive guidance and training. On-the-job training is now combined with formal skills development courses; and senior employees are designated as mentors to help new colleagues adapt to their workplace and responsibilities. These new employees are typically rotated each year to allow them to gain experience in a wide range of jobs and develop their talent at every level. Seniority requirements in consideration for promotion have been shortened for outstanding managers, lowering the age distribution in the upper management echelons and thus helping to motivate those with ambitions. Each department reviews its professional-skill shortfalls at the beginning of the year and formulates a corresponding training plan in which outstanding personnel are recruited as instructors and tasked with passing on their operational knowledge and experience. Some departments also make arrangements for on-site or expatriate experience for their younger employees, lasting from several weeks up to a year depending on departmental needs. Online learning is also provided and training courses are digitized and uploaded to CPC's e-learning center and knowledge archives, allowing the knowledge and expertise of senior and former employees accumulated over many decades to be preserved and passed on. With digital learning, new employees can gain the professional knowledge and workplace information they need anytime, anywhere without ever having to step into a classroom.

CPC Training Center located in Chiayi not only serves as an incubator for internal talent, but also tasked with building a talent pool for fulfilling the government's New Southbound Policy - by providing talent with relative background in field of engineering, investment, trading and management, etc. It also assists other domestic

companies in the pre-employment training and on-the-job training of new southbound policy talents, aiming to making the greatest contribution to the cultivation of energy and petrochemical talents for our country.

Welfare system and entertainment facilities for worry-free work and happy life

In terms of employee incentives and benefits, the policy of CPC is to award an annual bonus on the basis of overall corporate performance as well as the scale of contribution and performance of the job of the individual employee. All employees are covered by national health insurance, civil servant insurance, labor insurance, group life insurance and accident insurance. Consolation and compassionate payments are made in cases of job-related injuries, disability or death; and employee welfare committees organize a variety of welfare and entertainment activities.

CPC also operates clinics, restaurants, libraries, general stores and other welfare amenities for its employees along with sports facilities such as swimming pools, various ball parks and gyms at or near the workplace. There are scholarships for employees' children; educational loans for dependents attending college and university; medical subsidies for employees and their family members; wedding, funeral and retirement subsidies; and interest-free emergency loans. The company also chips in to support the activities of employee groups dedicated to baseball, bridge, mountain climbing, swimming, painting, film watching and other leisure pursuits in order to provide physical and mental relaxation, boosting their morale and sense of well-being at work.

CPC's Affiliates and Subsidiaries

CPC concentrates on its core competencies while investing in business diversification

CPC's joint venture strategy can be summarized as "on the foundation of core business, active expansion into fields of petrochemicals (upstream and downstream), new energy, high value-added petrochemicals and international investments." The company now sets out to selectively introduce patented technologies that will be incorporated with own feedstock for petrochemicals to deliver high value-added products in order to boost the bottom line. As of 31 December 2020, total investment on the 15 joint venture entities was NT\$21.109 billion, generating an unaudited investment income of NT\$233 million in 2020 and cash dividends of NT\$991 million over the same period.

CPC's current 15 affiliates can be divided into four main categories: petroleum products, petrochemicals, natural gas and implementation of government policy. Of the 15, 8 are based in Taiwan and 7 overseas. The principal entities are briefly described as below.

CHINA AMERICAN PETROCHEMICAL CO. LTD. (CAPCO)

Established in 1976, CAPCO is the major supplier of purified terephthalic acid (PTA) to Taiwan's polyester textile industry; its plant is located in the Taichung Harbor in the island's central region. CPC holds 38.57% of the company's equity, including preferred stock. CAPCO's production units carried out improvement programs with the aim of lowering production costs and boosting market competitiveness.

DAI HAI PETROL CORP. (DHP)

Established in 1994, with CPC holding 35% of the equity, DHP is headquartered in Haiphong, Vietnam. It has a branch station in HaTay province. DHP mainly engaged in the storage, transportation and supply and marketing of liquefied petroleum gas in northern Vietnam.

QATAR FUEL ADDITIVES COMPANY LIMITED (QAFAC)

Qatar Fuel Additives Company Limited (QAFAC) was established in 1996, with CPC holding 20% of the equity. Located in Mesaieed Industrial Zone in Qatar, it produces chiefly methanol and methyl tert-butyl ether (MTBE).

CHUN PIN ENTERPRISE CO., LTD. (CPEC)

Chun Pin Enterprise Co. was established in 1998, with CPC holding 49% of the equity, to set up and operate a storage and transportation center as part of the Phase II development of Taipei Harbor. CPEC is engaged in the storage and transshipment of petroleum and petrochemical products and is currently engaged in formulating a plan to move its storage tanks to reclaimed land in the outer harbor of the Port of Taipei.

KUOKUANG POWER CO., LTD. (KKPC)

KuoKuang Power Co. was established in 2000, with CPC holding 45% of the equity, under the government's policy of opening up power generation to private operators in order to alleviate the power supply shortfall in northern Taiwan. The project entailed construction and operation of a natural gas-fired power plant with an installed capacity of 480 MW and located in the Guishan District of Taoyuan City.

NIMIC SHIP HOLDING CO., LTD. (NSHC)

Established in 2006, with CPC holding 45% of the equity, NSHC has four ship-owning companies under

its umbrella. It has built four LNG carriers engaged in transporting LNG from Qatar's Ras Laffan II. In compliance with IMO's environmental protection regulations, NSHC has planned and implemented modification for burning low-sulfur fuel oil and installation of ballast water management system for its LNG carriers since 2018.

NIMIC SHIP MANAGEMENT CO., LTD. (NSMC)

Established in 2006, with CPC holding 45% of the company's equity, NSMC is responsible for the operation and management of the four LNG carriers built by NSHC. In addition to assisting in the implementation of modification for burning low-sulfur fuel oil and installation of ballast water management system for the four LNG carriers in 2018, NSMC also has an ongoing cooperative program with NTOU and NKMU aimed at developing a pool of Taiwanese seafarers.

GLOBAL ENERGY MARITIME CO. (GEMCO)

Established in 2011, with CPC holding 48% of the company's equity, GEMCO has built three double-hulled VLCCs with a capacity of 300,000 DWT and one double-hulled LR1 vessel with a capacity of 80,000 DWT engaged in shipping crude oil and petroleum products. In compliance with IMO's environmental protection regulations, GEMCO has completed retrofitting of the scrubber system for VLCCs.

ICHTHYS LNG PTY LTD (ILPL)

Established in 2011, with CPC holding 2.625% of the company's equity, ILPL pipes natural gas from Australia's offshore Ichthys field to the onshore gas liquefaction plant near Darwin for the production of LNG, LPG and condensate. First LNG cargo was shipped in November 2018.

MAXIHUB COMPANY LIMITED (MAXIHUB)

Established in 2014, with CPC holding 40% of the equity since 2016, MAXIHUB plans to build a wharf, tank farm and lubricant blending factory in Dong Nai Province, Vietnam. The company was founded to manufacture and process lubricating oils, base oil, and solvent chemicals and also provide the required related storage and warehouse services. Completion of the plant and supporting facilities and the beginning of commercial production are planned for March 2023.



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During the year ended 2020 the loss before tax of Exploration and exploitation business division has increased as compared to the year ended 2019; this was mainly due to the impairment of mining area. The refining and sales division suffered losses due to the drop in oil prices and the impact of the COVID-19.

The capital expenditure incurred in 2020 was NT\$33,736 million, a 38.77% decrease from 2019; this was mainly due to adopt IFRS 16 from the beginning on January 1, 2019. On transition to IFRS 16, the Company recognized additional NT\$40,187 million of right-of-use assets in 2019.

The breakdown of the expenditure was as follows:

Production & manufacturing 45.93%

Marketing & transportation 21.40%

Others 32.67%

The exchange rate between the NT dollar and the US dollar was 28.097:1 on December 31, 2020.

STATEMENTS OF INCOME FOR THE YEARS ENDED DECEMBER 31, 2020 AND 2019

(In Thousands of New Taiwan Dollars)

	<u>2020</u>	<u>2019</u>
Operating Revenues		
Sales	\$713,747,247	\$1,004,844,431
Other operating revenues	7,953,696	9,263,603
Total operating revenues	<u>721,700,943</u>	<u>1,014,108,034</u>
Operating Costs and Expenses		
Cost of goods sold	682,590,726	931,947,648
Exploration expenses	1,712,403	2,031,934
Oil and gas transmission and storage expenses	12,156,335	10,631,088
Other operating costs	15,807,765	11,737,534
Total operating costs	<u>712,267,229</u>	<u>956,348,204</u>
Gross Profit(Loss)	<u>9,433,714</u>	<u>57,759,830</u>
Operating Expenses	<u>20,153,836</u>	<u>21,546,875</u>
Non-Operating Income and Gains	<u>9,724,748</u>	<u>4,819,308</u>
Non-Operating Expenses and Losses	<u>6,707,832</u>	<u>7,694,931</u>
INCOME (LOSS) BEFORE INCOME TAX	<u>(7,703,206)</u>	<u>33,337,332</u>
Income Tax Expense (Benefit)	<u>(361,653)</u>	<u>894,513</u>
NET INCOME (LOSS) FOR THE YEAR	<u>\$(7,341,553)</u>	<u>\$32,442,819</u>

BALANCE SHEETS

DECEMBER 31, 2020 AND 2019

(In Thousands of New Taiwan Dollars)

Assets	2020	2019
Current Assets		
Cash and cash equivalents	\$3,005,625	\$23,977,809
Current financial assets at fair value through profit or loss	-	406
Accounts receivable, net	38,403,233	43,830,204
Accounts receivables from related parties, net	379,697	433,829
Other receivables	5,864,711	5,752,498
Inventories	80,176,537	111,999,842
Prepayments	15,811,173	21,949,844
Other current assets	<u>1,385,559</u>	<u>770,624</u>
Total Current Assets	<u>145,031,535</u>	<u>208,715,056</u>
Non-current Assets		
Non-current financial assets at fair value through other comprehensive income	9,239,672	13,029,923
Investments accounted for using equity method	11,988,290	13,054,884
Property, plant and equipment	434,621,786	421,334,223
Right-of-use assets	38,865,819	38,472,773
Investment property	19,235,656	19,244,570
Intangible assets	318,126	235,814
Deferred income tax assets	8,795,694	8,480,342
Oil and gas investments	50,336,445	60,770,776
Refundable deposits	293,498	236,889
Long-term receivables	16,419,096	16,380,382
Long-term prepayments	1,880,973	1,741,025
Other non-current assets	<u>252,337</u>	<u>251,623</u>
Total Non-current Assets	<u>592,247,392</u>	<u>593,233,224</u>
Total Assets	<u>\$737,278,927</u>	<u>\$801,948,280</u>

BALANCE SHEETS

DECEMBER 31, 2020 AND 2019

(In Thousands of New Taiwan Dollars)

Liabilities and Equity	<u>2020</u>	<u>2019</u>
Current Liabilities		
Short-term borrowings	\$ 2,840,114	\$ 27,724,810
Short-term notes and bills payable	104,839,038	89,098,985
Financial liabilities at fair value through profit or loss-current	698	1,141
Contract liabilities	10,347,783	9,821,178
Accounts payable	35,409,518	43,383,667
Payable to constructors	4,512,673	4,269,663
Other payables	21,150,048	49,148,711
Lease liabilities-current	69,549	146,711
Long-term borrowings, current portion	18,600,000	22,800,000
Other current liabilities	<u>9,890,514</u>	<u>10,730,493</u>
Total Current Liabilities	<u>207,659,935</u>	<u>257,125,359</u>
Non-current Liabilities		
Bonds payable	75,150,000	76,050,000
Non-current provisions	28,481,086	28,642,535
Deferred tax liabilities	84,749,536	85,033,789
Lease liabilities-non-current	36,548,464	38,198,400
Post-employment benefits payable	3,593,816	3,833,769
Guarantee deposits received	1,475,969	1,439,302
Other non-current liabilities	<u>5,520,992</u>	<u>5,576,980</u>
Total Non-current Liabilities	<u>235,519,863</u>	<u>238,774,775</u>
Total Liabilities	<u>443,179,798</u>	<u>495,900,134</u>
Equity		
Share capital		
Common shares	130,100,000	130,100,000
Retained earnings		
Special earning reserve	127,291,214	127,421,220
Legal reserve	3,390,331	3,390,331
Retained earnings	<u>33,555,793</u>	<u>41,304,673</u>
Total retained earnings	<u>164,237,338</u>	<u>172,116,224</u>
Other equity	<u>(238,209)</u>	<u>3,831,922</u>
Total Equity	<u>294,099,129</u>	<u>306,048,146</u>
Total Liabilities and Equity	<u>\$737,278,927</u>	<u>\$801,948,280</u>

CPC CORPORATION, TAIWAN
STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2020 AND 2019

(In Thousands of New Taiwan Dollars)

	<u>2020</u>	<u>2019</u>
Cash flows from operating activities:		
Net income before tax	\$(7,703,206)	\$33,337,332
Adjustments:		
Non-cash adjustment items:		
Depreciation expense	18,948,062	19,565,145
Amortization expense	2,570,117	2,669,454
Expected credit loss	53,242	459,687
Net loss (gain) on financial assets or liabilities at fair value through profit or loss	17,023	(105,347)
Interest expense	2,591,528	3,134,646
Interest revenue	(592,828)	(832,436)
Dividend income	(232,008)	(438,347)
Share of profit of associates accounted for using equity method	(1,345)	(198,135)
Loss (gain) on disposal of property, plant and equipment	(54,015)	(303,548)
Loss on disposal of Investment Property	-	298,728
Provision for (Reversal of) write-down of inventories	(100,139)	(5,802,361)
Impairment loss recognized on non-financial assets	11,999,170	7,401,799
Loss (gain) on foreign exchange	(1,725,927)	(304,501)
Loss on oil and gas investment	74,757	197,182
Others	<u>(815,626)</u>	<u>(893,893)</u>
Total non-cash adjustment items	<u>32,732,011</u>	<u>24,848,073</u>
Changes in operating assets and liabilities:		
Accounts receivable	5,363,150	5,391,092
Other accounts receivable	(71,435)	2,445,943
Inventories	31,923,444	21,582,323
Prepaid expenses	6,520,735	(336,355)
Other current assets	(608,330)	(201,051)
Contract Liabilities	526,605	14,877
Accounts payable	(7,915,031)	(7,597,194)
Provision - non-current	(341,177)	3,190,938
Other current liabilities	(2,700,326)	3,573,088
Post-employment benefits payable	<u>(911,362)</u>	<u>(278,718)</u>
Total adjustments	<u>64,518,284</u>	<u>52,633,016</u>
Cash inflow generated from operations	56,815,078	85,970,348
Interest received	182,575	280,504
Interest paid	(2,660,098)	(2,988,365)
Income taxes paid	<u>(6,605)</u>	<u>(10,762)</u>
Net cash flows provided by operating activities	<u>54,330,950</u>	<u>83,251,725</u>

	<u>2020</u>	<u>2019</u>
Cash flows from investing activities:		
Acquisition of financial assets at fair value through other comprehensive income	-	(198,523)
Acquisition of investments accounted for using equity method	(39,647)	-
Acquisition of property, plant and equipment	(28,455,578)	(15,822,260)
Proceeds from disposal of property, plant and equipment	355,124	414,398
Acquisition of intangible assets	(228,235)	(174,194)
Increase in oil and gas interests	(3,675,816)	(5,239,766)
Increase in refundable deposits	(199,720)	(125,306)
Decrease in refundable deposits	143,111	127,125
Increase in long-term receivables	(643,830)	(3,033,768)
Increase in other non-current assets	(604,766)	(84,696)
Dividends received from associates and others	<u>991,395</u>	<u>737,681</u>
Net cash flows used in investing activities	<u>(32,357,962)</u>	<u>(23,399,309)</u>
Cash flows from financing activities:		
Distribution of retained earnings	(24,678,319)	(1,314,441)
Increase in short-term borrowings	34,448,047	88,719,817
Decrease in short-term borrowings	(59,447,739)	(91,443,076)
Increase in short-term bills payable	261,733,205	208,721,895
Decrease in short-term bills payable	(245,993,152)	(207,473,740)
Payments to bonds payable	(20,900,000)	(28,800,000)
Payments to long-term borrowings	(1,900,000)	(10,140,000)
Increase in other borrowings	17,700,000	10,800,000
Proceeds from guarantee deposits received	2,645,296	2,183,216
Refund of guarantee deposits received	(2,455,641)	(2,080,852)
Payment of lease liabilities	(4,211,783)	(4,114,407)
Decrease in other non-current liabilities	<u>(82)</u>	<u>(49,728)</u>
Net cash flows used in financing activities	<u>(43,060,168)</u>	<u>(34,991,316)</u>
Net increase (decrease) in cash and cash equivalents	(21,087,180)	24,861,100
Cash and cash equivalents at beginning of period	<u>23,757,772</u>	<u>(1,103,328)</u>
Cash and cash equivalents at end of period	<u>\$2,670,592</u>	<u>\$23,757,772</u>
Components of cash and cash equivalents		
Cash and cash equivalents reported in the statement of Financial position	3,005,625	23,977,809
Bank overdrafts	<u>(335,033)</u>	<u>(220,037)</u>
Cash and cash equivalents at end of period	<u>\$2,670,592</u>	<u>\$23,757,772</u>

CPC CORPORATION, TAIWAN

NOTES TO FINANCIAL STATEMENTS

FOR THE YEARS ENDED DECEMBER 31, 2020 AND 2019

(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

(1) Company history

CPC Corporation, Taiwan (the "Company" or CPC) was established on June 1, 1946 and engages mainly in oil and gas exploration, refining, procurement, transport, storage and marketing.

(2) Approval date and procedures of the financial statements:

The financial statements were authorized for issuance by the Board of Directors on April 14, 2021.

(3) New standards, amendments and interpretations adopted:

(a) The impact of the International Financial Reporting Standards ("IFRSs") endorsed by the Financial Supervisory Commission, R.O.C. ("FSC") which have already been adopted.

The Company has initially adopted the following new amendments, which do not have a significant impact on its financial statements, from January 1, 2020:

- Amendments to IFRS 3 "Definition of a Business"
- Amendments to IFRS 9, IAS39 and IFRS7 "Interest Rate Benchmark Reform"
- Amendments to IAS 1 and IAS 8 "Definition of Material"
- Amendments to IFRS 16 "COVID-19-Related Rent Concessions"

(b) The impact of IFRS issued by the FSC but not yet effective

The Company assesses that the adoption of the following new amendments, effective for annual period beginning on January 1, 2021, would not have a significant impact on its financial statements:

- Amendments to IFRS 4 "Extension of the Temporary Exemption from Applying IFRS 9"
- Amendments to IFRS 9, IAS39, IFRS7, IFRS 4 and IFRS 16 "Interest Rate Benchmark Reform—Phase 2"

(c) The impact of IFRS issued by IASB but not yet endorsed by the FSC

The following new and amended standards, which may be relevant to the Company, have been issued by the International Accounting Standards Board (IASB), but have yet to be endorsed by the FSC:

Standards or Interpretations	Content of amendment	Effective date per IASB
Amendments to IAS 1 "Classification of Liabilities as Current or Non-current"	The amendments aim to promote consistency in applying the requirements by helping companies determine whether, in the statement of balance sheet, debt and other liabilities with an uncertain settlement date should be classified as current (due or potentially due to be settled within one year) or non-current. The amendments include clarifying the classification requirements for debt a company might settle by converting it into equity.	January 1, 2023
Amendments to IAS 16 "Property, Plant and Equipment—Proceeds before Intended Use"	The amendments prohibit a company from deducting from the cost of property, plant and equipment amounts received from selling items produced while the company is preparing the asset for its intended use. Instead, a company will recognize such sales proceeds and related cost in profit or loss.	January 1, 2022

Standards or Interpretations	Content of amendment	Effective date per IASB
Amendments to IAS 37 “Onerous Contracts—Cost of Fulfilling a Contract”	<p>The amendments clarify that the “costs of fulfilling a contract” comprises the costs that relate directly to the contract as follows:</p> <ul style="list-style-type: none"> • the incremental costs – e.g. direct labor and materials; and • an allocation of other direct costs – e.g. an allocation of the depreciation charge for an item of property, plant and equipment used in fulfilling the contract. 	January 1, 2022
Annual Improvements to IFRS Standards 2018-2020	<ul style="list-style-type: none"> • The amendments require a subsidiary that elects to apply paragraph D16 (a) of IFRS 1 First-time Adoption of International Financial Reporting Standards to measure the cumulative translation differences using the amounts reported by the parent, based on the parent’s date of transition to IFRSs. 	January 1, 2022
Annual Improvements to IFRS Standards 2018-2020	<ul style="list-style-type: none"> • In determining whether to derecognize a financial liability that has been modified or exchanged, an entity assesses whether the terms are substantially different in accordance with IFRS 9 Financial Instruments. The amendments clarify the fees that an entity includes when assessing whether the terms of a new or modified financial liability are substantially different from the terms of the original financial liability. • The amendments remove the illustration of payments from the lessor relating to leasehold improvements of Illustrative Example 13 accompanying IFRS 16 Leases to avoid any potential for confusion regarding the treatment of lease incentives applying IFRS 16. • The amendments remove the requirement for entities to exclude cash flows for taxation when measuring fair value applying IAS 41 Agriculture. 	January 1, 2022
Amendments to IFRS 3 “Reference to the Conceptual Framework”	<p>The amendments update references to the Conceptual Framework and add exceptions to the recognition for provisions, contingent liabilities:</p> <ul style="list-style-type: none"> • the acquirer shall apply IAS 37 to determine whether at the acquisition date a present obligation exists as a result of past events. • the acquirer shall apply IFRIC 21 to determine whether the obligating event that gives rise to a liability to pay the levy has occurred by the acquisition date. 	January 1, 2022
Amendments to IAS 1 “Disclosure of Accounting Policies”	<p>The key amendments to IAS 1 include:</p> <ul style="list-style-type: none"> • requiring companies to disclose their material accounting policies rather than their significant accounting policies; • clarifying that accounting policies related to immaterial transactions, other events or conditions are themselves immaterial and as such need not be disclosed; and • clarifying that not all accounting policies that relate to material transactions, other events or conditions are themselves material to a company’s financial statements. 	January 1, 2023
Amendments to IAS 8 “Definition of Accounting Estimates”	<p>The amendments introduce a new definition for accounting estimates: clarifying that they are monetary amounts in the financial statements that are subject to measurement uncertainty.</p> <p>The amendments also clarify the relationship between accounting policies and accounting estimates by specifying that a company develops an accounting estimate to achieve the objective set out by an accounting policy.</p>	January 1, 2023

The Company is evaluating the impact of its initial adoption of the abovementioned standards or interpretations on its financial position and financial performance. The results thereof will be disclosed when the Company completes its evaluation.

The Company does not expect the following other new and amended standards, which have yet to be endorsed by the FSC, to have a significant impact on its financial statements:

- Amendments to IFRS 10 and IAS 28 “Sale or Contribution of Assets Between an Investor and Its Associate or Joint Venture”
- IFRS 17 “Insurance Contracts” and amendments to IFRS 17 “Insurance Contracts”

(4) Summary of significant accounting policies:

The Company is operated and managed by the Government of the Republic of China (ROC). The Company's accounts are maintained in accordance with the accounting laws and regulations governing state-owned enterprises. The Company's significant accounting policies conform to the accounting laws and regulations governing state-owned enterprises, the Regulations Governing the Preparation of Financial Reports by Securities Issuers (the “Regulations”) and with the International Financial Reporting Standards (“IFRSs”), International Accounting Standards (“IASs”), as well as related guidance endorsed by the Financial Supervisory Commission of the Republic of China.

The Company's annual financial statements are required to be examined by the Executive Yuan and the Ministry of Audit of the Control Yuan. The examinations are primarily aimed at determining the extent to which the Company meets its budget as approved by the Legislative Yuan. The Company's financial statements are finalized on the basis of the results of these examinations. The Ministry of Audit's adjustments should be reflected in the financial statements audited by independent certified public accountants. The opening balance of the following year of the Company's books of accounts is based on the balance after the adjustments made by the Ministry of Audit. The examination of the Company's financial statements as of and for the year ended December 31, 2019 had already been completed, as explained in Note 12(b). The examinations of the Company's financial statements as of and for the year ended December 31, 2020 by these government agencies were not yet completed as of the auditor's report date.

(a) Statement of compliance

The financial statements have been prepared in accordance with the accounting laws and regulations governing state-owned enterprises, the Regulations and the IFRSs as endorsed and issued into effect by the FSC.

(b) Basis of preparation

(i) Basis of measurement

Except for the following significant accounts, the financial statements have been prepared on a historical cost basis:

Financial instruments measured at fair value through profit or loss are measured at fair value; Fair value through other comprehensive income are measured at fair value;

Hedging derivative financial instruments are measured at fair value;

The defined benefit liability (asset) is recognized as the fair value of the plan assets less the present value of the defined benefit obligation.

(ii) Functional and presentation currency

The functional currency is determined based on the primary economic environment in which the entity operates. The financial statements are presented in New Taiwan dollars, which is the Company's functional currency. All financial information presented in New Taiwan dollars has been rounded to the nearest thousand.

(c) Foreign currencies

(i) Foreign currency transactions

Transactions in foreign currencies are translated into the respective functional currencies of Group entities at the exchange rates at the dates of the transactions. At the end of each subsequent reporting period, monetary items denominated in foreign currencies are translated into the functional currencies using the exchange rate at that date. Non-monetary items denominated in foreign currencies that are measured at fair value are translated into the functional currencies using the exchange rate at the date that the fair value was determined. Nonmonetary items denominated in foreign currencies that are measured based on historical cost are translated using the exchange rate at the date of the transaction.

Exchange differences are generally recognized in profit or loss, except for those differences relating to the following, which are recognized in other comprehensive income:

- an investment in equity securities designated as at fair value through other comprehensive income;
- a financial liability designated as a hedge of the net investment in a foreign operation to the extent that the hedge is effective; or
- qualifying cash flow hedges to the extent that the hedges are effective.

(ii) Foreign operations

The assets and liabilities of foreign operations are translated to the reporting currency at exchange rates at the reporting date. The income and expenses of foreign operations are translated at the average exchange rate. Translation differences are recognized in other comprehensive income.

(d) Classification of current and non-current assets and liabilities

An asset is classified as current under one of the following criteria, and all other assets are classified as noncurrent.

- (i) It is expected to be realized, or intended to be sold or consumed, in the normal operating cycle;
- (ii) It is held primarily for the purpose of trading;
- (iii) It is expected to be realized within twelve months after the reporting period; or
- (iv) The asset is cash or a cash equivalent unless the asset is restricted from being exchanged or used to settle a liability for at least twelve months after the reporting period.

A liability is classified as current under one of the following criteria, and all other liabilities are classified as noncurrent.

An entity shall classify a liability as current when:

- (i) It is expected to be settled in the normal operating cycle;
- (ii) It is held primarily for the purpose of trading;
- (iii) It is due to be settled within twelve months after the reporting period; or
- (iv) It does not have an unconditional right to defer settlement of the liability for at least twelve months after the reporting period. Terms of a liability that could, at the option of the counterparty, result in its settlement by issuing equity instruments do not affect its classification.

(e) Cash and cash equivalents

Cash and cash equivalents comprise cash, cash in bank, and short term, highly liquid investments that are readily convertible to known amounts of cash and are subject to an insignificant risk of changes in value. Time deposits which meet the above definition and are held for the purpose of meeting short term cash commitments rather than for investment or other purposes should be recognized as cash equivalents.

Bank overdrafts that are repayable on demand and form an integral part of the Company's cash management are included as a component of cash and cash equivalents for the purpose of the statement of cash flows.

(f) Financial instruments

Trade receivables and debt securities issued are initially recognized when they are originated. All other financial assets and financial liabilities are initially recognized when the Company becomes a party to the contractual provisions of the instrument. A financial asset (unless it is a trade receivable without a significant financing component) or financial liability is initially measured at fair value plus, for an item not at fair value through profit or loss (FVTPL), transaction costs that are directly attributable to its acquisition or issue. A trade receivable without a significant financing component is initially measured at the transaction price.

(i) Financial assets

All regular way purchases or sales of financial assets are recognized and derecognized on a trade date basis.

On initial recognition, a financial asset is classified as measured at: amortized cost; fair value through other comprehensive income (FVOCI) and fair value through profit or loss (FVTPL). Financial assets are not reclassified subsequent to their initial recognition unless the Group changes its business model for managing financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

1) Financial assets at amortized cost

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is to hold assets to collect contractual cash flows; and

- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

These assets are subsequently measured at amortized cost, which is the amount at which the financial asset is measured at initial recognition, plus/minus, the cumulative amortization using the effective interest method, adjusted for any loss allowance. Interest income, foreign exchange gains and losses, as well as impairment, are recognized in profit or loss. Any gain or loss on derecognition is recognized in profit or loss.

2) Fair value through other comprehensive income (FVOCI)

A debt investment is measured at FVOCI if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

On initial recognition of an equity investment that is not held for trading, the Company may irrevocably elect to present subsequent changes in the investment's fair value in other comprehensive income. This election is made on an instrument-by-instrument basis.

Debt investments at FVOCI are subsequently measured at fair value. Interest income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognized in profit or loss. Other net gains and losses are recognized in other comprehensive income. On derecognition, gains and losses accumulated in other comprehensive income are reclassified to profit or loss.

Equity investments at FVOCI are subsequently measured at fair value. Dividends are recognized as income in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in other comprehensive income and are never reclassified to profit or loss.

Dividend income is recognized in profit or loss on the date on which the Group's right to receive payment is established.

3) Fair value through profit or loss (FVTPL)

All financial assets not classified as amortized cost or FVOCI described as above are measured at FVTPL, including derivative financial assets and accounts receivable, which is presented as accounts receivable. On initial recognition, the Company may irrevocably designate a financial asset, which meets the requirements to be measured at amortized cost or at FVOCI, as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.

These assets are subsequently measured at fair value. Net gains and losses, including any interest or dividend income, are recognized in profit or loss.

4) Business model assessment

The Company makes an assessment of the objective of the business model in which a financial asset is held at portfolio level because this best reflects the way the business is managed and information is provided to management. The information considered includes:

- the stated policies and objectives for the portfolio and the operation of those policies in practice. These include whether management's strategy focuses on earning contractual interest income, maintaining a particular interest rate profile, matching the duration of the financial assets to the duration of any related liabilities or expected cash outflows or realizing cash flows through the sale of the assets;
- how the performance of the portfolio is evaluated and reported to the Company's management;
- the risks that affect the performance of the business model (and the financial assets held within that business model) and how those risks are managed;
- how managers of the business are compensated — e.g. whether compensation is based on the fair value of the assets managed or the contractual cash flows collected; and
- the frequency, volume and timing of sales of financial assets in prior periods, the reasons for such sales and expectations about future sales activity.

Transfers of financial assets to third parties in transactions that do not qualify for derecognition are not considered sales for this purpose, and are consistent with the Company's continuing recognition of the assets.

Financial assets that are held for trading or are managed and whose performance is evaluated on a fair value basis are measured at FVTPL.

5) Assessment whether contractual cash flows are solely payments of principal and interest

For the purposes of this assessment, “principal” is defined as the fair value of the financial assets on initial recognition. “Interest” is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and costs, as well as a profit margin.

In assessing whether the contractual cash flows are solely payments of principal and interest, the Company considers the contractual terms of the instrument. This includes assessing whether the financial asset contains a contractual term that could change the timing or amount of contractual cash flows such that it would not meet this condition. In making this assessment, the Company considers:

- contingent events that would change the amount or timing of cash flow;
- terms that may adjust the contractual coupon rate, including variable rate features;
- prepayment and extension features; and
- terms that limit the Company’s claim to cash flows from specified assets (e.g. non-recourse features).

6) Impairment of financial assets

The Company recognizes loss allowances for expected credit losses on financial assets measured at amortized cost (including cash and cash equivalents, amortized costs, accounts receivable, other receivable, guarantee deposit paid and other financial assets), debt investments measured at FVOCI, accounts receivable measured at FVOCI and contract assets.

The Company measures loss allowances at an amount equal to lifetime expected credit loss (ECL), except for the following which are measured as 12-month ECL:

- debt securities that are determined to have low credit risk at the reporting date; and
- other debt securities and bank balances for which credit risk (i.e. the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition.

Loss allowance for trade receivables and contract assets are always measured at an amount equal to lifetime ECL.

Lifetime ECLs are the ECLs that result from all possible default events over the expected life of a financial instrument.

12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 months after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months).

The maximum period considered when estimating ECLs is the maximum contractual period over which the Group is exposed to credit risk.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECL, the Company considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis based on the Company’s historical experience and informed credit assessment as well as forward-looking information.

The Company considers a debt security to have low credit risk when its credit risk rating is equivalent to the globally understood definition of ‘investment grade which is considered to be BBB- or higher per Standard & Poor’s, Baa3 or higher per Moody’s or twA or higher per Taiwan Ratings’.

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e. the difference between the cash flows due to the Company in accordance with the contract and the cash flows that the Company expects to receive). ECLs are discounted at the effective interest rate of the financial asset.

At each reporting date, the Company assesses whether financial assets carried at amortized cost and debt securities at FVOCI are credit-impaired. A financial asset is ‘credit-impaired’ when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred. Evidence that a financial asset is credit-impaired includes the following observable data:

- significant financial difficulty of the borrower or issuer;
- a breach of contract such as a default or being more than 90 days past due;
- the lender of the borrower, for economic or contractual reasons relating to the borrower’s financial difficulty, having granted to the borrower a concession that the lender would not otherwise consider;
- it is probable that the borrower will enter bankruptcy or other financial reorganization; or
- the disappearance of an active market for a security because of financial difficulties.

Loss allowances for financial assets measured at amortized cost are deducted from the gross carrying amount of the assets. For debt securities at FVOCI, the loss allowance is charged to profit or loss and is recognized in other comprehensive income instead of reducing the carrying amount of the asset. The Company recognizes the amount of expected credit losses (or reversal) in profit or loss, as an impairment gain or loss.

The gross carrying amount of a financial asset is written off when the Company has no reasonable expectations of recovering a financial asset in its entirety or a portion thereof. For corporate customers, the Company individually makes an assessment with respect to the timing and amount of write-off based on whether there is a reasonable expectation of recovery. The Company expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Group's procedures for recovery of amounts due.

7) Derecognition of financial assets

The Company derecognizes a financial asset when the contractual rights to the cash flows from the financial asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred or in which the Company neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

The Company enters into transactions whereby it transfers assets recognized in its statement of balance sheet, but retains either all or substantially all of the risks and rewards of the transferred assets. In these cases, the transferred assets are not derecognized.

(ii) Financial liabilities

(1) Financial liabilities

Financial liabilities are classified as measured at amortized cost or FVTPL. A financial liability is classified as at FVTPL if it is classified as held-for-trading, it is a derivative or it is designated as such on initial recognition. Financial liabilities at FVTPL are measured at fair value and net gains and losses, including any interest expense, are recognized in profit or loss.

Other financial liabilities are subsequently measured at amortized cost using the effective interest method. Interest expense and foreign exchange gains and losses are recognized in profit or loss. Any gain or loss on derecognition is also recognized in profit or loss.

(2) Derecognition of financial liabilities

The Company derecognizes a financial liability when its contractual obligations are discharged or cancelled, or expire. The Company also derecognizes a financial liability when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognized at fair value.

On derecognition of a financial liability, the difference between the carrying amount of a financial liability extinguished and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

(iii) Derivative financial instruments

The Company enters into a variety of derivative financial instruments to manage its exposure to price changes and foreign exchange rate risks, including foreign exchange forward contracts and petroleum swap contracts.

Derivatives are initially measured at fair value. Subsequent to initial recognition, derivatives are measured at fair value, and changes therein are generally recognized in profit or loss.

(g) Inventories

Inventories include raw materials, finished goods, work in process, semi-finished goods, merchandise, construction in progress, merchandise in transit - crude oil, and merchandise in transit - fuel oil. Inventories are stated at the lower of cost or net realizable value. Inventory write-downs are made by item, except where it may be appropriate to Company similar or related items. Net realizable value is the estimated selling price of inventories less all estimated costs of completion and costs necessary to make the sale.

Inventories are recorded at weighted-average cost on the balance sheet date.

(h) Investment in associates

An associate is an entity over which the Company has significant influence and that is neither a subsidiary nor an interest in a joint venture.

The Company uses the equity method to account for its investments in associates.

Under the equity method, investments in an associate are initially recognized at cost and adjusted thereafter to recognize the Company's share of the profit or loss and other comprehensive income of the associate. The Company also recognizes the changes in the Company's share of equity of associates.

If the cost of acquisition exceeds the Company's share of the net fair value of the identifiable assets and liabilities of an associate recognized at the date of acquisition, this excess is recognized as goodwill, which is included in the carrying amount of the investment and is not amortized. If the Company's share of the net fair value of the identifiable assets and liabilities exceeds the cost of acquisition, after reassessment, this excess is recognized immediately in profit or loss.

The entire carrying amount of the investment (including goodwill) is tested for impairment as a single asset by comparing its recoverable amount with its carrying amount. Any impairment loss recognized is deducted from the carrying amount of the investment. Any reversal of that impairment loss is recognized to the extent that the recoverable amount of the investment subsequently increases.

When the Company transacts with its associate, profits and losses resulting from the transactions with the associate are recognized in the Company's financial statements only to the extent of interests in the associate that are not related to the Company.

(i) Property, plant and equipment

(i) Recognition and measurement

Items of property, plant and equipment are measured at cost less accumulated depreciation and accumulated impairment losses. Cost includes professional fees and borrowing costs eligible for capitalization.

Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item shall be depreciated separately unless the useful life and depreciation method of that significant part are the same as those of another significant part of that same item.

The gain or loss arising from the derecognition of an item of property, plant and equipment is determined as the difference between the net disposal proceeds, if any, and the carrying amount of the item, and it shall be recognized in profit or loss.

(ii) Subsequent cost

Subsequent expenditure is capitalized only when it is probable that future economic benefits associated with the expenditure will flow to the Company. The carrying amount of those parts of fixed assets that are replaced is derecognized. Ongoing repairs and maintenance are expensed as incurred.

(iii) Depreciation

Such properties are depreciated and classified to the appropriate categories of property, plant and equipment when completed and ready for intended use.

Depreciation of the equipment in oil and gas production mine is computed using the unit-of-output method. Depreciation of the remaining property, plant and equipment is computed using the straight-line method. Each significant part is depreciated separately. The estimated useful lives, residual values and depreciation method are reviewed at the end of each reporting period, with the effect of any changes in estimates accounted for prospectively.

On derecognition of an item of property, plant and equipment, the difference between the sales proceeds and the carrying amount of the asset is recognized in profit or loss.

(j) Lease

(i) Lease

1) Identifying a lease

At inception of a contract, the Company assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, the Company assesses whether:

- a) the contract involves the use of an identified asset – this may be specified explicitly or implicitly, and should be physically distinct or represent substantially all of the capacity of a physically distinct asset. If the supplier has a substantive substitution right, then the asset is not identified; and
- b) the Company has the right to obtain substantially all of the economic benefits from use of the asset throughout the period of use; and
- c) the Company has the right to direct the use of the asset when it has the decision-making rights that are most relevant to changing how and for what purpose the asset is used. In rare cases where the decision about how and for what purpose the asset is used is predetermined, the Company has the right to direct the use of an asset if either:

- the Company has the right to operate the asset; or
- the Company designed the asset in a way that predetermines how and for what purpose it will be used.

2) Lessee

The Company recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the earlier of the end of the useful life of the right-of-use asset or the end of the lease term. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be reliably determined, the Company's incremental borrowing rate. Generally, the Company uses its incremental borrowing rate as the discount rate.

Lease payments included in the measurement of the lease liability comprise the following:

- fixed payments;
- variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- amounts expected to be payable under a residual value guarantee; and
- payments for purchase or termination options that are reasonably certain to be exercised.

The lease liability is measured at amortized cost using the effective interest method. It is remeasured when:

- there is a change in future lease payments arising from the change in an index or rate; or
- there is a change in the Company's estimate of the amount expected to be payable under a residual value guarantee; or
- there is a change of its assessment on whether it will exercise a purchase, extension or termination option; or
- there is a change of its assessment of lease period on whether it will exercise extension or termination option; or
- there is any lease modifications

When the lease liability is remeasured, other than lease modifications, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or in profit and loss if the carrying amount of the right-of-use asset has been reduced to zero.

When the lease liability is remeasured to reflect the partial or full termination of the lease for lease modifications that decrease the scope of the lease, the Company accounts for the remeasurement of the lease liability by decreasing the carrying amount of the right-of-use asset to reflect the partial or full termination of the lease, and recognize in profit or loss any gain or loss relating to the partial or full termination of the lease.

The Company presents right-of-use assets that do not meet the definition of investment and lease liabilities as a separate line item respectively in the statement of financial position.

The Company has elected not to recognize right-of-use assets and lease liabilities for short-term leases of machinery that have a lease term of 12 months or less and leases of low-value assets, including IT equipment. The Company recognizes the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

3) Lessor

When the Company acts as a lessor, it determines at lease commencement whether each lease is a finance lease or an operating lease. To classify each lease, the Company makes an overall assessment of whether the lease transfers to the lessee substantially all of the risks and rewards of ownership incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, then the lease is an operating lease. As part of this assessment, the Company considers certain indicators such as whether the lease is for the major part of the economic life of the asset.

When the Company is an intermediate lessor, it accounts for its interests in the head lease and the sub-lease separately. It assesses the lease classification of a sub-lease with reference to the right-of-use asset

arising from the head lease, not with reference to the underlying asset. If a head lease is a short-term lease to which the Company applies the exemption described above, then it classifies the sub-lease as an operating lease.

If an arrangement contains lease and non-lease components, the Company applies IFRS15 to allocate the consideration in the contract.

(k) Investment property

Investment properties are properties held to earn rentals and/or for capital appreciation (including property under construction for such purposes). Investment properties also include land held for a currently undetermined future use.

Investment properties are measured initially at cost, including transaction costs. Subsequent to initial recognition, investment properties are measured at cost less accumulated depreciation and accumulated impairment loss. Depreciation is recognized using the straight-line method.

On derecognition of an investment property, the difference between the net disposal proceeds and the carrying amount of the asset is included in profit or loss.

(l) Intangible assets

Intangible assets with finite useful lives that are acquired separately are initially measured at cost and subsequently measured at cost less accumulated amortization and accumulated impairment loss.

Amortization is recognized on a straight-line basis over the estimated useful lives of intangible assets from the date that they are available for use. The estimated useful life, residual value, and amortization method are reviewed at the end of each reporting period, with the effect of any changes in estimate accounted for on a prospective basis. The residual value of an intangible asset with a finite useful life should be assumed to be zero unless the Company expects to dispose of the intangible asset before the end of its economic life.

(m) Oil and gas interests and exploration expenses

All geological and geophysical exploration costs are charged to current income.

The costs of drilling exploratory wells ("exploration well expenses") in sites that have not yet proven to contain reserves of commercial quantities ("unproven sites") are initially charged to current income. Exploration well expenses are subsequently capitalized as part of "oil and gas interests" accounts when (i) sites are proven to contain mineral reserves of commercial quantities and (ii) the construction of the wellhead equipment or offshore production platforms and flow lines is complete. The exploration expenses incurred in the current year are reclassified from "exploration expenses" to assets. Costs already charged to income in prior years are recognized as assets and as "non-operating income."

The costs of drilling commercial wells, which are constructed after the sites are proven to contain mineral reserves of commercial quantities, are capitalized as assets. However, if the commercial wells turn out to be dry, such costs are charged to current income.

For oil site acquisitions, the Company's payments for this purchase or investments in foreign joint ventures involving interest in oil sites - including the Company's share in the costs of drilling commercial wells, production, transport and storage equipment but excluding the Company's share in the costs of drilling exploratory wells and other exploration expenses - are capitalized as oil and gas interests. The Company's share in joint ventures' net earnings (or net losses) is recognized as other operating revenues (or other operating costs). The Company recognizes earnings remitted by joint ventures as a reduction of oil and gas interests. These costs are amortized at the ratio of the actual quantity of minerals extracted from the wells for the year to the estimated mineral reserve.

The amortized costs and operating expenses paid to joint ventures are regarded as the cost of the Company's share of the oil and gas extracted. The accompanying financial statements included the related sales and cost of goods sold attributable to the Company's share of the oil and gas sold by the joint ventures.

For domestic sites and sites of product-sharing contracts, the Company amortizes the amount recognized in oil and gas interests by the ratio of actual quantity produced in the period over total estimated production quantity of the site. The Company accounts for minerals produced at amortized cost plus the site operation expenses paid, and recognizes crude oil inventory and natural gas inventory by the output value method. The Company recognizes sales and cost of goods sold on the sale of inventory.

For sites of Provision of Services Contract, the Company amortized the amount recognized in oil and gas interests in the same method of that of domestic sites and sites of product-sharing contract. The Company accounts for the amortized amount and the site operation expenses paid as other operating costs. On the other hand, the Company recognized other operating income by multiplying produced quantity to a revenue rate contracted with local oil site governments.

The Company recognizes earnings from Sanga Sanga and translation adjustments based on the financial statements of Sanga Sanga for the same reporting period as that of the Company.

Profit and loss generated from the derecognition of oil and gas interest is measured as the difference between the net disposal proceeds and the carrying amount of the asset and recognized in statement of income in the period of derecognition.

(n) Impairment of non financial assets

The carrying amounts of the Company's non financial assets, other than assets arising from inventories and deferred tax assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. If it is not possible to determine the recoverable amount (the higher of its fair value less costs of disposal and its value in use) for the individual asset, then the Company will have to determine the recoverable amount for the asset's cash generating unit (CGU).

The recoverable amount for an individual asset or a CGU is the higher of its fair value less costs to sell and its value in use. When evaluating value in use, the pretax discount rate is used to estimate the future cash flows. The discount rate should reflect the evaluation of specific risk resulting from the impact of the current market on the time value of money and on the asset or CGU.

If, and only if, the recoverable amount of an asset is less than its carrying amount, the carrying amount of the asset shall be reduced to its recoverable amount; and that reduction will be accounted as an impairment loss, which shall be recognized immediately in profit or loss.

An assessment is made at the end of each reporting period as to whether there is any indication that an impairment loss recognized in prior periods for an asset may no longer exist or may have decreased. If any such indication exists, the recoverable amount of that asset is estimated.

An impairment loss recognized in prior periods for an asset is reversed if, and only if, there has been a change in the estimates used to determine the asset's recoverable amount since the last impairment loss was recognized.

(o) Provisions

A provision, including those arising from the contractual obligation specified in a service concession arrangement to maintain or restore the infrastructure before it is handed over to the grantor, is recognized if, as a result of a past event, the Group has a present obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects the current market assessments of the time value of money and the risks specific to the liability. The unwinding of the discount is recognized as finance cost.

(p) Revenue recognition

Revenue is measured based on the consideration to which the Company expects to be entitled in exchange for transferring goods or services to a customer. The Company recognizes revenue when it satisfies a performance obligation by transferring control of a good or a service to a customer. The accounting policies for the Company's main types of revenue are explained below.

(i) Sale of goods

The Company manufactures and sells its products to consumers in the retail market. The Company recognizes revenue when a customer takes possession of the product. Payment of the transaction price is due immediately when the customer purchases the product.

(ii) Customer loyalty program

The Company operates a customer loyalty program to its customers. Customers obtain points for purchases made, which entitle them to discount on future purchases. The Company considers that the points provide a material right to customers that they would not receive without entering into a contract. Therefore, the promise to provide points to the customer is a separate performance obligation. The transaction price is allocated to the product and the points on a relative stand-alone selling price basis. Management estimates the stand-alone selling price per point on the basis of the discount granted when the points are redeemed and on the basis of the likelihood of redemption, based on past experience. The stand-alone selling price of the product sold is estimated on the basis of the retail price. The Company has recognized contract liability at the time of sale on the basis of the principle mentioned above. Revenue from the award points is recognized when the points are redeemed or when they expire.

(q) Employee benefits

(i) Short-term employee benefits

Liabilities recognized in respect of short-term employee benefits are measured at the undiscounted amount of the benefits expected to be paid in exchange for the related service.

(ii) Retirement benefits

Payments to defined contribution retirement benefit plans are recognized as an expense when employees have rendered service entitling them to the contributions.

Defined benefit costs (including service cost, net interest and rereasurement) under the defined benefit retirement benefit plans are determined using the projected unit credit method. Service cost (including current service cost) and net interest on the net defined benefit liability (asset) are recognized as employee benefits expense in the period they occur. Rereasurement, comprising actuarial gains and losses and the return on plan assets (excluding interest), is recognized in other comprehensive income in the period in which they occur. Rereasurement recognized in other comprehensive income is reflected immediately in unappropriated earnings and will not be reclassified to profit or loss.

Net defined benefit liability represents the actual deficit in the Company's defined benefit plan.

(iii) Other long-term employee benefits

Other long-term employee benefits are accounted for in the same way as the accounting required for defined benefit plan except that rereasurement is recognized in profit or loss.

(r) Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of qualifying assets are added to the cost of these assets until such time as the assets are substantially ready for their intended use or sale.

Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization.

Other than stated above, all other borrowing costs are recognized in profit or loss in the period in which they are incurred.

(s) Income taxes

Income tax expenses include both current taxes and deferred taxes. Except for expenses related to business combinations or recognized directly in equity or other comprehensive income, all current and deferred taxes are recognized in profit or loss.

Current taxes include tax payables and tax deduction receivables on taxable gains (losses) for the year calculated using the statutory tax rate on the reporting date or the actual legislative tax rate, as well as tax adjustments related to prior years.

Deferred taxes arise due to temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and their respective tax bases.

A deferred tax asset is recognized for the carry forward of unused tax losses, unused tax credits, and deductible temporary differences to the extent that it is probable that future taxable profit will be available against which the unused tax losses, unused tax credits, and deductible temporary differences can be utilized. Such unused tax losses, unused tax credits, and deductible temporary differences are also revaluated every year on the financial reporting date, and adjusted based on the probability that future taxable profit will be available against which the unused tax losses, unused tax credits, and deductible temporary differences can be utilized.

Deferred tax liabilities are recognized for taxable temporary differences associated with investments in associates, except where the Company can control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. Deductible temporary differences associated with such investments and interests are only recognized to the extent that it is probable that there will be sufficient taxable profits against which to utilize the temporary differences and they are expected to reverse in the foreseeable future.

Deferred tax liabilities and assets are measured at the tax rates that are expected to apply in the period in which the liability is settled or the asset realized, based on tax rates and laws that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax liabilities and assets reflects the tax consequences that would follow from the manner in which the Company expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

(t) Earnings per share

Basic earnings per share is calculated as the profit attributable to ordinary shareholders of the Company divided by the weighted average number of ordinary shares outstanding. Diluted earnings per share is calculated as the

profit attributable to ordinary shareholders of the Company divided by the weighted average number of ordinary shares outstanding after adjustment for the effects of all potentially dilutive ordinary shares. The Company does not have potentially dilutive ordinary shares.

(u) Operating segments

An operating segment is a component of the Company that engages in business activities from which it may earn revenues and incur expenses (including revenues and expenses relating to transactions with other components of the Company). Operating results of the operating segment are regularly reviewed by the Company's chief operating decision maker to make decisions about resources to be allocated to the segment and to assess its performance. Each operating segment consists of standalone financial information.

(5) Significant accounting assumptions and judgments, and major sources of estimation uncertainty:

The preparation of the financial statements in conformity with the accounting laws and regulations governing state-owned enterprises, the Regulations and with the IFRSs, IASs, interpretations as well as related guidance endorsed by the FSC of the Republic of China requires management to make judgments, estimates, and assumptions that affect the application of the accounting policies and the reported amount of assets, liabilities, income, and expenses. Actual results may differ from these estimates.

The management continues to monitor the accounting estimates and assumptions. The management recognizes any changes in accounting estimates during the period and the impact of those changes in accounting estimates in the following period.

Information about judgments made in applying accounting policies that have the most significant effects on the amounts recognized in the financial statements is as follows:

Judgment regarding significant influence of investees

The company holds 35%~49% of the voting shares of several investee companies, but because the remaining equity of these investee companies are concentrated in very few shareholders, the company cannot exercise more than half of the voting rights, nor can it obtain a majority of directors' seats. Therefore, the company has only significant influence on these investee companies.

Among the uncertainties of the assumptions and estimates, the relevant information that has significant risks may cause critical adjustments in the following years is as follows:

(a) Estimated impairment of trade receivables

The Company has estimated the loss allowance of trade receivable that is based on the risk of a default occurring and the rate of expected credit loss. The Company has considered historical experience, current economic conditions and forward-looking information at the reporting date to determine the assumptions to be used in calculating the impairments and the selected inputs. The relevant assumptions and input values, please refer to note 6(c).

(b) Useful lives of property, plant and equipment

The Company estimates the useful lives and depreciation method applied on the basis of actual past experiences for property, plant and equipment of similar nature and function. The Company reviews the estimated useful lives of property, plant and equipment at each balance date. When there are changes in the estimates, depreciation expenses will be affected prospectively.

A Five-year Financial Summary

(In Thousands of New Taiwan Dollars)

	<u>2020</u>	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>
Sales and other operating revenues	721,700,943	1,014,108,034	1,034,575,586	896,642,121	764,629,993
Profit (loss) before income tax	(7,703,206)	33,337,332	43,762,837	48,542,061	35,430,707
per dollar of sales and other operating revenues (NT\$)	-0.011	0.033	0.042	0.054	0.046
Cash dividends	-	24,678,319	1,314,441	-	-
per dollar of capital(NT\$)	-	0.19	0.01	-	-
Owner's equity	294,099,129	306,048,146	297,598,941	260,417,391	221,475,417

per dollar of capital (NT\$)	2.26	2.35	2.29	2.00	1.70
General taxes and import duties	36,921,621	46,614,084	58,228,141	51,348,334	44,638,861
Commodity tax	71,066,139	71,598,649	72,007,592	74,288,029	74,581,051
Total taxes	107,987,760	118,212,733	130,235,733	125,636,363	119,219,912
Working capital (current assets less current liabilities)	(62,628,400)	(48,410,303)	(52,777,478)	(56,879,637)	(87,227,141)
Ratio of current assets to current liabilities	69.84%	81.17%	79.91%	75.93%	64.93%
Long-term Liabilities	75,150,000	76,050,000	88,050,000	126,590,000	147,930,000
Properties, plant, and equipment-gross	924,745,805	909,097,079	914,752,212	913,710,040	911,364,127
Properties, plant, and equipment-net	434,621,786	421,334,223	423,460,997	430,577,501	428,542,522
Exploration expenses (including all dry holes)	1,712,403	2,031,934	2,573,975	2,195,701	2,267,889
Total assets	737,278,927	801,948,280	769,502,334	745,046,121	741,353,122
Employed capital (Equity, long-term debt)	369,249,129	382,098,146	385,648,941	387,007,391	369,405,417
Employees on December 31	16,123	15,836	15,712	14,814	14,708
Sales and other operating revenues per employee	44,762	64,038	65,846	60,527	51,987

A Five-year Operation Summary

	2020	2019	2018	2017	2016
Crude oil produced-total KL	261,688	265,278	180,062	193,474	182,265
daily average KL	717	727	493	530	499
Natural gas produced-total MCM	494,772	519,833	240,026	268,115	325,700
MCM per day	1,356	1,424	658	735	892
Liquefied petroleum gas produced-total MT	2,184	3,929	-	-	-
MT per day	6	11	-	-	-
Wells drilled during the year	3	3	2	2	2
Crude oil processed-total KL	20,543,276	23,763,205	22,213,776	21,661,811	21,635,119
daily average KL	56,283	65,105	60,860	59,347	59,274
Natural gas sold-total MCM	23,554,348	21,733,213	22,171,345	21,967,834	20,042,777
MCM per day	64,532	59,543	60,743	60,186	54,912
Refined products sold-total KL	30,453,406	34,312,260	34,661,601	35,524,415	36,112,964
daily average KL	83,434	94,006	94,963	97,327	98,940
Petrochemicals sold-MT	4,147,178	4,253,913	4,281,652	4,016,126	4,253,360
daily average MT	11,362	11,655	11,731	11,003	11,653

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