

SUSTAINABILITY REPORT

Taiwan Cogeneration
Corporation



GREEN ENERGY FOR A BETTER WORLD.
STEP FORWARD TO A NET-ZERO FUTURE.

About this Report

Disclosure Number	Disclosure Title
102-1	Name of the organization
102-48	Restatements of information (disclose in the Appendix)
102-49	Changes in reporting
102-50	Reporting period
102-51	Date of most recent report
102-52	Reporting cycle
102-53	Contact point for questions regarding the report
102-54	Claims of reporting in accordance with the GRI Standards
102-56	External assurance

Report Preparation

This report is the 7th Sustainability Report (formerly known as the "Corporate Social Responsibility Report") published by Taiwan Cogeneration Corporation (hereinafter referred to as TCC or the Company). In order to fully demonstrate the quality and transparency of the report, the content structure of this report is prepared in accordance with the core option of the GRI Standards issued by the Global Reporting Initiative (GRI). In addition, standards were formulated to disclose information in the environmental (E), social (S) and governance (G) aspects in accordance with the "Rules Governing the Preparation and Filing of Sustainability Reports by TWSE Listed Companies", and the Sustainability Accounting Standards Board (SASB) Standards.

Reporting Period and Scope

The information disclosure period of this report is between January 1, 2021 and December 31, 2021, and the scope of disclosure is mainly related to the operation of the Company's head office in Taiwan and Guan Tian Plant. Depending on the importance and completeness of the information, relevant data of subsidiaries including Star Energy Corporation (hereinafter referred to as Star Energy), TCC Green Energy Corporation (hereinafter referred to as TCC Green Energy), as well as major invested power plants including Chang Bin Gas-fired Power Plant of Star Energy Power Corporation (hereinafter referred to as Star Energy Power), Fong Der Gas-fired Power Plant of Sun Ba Power Corporation (hereinafter referred to as Sun Ba Power), Star Buck Gas-fired Power Plant of Star Buck Power Corporation (hereinafter referred to as Star Buck Power), and Kuo Kuang Gas-fired Power Plant of Kuo Kuang Power Co., Ltd. (hereinafter referred to as Kuo Kuang Power) was appropriately disclosed.

The financial data was disclosed in accordance with the financial statements of the International Financial Reporting Standards (IFRS), and the corresponding audit report was issued by Deloitte Taiwan.

Report Management

The information and data in this report are provided by our departments, subsidiaries, Guan Tian Plant of TCC, as well as the invested power plants (Chang Bin Gas-fired Power Plant of Star Energy Power, Star Buck Gas-fired Power Plant of Star Buck Power, Fong Der Gas-fired Power Plant of Sun Ba Power). Organized and compiled by the Planning & Investment Management Dept. of TCC. The report is checked by the subsection heads of each unit, reviewed and approved by the senior managers, and issued by the ESG Sustainability Committee of the Company.

Report Assurance

The Company entrusted Ernst & Young to carry out limited assurance in accordance with the Bulletin No. 1 of the Assurance Standards "Assurance Engagements Other than Audits or Reviews of Historical Financial Information" (prescribed with reference to the International Standard on Assurance Engagements 3000 (ISAE3000)) issued by the Accounting Research and Development Foundation, confirming the compliance with the core disclosure principles of GRI Standards. The independent assurance statement and the certified public accountants is detailed in the Appendix of this report.

Issuance Time and Frequency

The Company's Sustainability Report is issued on an annual basis. The electronic file of the report can be downloaded from the Company's official website.

Issue time of last Report: June 2021

Issue time of current Report: June 2022

Issue time of next Report: expected to be released in June 2023

Contact Information

If there is suggestion or advice on the contents of this report, you are welcome to contact us. The contact information is as follows:

Planning & Investment Management Dept., Taiwan Cogeneration Corporation

Address: 6F, No.392, Ruiguang Road, Neihu, Taipei 11492, Taiwan (R.O.C.)

Tel: (02)8798-2000 Ext. 605

Email: csr@cogen.com.tw








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Message From the Chairman



Building a Resilient Enterprise in the Post-Pandemic Era

In 2021, the COVID-19 pandemic continues to impact the world, changing our national governance, economic development, and social operation, and subverting humanity's original understanding of the world. The pandemic not only creates a challenge to the international medical and public health system, it also alters the economic structure of the world that prompts the reorganization of the global industrial chain and the development of digital technology, leading to the emergence of new economic blocks. Regarded as the crisis of this century, COVID-19 has made companies from various countries to re-evaluate their ability to respond and adapt to risks. They must react quickly to the ever-changing environment and strike a balance between risks and opportunities. As a private electric power company, TCC plays an important role in stabilizing the power supply of Taiwan. In the face of the pandemic, as we review and readjust our operational planning on a continuous basis, in addition to a steady promotion of our core business, we also strive to build a competitive and "resilient" enterprise with focused, rapid innovation.

Improve Corporate Governance and Practice the Concept of Sustainable Management

The corporate governance of TCC has been recognized repeatedly by several prestigious organizations. The Taiwan Stock Exchange has just announced the results of the 8th Corporate Governance Evaluation, and TCC is ranked among the top 5% of the listed companies for the fourth time, as well as top 10% of non-financial electronics companies with a market value greater than NT\$ 10 billion. The Company has also been listed in the Corporate Governance 100 Index for three consecutive years. Such outstanding achievements are confirmations to our commitment on corporate governance and sustainable management over the past few years, which represent our dedication to become a benchmark enterprise within the industry. In 2021, TCC also received "Sustainability Report Gold Award", "Top 50 Taiwan Corporate Sustainability Award" of the Taiwan Corporate Sustainability Awards

(TCSA), "Excellence in Corporate Social Responsibility – Medium-sized Enterprise Award" of the Commonwealth Magazine, and is selected as "Top 100 Fast-Growing Enterprises" as well as "Top 200 Resilient Enterprises" by the Commonwealth Magazine. In addition, TCC received the "Green Procurement Award" once again in 2021, while Guan Tian Plant received the "National Occupational Safety and Health Award", which is the highest honor in the country. TCC continues to improve corporate governance, implement green supply chain, become a model enterprise with respect to safety and health, and realize the vision of sustainable development.

Pay Attention to Talent Cultivation and Build an Agile Organization

Enterprises must be talent-oriented, which means a talent-appropriate training is essential to the sustainable operation of the organization. TCC values the growth of our employees, while providing professional and diversified learning opportunities, sharing the experience and know-how, as well as planning career blueprints that combine organizational strategies with the needs of our employees. To build a competitive yet agile organization, we are enhancing our employees' technical capability, execution capability and leadership quality. In addition to being a part of the Power School and Talent Development Alliance that is organized by the Industrial Technology Research Institute (ITRI), TCC also works with institutes such as Metal Industries Research & Development Centre (MIRDC) and vocational schools hoping to cultivate and strengthen talented individuals' technical capabilities from the electric power sector, while implementing policies that promote the localization of talents in the green energy industry.

Message From the Chairman



Promote Energy Transition Towards National Net-Zero Emissions

The trend of globalization has led to the rapid spread of COVID-19 globally through population mobility. Many countries have adopted measures such as city lockdown and border control to slow down the spread of the virus, resulted in economic depression and a sudden drop in global energy consumption. In addition, increasing severity of climate change and rising demand for green energy have accelerated energy transition at home and abroad. Climate change might be a crisis, but it also brings opportunities for renewable energy market and establishes an upcoming trend of low-carbon, decentralized, digitalized and intelligence-based development for the energy industry; in the meantime, the government of Taiwan has announced that the "Net-Zero Emissions by 2050" policy will be incorporated into the law, serving as the action plan in response to any medium- and long-term impacts in the future, planning the country's energy transition for net-zero emissions ahead of the schedule. Taiwan is facing increasing domestic demands for electricity, along with the pressure to achieve carbon reduction in the international supply chain; hence, the top priority is to implement energy transition. In recent years, TCC has been developing renewable energy that complies with government policies by investing in renewable energy businesses such as solar power, wind power, geothermal power, and green electricity retailing, while continuing our core business in cogeneration operation as well as the expansion and upgrading of private gas-fired power plants, sparing no effort in stabilizing domestic power supply. Furthermore, the Company is in constant exploration of new power operations such as energy storage and ancillary services, and by installing common substations with solar PV systems in order to solve the issue of insufficient grid capacity in the photovoltaic hot zone, we hope to enhance our core capabilities and develop innovative business models.

With the core values of "Integrity, Attentiveness, Efficiency, Professionalism, and Enthusiasm" and comprehensive corporate governance, TCC formulates its business strategies based on topics such as environmental (E), social (S), and governance (G), which are then transformed into action plans for implementation. We respond to the United

Nations Sustainable Development Goals (SDGs) by internalizing ESG into our corporate culture. Now is a crucial stage of Taiwan's energy transition, and TCC is willing to undertake the responsibility. We will actively integrate the technical capacity and resources of the Group and provide thorough services from renewable energy investment and development, project contracting, operation and maintenance to green electricity retailing. It is our duty to expand the deployment of renewable energy that drives the development of the domestic green energy industry, transforming the transition towards net-zero emissions into new opportunities. Starting from the enterprise itself, we plan to support the construction of a zero-carbon energy system, improve the system's resilience, create green energy for common good, and join hands with everyone in this nation to walk on the path towards sustainable development.

Chairman of TCC



2021 Sustainability Performance Highlights

E Environmental

Solar Photovoltaic Power

- ▶ Wushantou Reservoir **13.7MW** floating solar photovoltaic project
- ▶ Fishery and electricity symbiosis project



Wind Power

- ▶ Star Wind **10.35MW** onshore wind farm
- ▶ Miaoli Wind **49.8MW** onshore wind farm



Geothermal Power

- ▶ **4.2MW** Chingshuei Geothermal Power Plant began commercial operation



Renewable energy retailing

- ▶ Renewable energy retailing in 2021 reached over **100 GWh**



The first Renewable Energy O&M Center in Taiwan

- ▶ Estimated electricity saving rate for the Guan Tian Plant in 2021 was **1.92%**
- ▶ Cleared **31,034** tons of scrap tires
- ▶ Replacement performance of using scrap tire rubber as alternative fuel was **26.1%**



The 3 invested IPPs reduced approximately **1.19 million tons** CO₂e (Equivalent to the carbon reduction of approximately 3,065 Daan Park)



S Social

Talent Cultivation



Learning hours of employees for digital and physical courses reached

24

hours/person



Learning hours of middle and senior management for digital and physical courses reached

26

hours/person

- ▶ A three-year **English proficiency improvement program** was promoted

- ▶ **No occupational accident** in the Guan Tian Plant since its establishment

Social Participation Activities

- ▶ Eat Vegan for the Earth Day
- ▶ Vegan Day once a month
- ▶ Donation to help the victims of the Taroko Express Crash
- ▶ Supported CNYE Santa Program
- ▶ 3 days of **volunteer leave** per year



Education Investment

- ▶ Participated in the Power School and Talent Development Alliance
- ▶ Sponsored the Liu Shu-Sheng Memorial Award
- ▶ University Internship Program
- ▶ Offshore wind power "New Industrial Elite Program"



G Governance



Earnings per share (EPS) reached

NT\$

1.52



Listed as the constituent stock of the Corporate Governance

100

Index

- ▶ Ranked in the **top5%** in the 8th Corporate Governance Evaluation
- ▶ Performance evaluation results of the Board of Directors and functional committees were **good**
- ▶ The attendance rate of the Audit, Remuneration and Nominating Committee was **100%**
- ▶ Strengthened risk management
- ▶ Customer satisfaction of the Guan Tian Plant had a score of over **94** for **5 consecutive years**

Sustainable Supply Chain

- ▶ e-Procurement system
- ▶ CSR Commitment signing rate was 95%, Self-Assessment Questionnaire signing rate was 85%
- ▶ Carried out on-site audit of suppliers' corporate social responsibility
- ▶ Won the "2021 Green Procurement Award"



A Awards



Sustainability Report Gold Award



Top 50 Taiwan Corporate Sustainability Award



Resilient Enterprises of the Commonwealth Magazine



Fast-Growing Enterprises of the Commonwealth Magazine



Excellence in Corporate Social Responsibility Award of the Commonwealth Magazine Ranked 13th in the Medium-sized Enterprise category

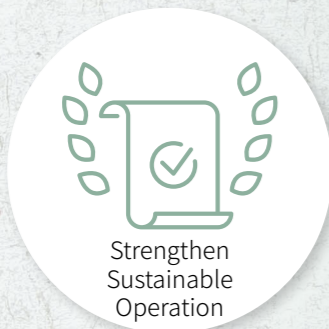
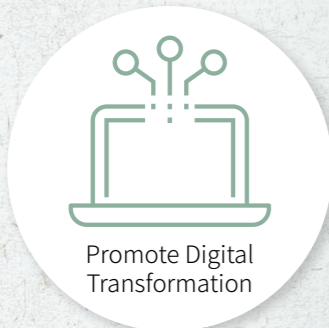
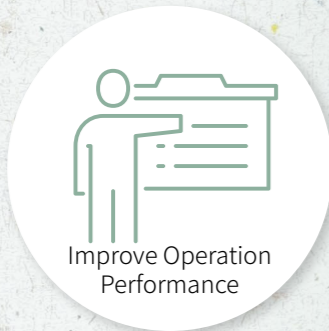


National Occupational Safety and Health Award



Business Strategy and Value Chain of TCC

Business Strategy



Resources Invested

Finance and Capital

- ▶ Capital of TCC: NT\$ 5.89 billion
- ▶ Operating costs in 2021: NT\$ 5,630,497,000

Equipment Investment

- ▶ 1 Cogeneration plant (Guan Tian Plant)
Installed capacity: 48MW
- ▶ 4 invested power plants
(TCC is the largest shareholder of Star Energy Power, Sun Ba Power, Star Buck Power and the second largest shareholder of Kuo Kuang Power)
- ▶ Total installed capacity: 2,491MW
- ▶ Total renewable energy installed capacity: ~140MW

Natural Resources

- ▶ Coal: 135,895 tons
 - ▶ Gas: 1,804,255,000 m³
 - ▶ Fuel oil: 127 kL
 - ▶ Scrap tire: 31,034 tons
-
- ▶ Guan Tian Plant's environmental protection expenditure: NT\$ 88.84 million

Human Resources

- ▶ **Total employees of TCC: 128**
- ▶ Full-time employee: 125
- ▶ Contract employee: 3
- ▶ **Total employees of Star Energy: 174**
- ▶ Full-time employee: 107
- ▶ Contract employee: 67

- ▶ No. of customers: 9 (Including Taipower)
- ▶ Community investment: NT\$ 2,323,000

External Cost and Income

TCC

Financial Performance

- ▶ Net profit after tax (Owners of the Corporation): NT\$897,884,000
- ▶ Investment income: NT\$ 631,227,000

Electricity sold : 227 GWh

Customer satisfaction score : 94.38

Renewable energy sold : 109 GWh

GHG emissions : 381,948 tons CO₂e

Air Pollution Emissions

- ▶ Nitrogen oxide (NOx) 265,993 kg
- ▶ Sulfur oxide (SOx) 250,029 kg
- ▶ Particulate matter (PM) 9,466 kg

Team Overview

New employees of TCC: 17

- ▶ Education & training hour: 3,692.09 hours
- ▶ No. of employee occupational accident: 0
- ▶ Employee injury rate: 0

New employees of Star Energy: 37

- ▶ Education & training hour: 2,462.5 hours
- ▶ No. of employee occupational accident: 0
- ▶ Employee injury rate: 0

- ▶ Participated in more than: 30 local charitable and academic events

Reinvested Power Plants

(only 3 companies with TCC as the largest shareholder are counted)

Total electricity sold : 9,693 GWh

Total GHG emissions : 3,758,525 tons CO₂e

Total air pollution emissions

- ▶ Nitrogen oxide (NOx) 1,289,981 kg
- ▶ Sulfur oxide (SOx) 31,245 kg
- ▶ Particulate matter (PM) 39,112 kg

Value Creation

Supply Stable and Efficient Energy

- ▶ High-efficiency, low-pollution power generation, providing customers with stable and reliable power and steam, becoming a regional energy integration center
- ▶ Strengthen the quality of power supply and steam supply to improve customer satisfaction
- ▶ Reduce abnormality occurrence rate and improve operation reliability

Fulfill the Idea of Corporate Sustainability

- ▶ Strengthen corporate governance and refine rules and regulations of the Company
- ▶ Improve the transparency of information disclosure and strengthen communication with stakeholders
- ▶ Develop power and renewable energy related businesses at home and abroad, and expand the scale of operations
- ▶ Committed to energy conservation and carbon reduction, reducing the impact of climate change

Improve Talent Development and Occupational Safety and Health Policies

- ▶ Strengthen human resources training and core technology inheritance to enhance the competitiveness of employees and the Company
- ▶ Improve employee career development planning and talent management system
- ▶ Improve employees' foreign language skills and promote international business development
- ▶ Improve the occupational safety and health management system, strengthen the management of occupational safety risks, and ensure the goal of zero accident for employees

Strengthen Corporate Social Responsibility

- ▶ Set up TCC Volunteer Team to fulfill the idea of social participation
- ▶ Actively give back to community activities, participate in disadvantaged care and cultural & educational activities, and fulfill corporate social responsibility
- ▶ Focus on the cultivation energy related professionals, and promote the development of the power industry through industry-government-university collaboration

Sustainability Column

Green Energy for a Better World; Step forward to a Net-Zero Future

According to the definition of the International Energy Agency (IEA), energy transition means the transformation of the global energy sector from fossil fuel-based operation to zero-carbon by the second half of this century. Seeing an international movement of carbon reduction, the percentage of electricity in global energy consumption is gradually increasing. How to ensure a stable power supply while reducing carbon emissions, building a sustainable, reliable and affordable energy system, as well as developing zero-carbon renewable energy will become the key factors to this global movement. As an electric power enterprise, TCC always pays attention to domestic and international energy trends. In addition to improving the efficiency of power plants and assisting in stabilizing power supply, we also take the initiative to expand renewable energy business and assist the government in promoting energy transition.

TCC is the first listed private electric power company in Taiwan. From the development of cogeneration system to the investment of gas-fired power plants, we have always played an important role in stabilizing the power supply in Taiwan. The Company is fully committed to the development of renewable energy businesses including solar power, wind power, and geothermal power, which makes us the first electric power business group in Taiwan that has thorough

experience in development investment, project contracting, operation and maintenance, as well as the capability to provide a full range of energy services, including green electricity retailing and energy storage.

Solar power is currently the most mature renewable energy in Taiwan with the highest percentage of installed capacity. Due to the favorable sunlight conditions in Taiwan, the output of solar power generation is in line with the trend of the system's electricity load in summer, capable of fulfilling a certain proportion of daytime electricity demand. Currently, the installed capacity of solar photovoltaic systems accounts for about 60% of the total installed capacity of renewable energy. From the installation of rooftop to large ground-mounted and floating photovoltaic systems, TCC has accumulated approximately 75MW of solar photovoltaic system developing achievement in total. In terms of EPC (engineering, procurement, and construction) contracting, the Company has completed the 150MW solar photovoltaic project of the Taiwan Power Company (hereinafter referred to as Taipower) in Tainan, the largest in Taiwan. From the first pile installed to the first kWh of electricity (46.2MW) generated, the project sets the record for the fastest completion time with 7 months and 4 days, which fully demonstrates the professionalism and the capability of TCC in the field of EPC of power related projects.



Taipower 150MW Tainan Qigu Solar PV Project

For wind power, onshore wind power is the earliest form of renewable energy that TCC was involved in. The Company had completed EPC contracts for the installation of 61 onshore wind turbines in 7 wind farms of Taipower. With experiences gained from EPC of wind power projects, TCC has developed and invested its own wind farms, including the 49.8MW wind farm of Miaoli Wind Co., Ltd. (hereinafter referred to as Miaoli Wind) in Miaoli and the 10.35MW wind farm of Star Wind Corporation (hereinafter referred to as Star Wind) in Changhua, totaling 60.15MW. Currently, offshore wind power is the important development

item promoted by the government. It is estimated that the set target of 5.7GW will be achieved by 2025. With years of experience on our resume, TCC assists the government in promoting the localization of the offshore wind power industry by carrying out Ørsted Greater Changhua Offshore Wind Farm's onshore substation EPC project, and participating in several substation and power transmission EPC projects for offshore wind power, such as Phase I and Phase II Offshore Wind Farm Demonstration projects of Taipower.



Star Wind 10.35MW onshore wind farm

As for geothermal power generation, since Taiwan is located on the Pacific Ring of Fire and possesses abundant geothermal resources, geothermal power generation can be used as a base-load power, which is a stable supply compared to other renewable energy. Yi Yuan Corporation, invested by TCC, has collaborated with the government of Yilan County to develop the 4.2MW Chingshuei Geothermal Power Plant through the BOT contract. It is currently the largest power plant-level geothermal power project in Taiwan, and it has an indicative significance for domestic geothermal power development.

TCC also plays an important role in the operation and maintenance (O&M) of renewable energy. For the O&M of wind turbines, the Company is currently

undertaking the O&M service of 116 onshore wind turbines, accounting for nearly 30% of all onshore wind turbines (352 wind turbines) in Taiwan. In addition, the Company also plans to set up an O&M team for offshore wind turbines. To fulfill the government's policy on the localization of talents, relevant personnel of the Company have already completed the basic skill and safety training of Global Wind Organization (GWO). TCC Group has also built Taiwan's first Renewable Energy O&M Center in Changhua Coastal Industrial Park. Since this area is an important site for the development of domestic onshore and offshore wind power, while the area is also the hot zone for solar power development, the O&M Center can serve as an O&M site for logistics support, as well as attraction for huge business opportunities for offshore wind power and large-scale photovoltaic system O&M in the future.



Chingshuei 4.2MW Geothermal Power Plant

In response to the revision of the newly amended Electricity Act that granted the domestic market for renewable energy retailing. In 2019, TCC Green Energy, a subsidiary of TCC, has obtained the second renewable energy retailer license in Taiwan, and it has officially started renewable energy retailing in October 2020. The company has sold more than 100 GWh within a year, by far it has become the largest renewable energy retailer company in Taiwan. The green electricity retailing service is the last and important part of the development of renewable energy. Since TCC Group is well experienced in the field of electric power and has excellent construction teams, as well as O&M teams that can grasp the power generation characteristics of different projects, we can assist clients in planning out their green electricity needs based on their electricity consumption characteristics, providing reliable and appropriate solutions to create the greatest value for clients in green electricity procurement.

In order to stabilize domestic power supply and encourage private electricity enterprises to participate in the electric power market, Taipower has set up the Energy Trading Platform (ETP) in October 2021, and incorporated the ancillary service trading into the platform, allowing the connection of private companies' resources to the grid. Simultaneously, TCC begins to plan and engage in the ancillary service market. The employees of TCC participated in Taipower's "Energy Trading Platform Professional Qualification Test", with a total of 9 employees acquiring the professional qualification certificates. The Company has obtained the qualification for

energy trading after passing the Energy Trading Platform capability test in March 2022. In addition, TCC also completes the testing of a cogeneration unit's supplementary service (21.9MW), and TCC has become the first enterprise in Taiwan which participates directly in the Energy Trading Platform utilizing cogeneration plant. TCC Green Energy is in charge of the ancillary service trading, mainly to provide ancillary services with cogeneration and energy storage systems. In the future, the participation of TCC in the power trading market will be carried out through two major resources. The first resource is the utilization of the Company's expertise in cogeneration, as we combine our self-owned cogeneration plant with the supports of other electricity enterprises to participate in ancillary service market, showing the full value of the cogeneration units' backup power. The other resource is energy storage. In the future, due to a gradual increase in the proportion of renewable energy generation, the reliance on energy storage systems to stabilize the quality of power supply will be unavoidable. Therefore, expanding the deployment of energy storage systems and implementing them into the ancillary service market are also important goals in terms of business development.

In response to the global emphasis on climate change and the trend of net-zero emissions, the government is eagerly promoting energy transition to enhance energy diversification and independence. Backed up by policies, regulations and supporting measures, the growth rate of total renewable energy installed capacity has been increasing since 2016, reaching a record high

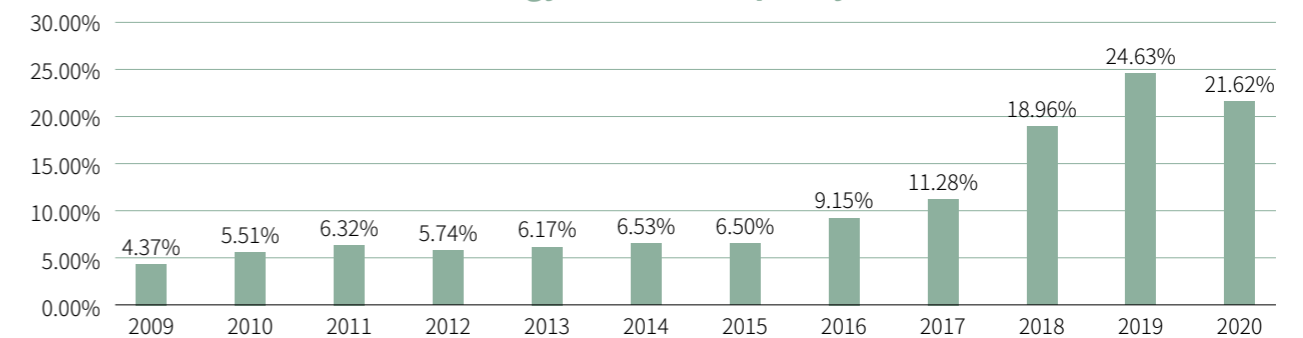


TCC Group's Self-Built Renewable Energy O&M Center

for four consecutive years. Other than a slight slowdown of growth rate in 2020 due to the COVID-19 pandemic (as shown in the figure below), it is expected that renewable energy will continue to grow and play an important role in the power supply of the entire nation in the future. Currently, energy transition in Taiwan has reached a critical stage. TCC will actively integrate the technological capabilities and resources of the Group to speed up the development of renewable energy projects. In addition to the deployment of solar photovoltaics, we will also increase the development of onshore wind power and participate in the relevant O&M work. TCC vows to become a leader in green power retailing by providing professional and comprehensive green energy power plans to assist clients in achieving RE100 or supply chain requirements. Moreover, the

Company takes the initiative to develop new power businesses such as energy storage and ancillary services, assists the government in solving the problem of insufficient grid-connection capacity in fishery and electricity symbiosis hot zone, and invests in the installation of solar photovoltaic common substations, hoping to achieve a green-energy business model for the common good, linking renewable-energy related services from investment, construction, operation and maintenance to electricity retailing, extending the scope to energy storage and ancillary services for the power market, and integrating the value chain of the green energy industry.

Growth Rate of Renewable Energy Installed Capacity



■ Growth rate of renewable energy installed capacity : %

Source: Bureau of Energy, Ministry of Economic Affairs; prepared by TCC

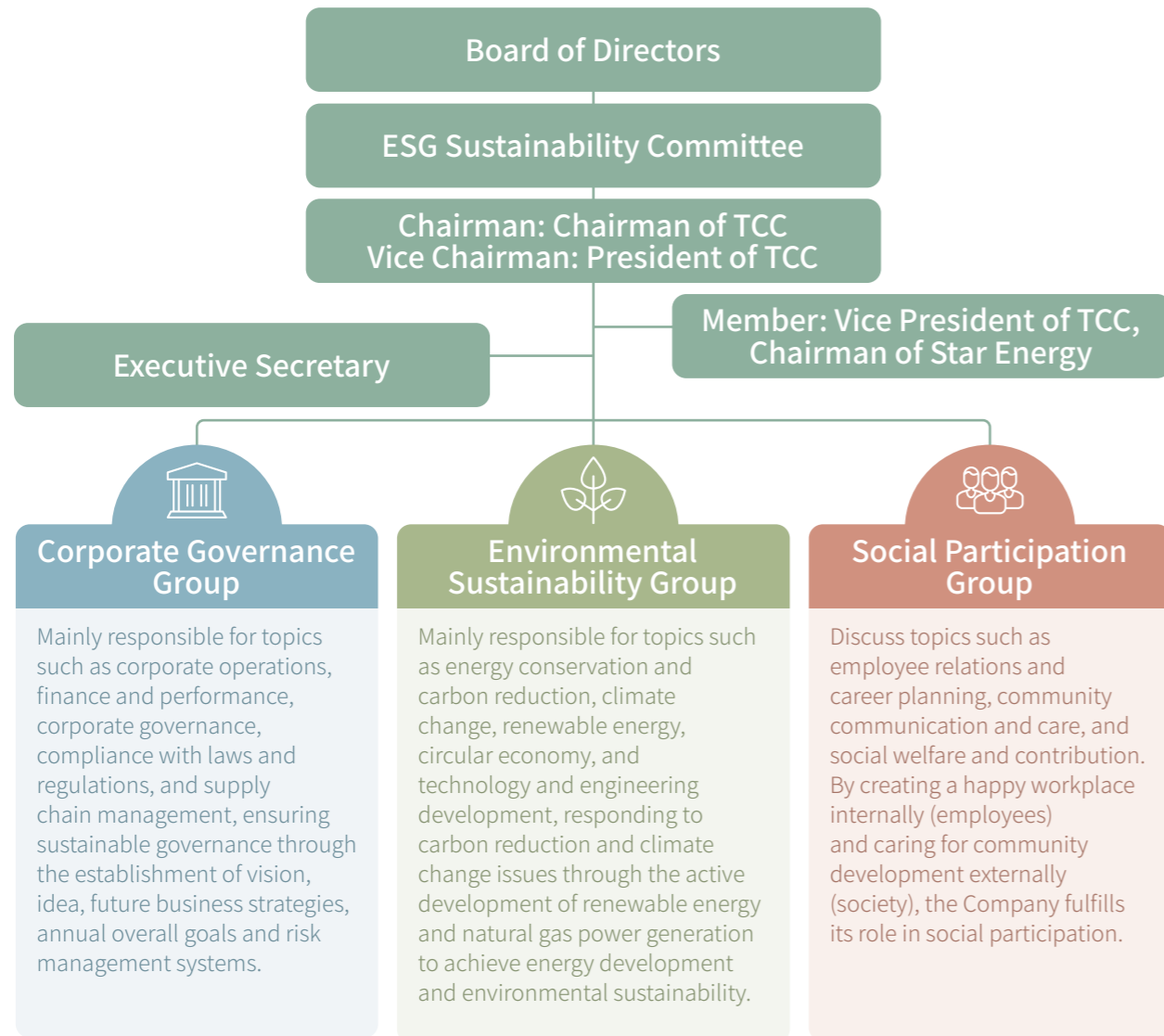
Sustainable Development

ESG Sustainability Committee

To strengthen our vision of corporate sustainable development, TCC formulates the "Sustainable Development Principles" as the highest guidelines for sustainable development, which is approved by the Board of Directors. In addition, TCC has established the "ESG Sustainability Committee" that is responsible for the formulating and drafting of relevant policies, as well as the planning, promotion, implementation, review, and improvement of annual performance. The Committee consists of Corporate Governance Group, Environmental Sustainability Group, and Social Participation Group, each of which is responsible for issues regarding their topics. Furthermore, an Executive Secretary is appointed to coordinate the overall operation of the TCC Group's promotion work in sustainable development.

The Committee is held at least once a year to discuss, review and revise the Company's sustainable development policies, supervise each group about their tasks, and report the result of implementation to the Board of Directors (the results from 2021 were reported to the Board of Directors in December). Each group holds meetings on an irregular basis, depending on the needs of the agenda and the implementation progress. Other than executing sustainability-related projects according to the resolutions of the Committee, ESG-related indicators are formulated annually and submitted to the Committee for deliberation. Once approved, they will serve as the reference for setting annual KPIs for the Company and each department.

Organizational Structure



Note: TCC established the "Corporate Social Responsibility Promotion Committee" in 2017 and renamed it to the "ESG Sustainability Committee" in 2021.

Promotion of ESG-Related Work in 2021

Date	Topic	Key Item
2021/05	Field audit for the 2020 CSR Report assurance	Carried out the assurance work for the Report and obtained the third-party assurance in the same month.
2021/06	Issue of the 2020 CSR Report	The Company's 2020 CSR Report received Sustainability Report Gold Award from the Taiwan Corporate Sustainability Awards (TCSA).
2021/08	2020 CSR Report closing meeting	Carried out the closing presentation for the 2020 CSR Report project.
2021/11	2021 CSR promotion meeting	<ol style="list-style-type: none"> 1 Reviewed the implementation of ESG-related work in 2021. 2 Discussed highlights of 2021 Sustainability Report.
2021/12	Kick-off meeting for the 2021 ESG Sustainability Committee and Sustainability Report Project (The "Corporate Social Responsibility Promotion Committee" was renamed to the "ESG Sustainability Committee" in 2021)	<ol style="list-style-type: none"> 1 Reviewed the sustainable development policy and resolved the matters for discussion proposed by the working groups. 2 Set the priorities and plans for ESG promotion in 2022. 3 Planned the schedule of the 2021 Sustainability Report. 4 The "Corporate Social Responsibility Principles" was renamed to the "Sustainable Development Principles" and some provisions were amended, then approved by the Board of Directors on 2021/12/23.

Communication with Stakeholders

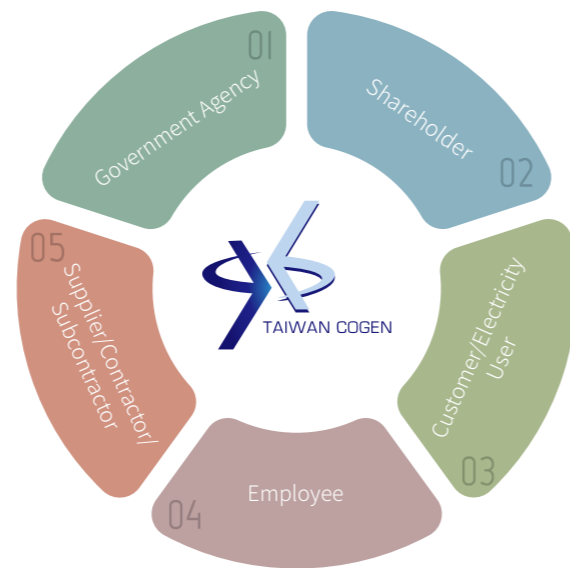
TCC attaches great importance to communication with stakeholders. To ensure that the material topics concerned by stakeholders are included in the Company's sustainable development policy, and to establish smooth communication channels as well as transparent response mechanism, TCC refers to AA1000 Stakeholder Engagement Standard (SES) 2015, and the experience of domestic/international benchmarking peer groups to identify stakeholders who are related to TCC's business activities. Finally, based on their status, five types of stakeholders were categorized, from government, shareholders, customers/electricity users, employees to suppliers/contractors/subcontractors. In addition, a questionnaire on the degree of internal/external impact is issued, material topics are evaluated and identified according to the following five aspects: the degree of dependence, impact, degree of concern, responsibility, and diverse viewpoints of stakeholders on TCC.

Identification of Stakeholders	We define "internal and external groups or individuals who have an impact on or are affected by the Company", and identify a total of 5 stakeholders related to TCC, including: government agencies, shareholders, customers/electricity users, employees, and suppliers/contractors/subcontractors.
Comprehend Sustainability Topics	To focus on the sustainability issues related to the operation of TCC, we use considerations from GRI Standards, industry-related material topics issued by the Sustainability Accounting Standards Board (SASB), and the characteristics of TCC's business and concerned issues chosen by peer groups at home and abroad. In the end, 21 sustainable topics for TCC are identified.

Analysis of Material Topics	Review and adjustment are carried out based on major global sustainability trends, material topics of benchmarking peer groups, business characteristics of TCC and important news events. Questionnaires that include external survey on the degree of concern are distributed to important stakeholders to confirm their degree of concern on sustainability issues. Furthermore, questionnaires are also distributed to internal senior management to confirm the impact of sustainability issues on the economy, environment, and society. A total of 165 valid questionnaires are collected internally and externally, and a materiality matrix is generated after analysis. The results of this analysis are reviewed by the ESG Sustainability Committee, approved by senior management; 10 key material topics are finally chosen.
Summarize Considerations and Communication	In response to the material topics, the key points of communication between TCC and stakeholders are summarized and explained in the corresponding sections of this Report.

Result of Stakeholder Identification

The topics concerned by the five major stakeholders identified above all have a certain degree of impact on TCC's sustainable development. As a corporate citizen, TCC designates exclusive communication channel for each stakeholder. By adopting substantive analysis, the most important topics for stakeholders and TCC are identified. Subsequently, necessary measures are implemented to strengthen the content of information disclosure, serving as the basis for sustainable development.



Stakeholder Communication Channel

★ Regularly (weekly/monthly/quarterly/annually) ☆ Irregularly

Stakeholder	Relevance to TCC	Communication Method and Frequency	Concerned Topics	Engagement Results	Corresponding Section
Government Agency	The energy industry is supervised by the competent authority. In response to government policies, market development and related development activities are subject to inspections by the competent authority.	<ul style="list-style-type: none"> Seminars, forums, public hearings, training courses, informal mutual visits of various policies and regulations ☆ Attend symposiums, seminars, evaluation and audit activities organized by the competent authority ☆ Official documents and letters (or email) ★ 	<ul style="list-style-type: none"> Legal compliance and integrity Management Electricity policy evaluation and response Renewable energy development Air pollution control Supply stability and reliability Technology R&D and innovation 	By actively participating in public hearings and symposiums organized by the government, TCC discusses with the competent authorities on issues related to renewable energy and the purchase rate of surplus electricity from cogeneration was carried out.	<ul style="list-style-type: none"> 1.2 Corporate Governance and Integrity Management 2.1 A New Direction of Energy Transition 2.2 Reliable Green Electricity Expert 2.3 High-Quality Customer Service 3.2 Circular Economy and Environmental Protection

Stakeholder	Relevance to TCC	Communication Method and Frequency	Concerned Topics	Engagement Results	Corresponding Section
Shareholder	Protecting shareholders' rights and interests and creating value for shareholders are important missions of TCC.	<ul style="list-style-type: none"> Investor conferences, investors communicate directly with senior managers ★ Issuance of annual financial report ★ A designated section in the Company's website for investors ★ Shareholders' meeting ★ 	<ul style="list-style-type: none"> Economic performance Corporate governance and sustainability strategy Risk management/control Renewable energy development Legal compliance and integrity management Labor relations and benefits Supply stability and reliability Technology R&D and innovation 	Explain the current business situation to shareholders through various means. In 2021, 4 investor conferences were held to disclose financial and business status, and answer shareholders' questions, improving TCC's business operations and corporate governance. There is a designated section in the Company's website for investors, which contains contact information for real-time	<ul style="list-style-type: none"> Sustainable Development Vision and Strategy for Sustainable Development 1.1 About TCC 1.2 Corporate Governance and Integrity Management 1.3 Risks Management 2.2 Reliable Green Electricity Expert 2.3 High Quality Customer Service 3.1 Climate Change and Energy Management 4.1 Employee Structure 4.4 Employee Welfare
Customer/Electricity User	Customer support is of great significance to TCC; therefore, providing professional services to customers is our core spirit.	<ul style="list-style-type: none"> Customer satisfaction survey ★ Visits and discussion through meetings ☆ Telephone and mail (or email) ☆ 	<ul style="list-style-type: none"> Economic performance Supply stability and reliability Legal compliance and integrity management Occupational safety and health Air pollution control Water management Waste management 	Meet customer needs and continuously improve customer service through online or in-person communication, customer satisfaction surveys and visits, etc. In 2021, the customer satisfaction survey of 8 customers reached a score of 94.38.	<ul style="list-style-type: none"> 1.1 About TCC 1.2 Corporate Governance and Integrity Management 2.3 High Quality Customer Service 3.2 Circular Economy and Environmental Protection 4.3 Healthy Workplace with Zero Work Injuries
Employee	Employees and high-quality/professional technical teams play important roles in TCC.	<ul style="list-style-type: none"> Education and Training ☆ Employee grievance procedure ☆ Various labor-management meetings ☆ Telephone and mail (or email) ☆ Announcements of the Company ☆ 	<ul style="list-style-type: none"> Corporate governance and sustainability strategy Labor relations and benefits Talent management and development Occupational safety and health Renewable energy development Economic performance 	There is adequate communication and feedback between TCC and its employees, and labor-management meetings are held on a quarterly basis. In 2021, there were no employee complaints (including human rights issues) reported through a formal grievance procedure.	<ul style="list-style-type: none"> Sustainable Development Vision and Strategy of Sustainable Development 1.1 About TCC 1.2 Corporate Governance and Integrity Management 2.2 Reliable Green Electricity Expert 4.1 Employee Structure 4.2 Talent Development 4.3 Healthy Workplace with Zero Work Injuries 4.4 Employee Welfare

Stakeholder	Relevance to TCC	Communication Method and Frequency	Concerned Topics	Engagement Results	Corresponding Section
Supplier/ Contractor/ Subcontractor	Suppliers have stable collaborative relationship with TCC and aim to achieve win-win for both parties.	<ul style="list-style-type: none"> Supplier audit activities ☆ Supplier discussion meeting ☆ Telephone and mail (or email) ☆ Integrity management related education and training ☆ 	<ul style="list-style-type: none"> Supply stability and reliability Corporate governance and sustainability strategy Economic performance Renewable energy development Supply chain management Technology R&D and innovation 	In 2021, the signing rate of the CSR Commitment for Suppliers reached 95%, and the signing rate of the CSR Commitment Self-Assessment Questionnaire reached 85.8%. In addition, field audits were conducted to improve suppliers' implementation and management of sustainability and ESG.	<ul style="list-style-type: none"> Sustainable Development Vision and Strategy of Sustainable Development 1.1 About TCC 1.2 Corporate Governance and Integrity Management 2.2 Reliable Green Electricity Expert 2.3 High Quality Customer Service 2.4 Sustainable Supply Chain

To fulfill the spirit and idea of corporate sustainability, TCC attaches great importance communication and management with stakeholders. In addition to communication methods with stakeholders mentioned above, the Company also has a variety of feedback and communication channels that responds to the concerns of stakeholders.

Official Website



ESG Sustainability Section



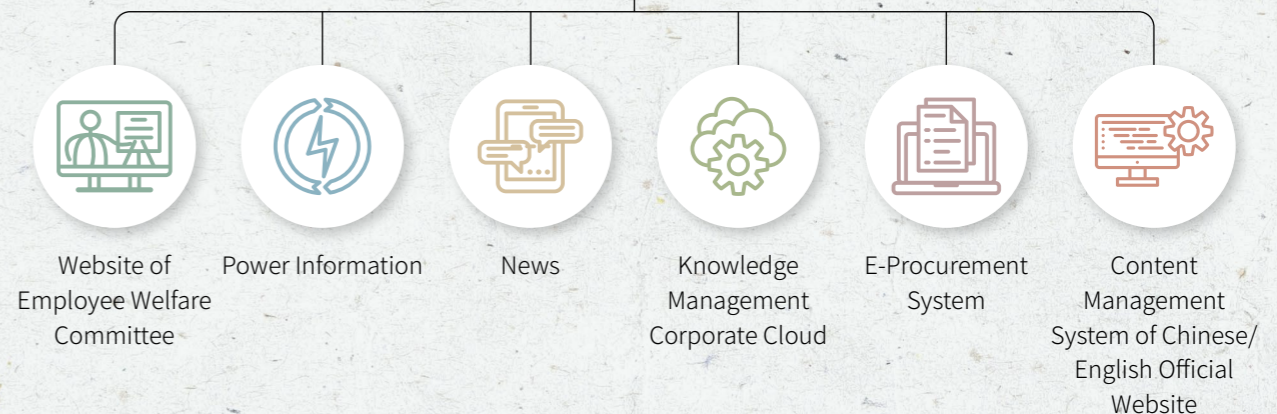
TCC Facebook Page



TCC YouTube Channel



The Company's intranet integrates the website of the Employee Welfare Committee, the knowledge management (KM) platform, the document management system, and the e-procurement, and immediately announces regulations, rules as well as the latest news.

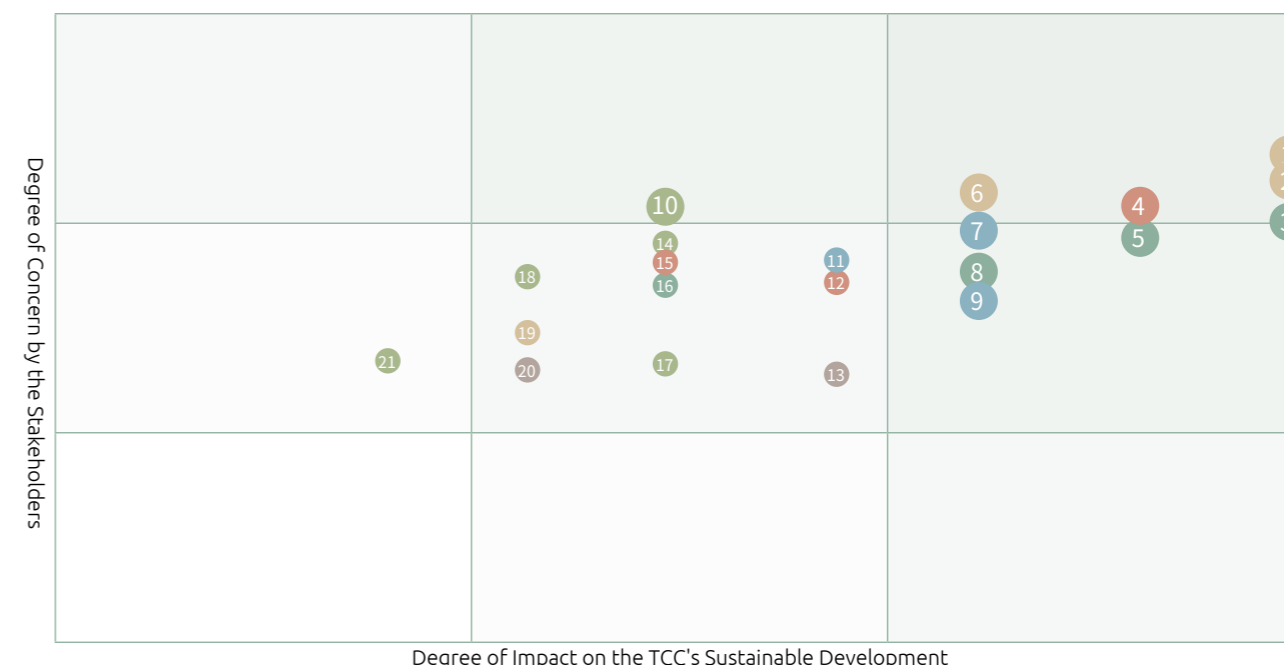


Analysis of Material Topics

Based on GRI Standards and GRI Electric Utilities Sector Disclosures, references to ESG and sustainability-related topics that are concerned by peer groups at home and abroad, as well as international sustainable development trends, a total of 21 sustainability topics related to the operations of TCC have been identified. External stakeholder questionnaires are distributed, and a total of 165 valid questionnaires are collected to find out the issues about TCC that concern our external stakeholders. In addition, the internal impact survey is conducted by four members of the senior management including the Chairman, President and Vice Presidents to rank the impact of the 21 sustainability topics in respect to the economy, environment, and society. Finally, through statistical analysis, a materiality matrix is produced. After discussion between the ESG Sustainability Committee and the senior management, a total of 10 material topics are identified, from renewable energy development, economic performance, corporate governance and sustainability strategy, supply stability and reliability, legal compliance and integrity management, electricity policy evaluation and response, occupational safety and health, risk management/control, talent management and development, to energy conservation, carbon reduction & circular economy. The scope of disclosure is confirmed through internal analysis and discussion, serving as the basis for the disclosure of information in this Report.

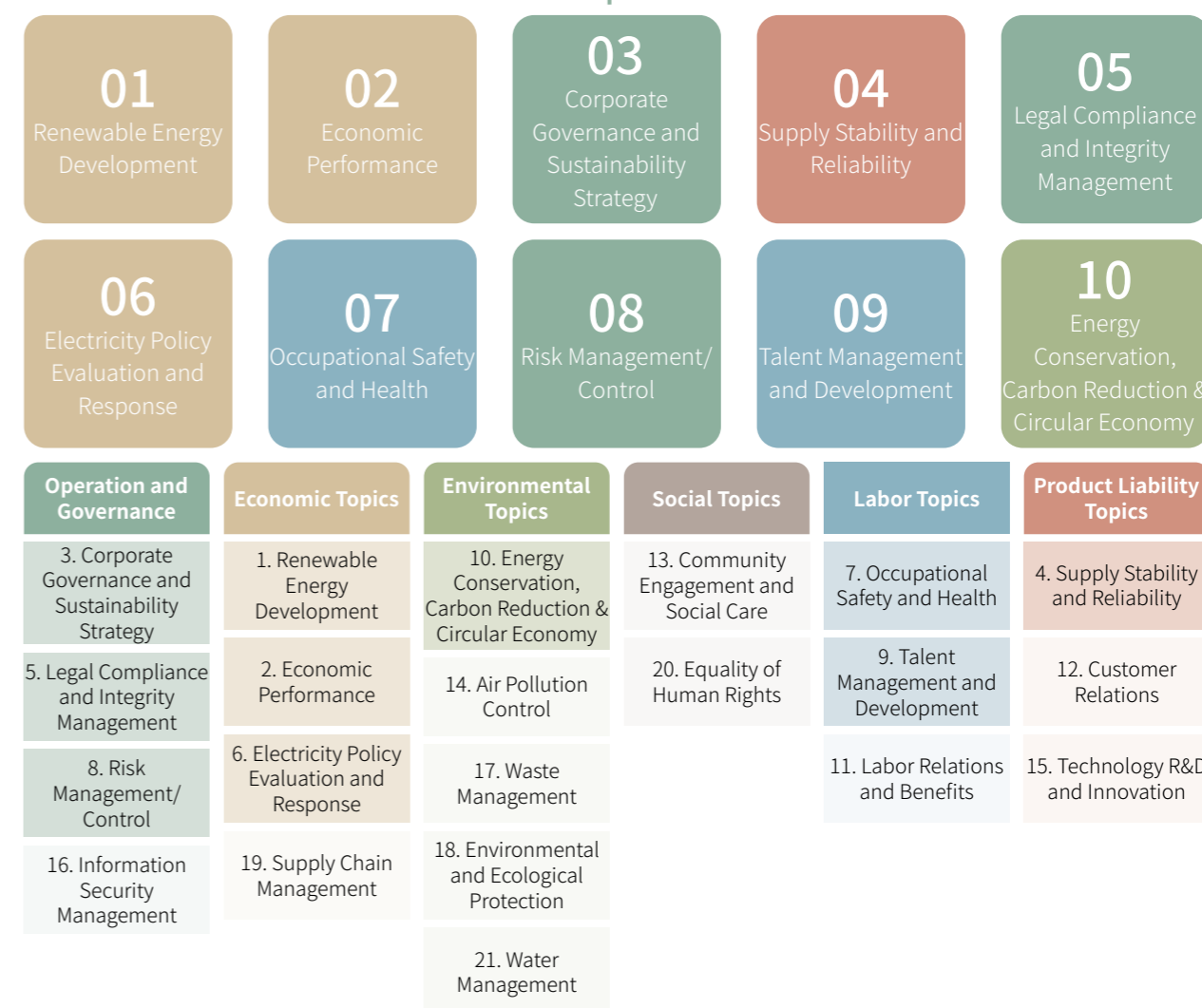
In addition to the above 10 material topics, TCC also voluntarily discloses the sustainability performance and actions of items that are not regarded as material topics, issues such as air pollution control, customer relations, and relevant information that echo the concerns of stakeholders as well as important sustainability trend. We continue to set management policies on material topics, disclose the management policies for specific issues in each section, and continue to review and track various results, seeing them as the cornerstone of our sustainable development.

Materiality Matrix



Degree of Impact on the TCC's Sustainable Development

Material Topics for 2021



Material Topics and Boundaries

Material topic boundaries describe each relevant topics and its corresponding scope of impact. TCC mainly analyzes the content and major targets related to through internal/external impact questionnaires and internal discussions.

Material Topics	Topic Corresponding to GRI Standards	Internal Impact		External Impact		Topic Explanation	Major Impact	Response of TCC	Page No.
		Invested Power Plans	TCC Group	Shareholders	Customers				
Renewable Energy Development	Custom Topic	✓		✓	✓	In response to international energy development trends and national energy policies, TCC has strengthened the investment, engineering and technical services related to the development of renewable energy.	The development of renewable energy will affect the impact on the environment and the goals of policy implementation. Moreover, the Company's business development focus will be altered, which will further affect shareholders' rights and interests.	2.2 Reliable Green Electricity Expert	068
Economic Performance	Economic Performance	✓	✓	✓	✓	The impact of TCC's operating performance, such as investment profit/loss, financial information, operating costs, market development, and the electricity purchasing/retailing price, on the operation of the Company.	The economic performance will directly affect the operation strategies of TCC and the invested power plants, which will in turn affect the rights and interests of shareholders and employees.	1.1.2 Economic Performance	048

Material Topics	Topic Corresponding to GRI Standards	Internal Impact		External Impact		Topic Explanation	Major Impact	Response of TCC	Page No.
		Invested Power Plans	TCC Group	Shareholders	Customers				
Corporate Governance and Sustainability Strategy	General Disclosures	✓	✓	✓	✓	TCC's medium- and long-term sustainable development strategy, innovative business model, information transparency, governance structure, economic performance, environmental/social related practices, as well as specific measures and actions for implementing corporate sustainable development.	Corporate governance and sustainability strategies will have an impact on the medium- and long-term operation direction of TCC Group and the invested power plants, which will then have an impact on the rights and interests of shareholders and employees. For customers and suppliers, there will be indirect impacts through business relationships, such as increasing the sustainability requirements of suppliers and reducing the energy carbon intensity of customers. In addition, it will also indirectly affect the implementation of relevant regulations and policies by government agencies.	Sustainable Development Vision and Strategy for Sustainable Development 1.2 Corporate Governance and Integrity Management	016 042 050
Supply Stability and Reliability	Custom Topic	✓	✓	✓	✓	Improvement measures and related control mechanisms implemented by TCC to ensure service quality, power supply stability, power generation efficiency improvement or engineering/power supply security.	The stability and reliability of energy supply will not only affect the operational performance of TCC and its invested power plants, but also affect the energy use of customers, which in turn will affect the domestic energy structure and related policies.	2.3.1 Stable Power Supply	074

Material Topics	Topic Corresponding to GRI Standards	Internal Impact		External Impact			Topic Explanation	Major Impact	Response of TCC	Page No.		
		TCC Group	Invested Power Plans	Employees	Shareholders	Customers					Suppliers/Contractors	Government Agencies
Legal Compliance and Integrity Management	Socioeconomic Compliance	✓	✓	✓	✓	✓	✓	The practices and awareness campaigns conducted by TCC for legal compliance, integrity management, and insider trading prevention, as well as the involvement in associations, policies, and domestic/international initiatives.	Failure to comply with legal norms and the principle of business integrity will lead to lawsuits or government penalties, affect the Company's reputation, or even result in the suspension of operations, creating impact on both internal and external stakeholders.	1.2 Corporate Governance and Integrity Management	050	
Electricity Policy Evaluation and Response	Custom Topic	✓	✓				✓	TCC's assessment on the impact of domestic electricity policies, such as energy transition, carbon emission factor restrictions, renewable energy targets, the reasonability of feed-in tariff, etc., and the formulation of corresponding countermeasures.	Response to electricity policy will directly affect the operation direction and performance of TCC and the invested power plants, creating impact on the planning and implementation of the government's electricity policy. Furthermore, it will also create an indirect impact on the way customers' energy is supplied.	2.1 A New Direction for Energy Transition	067	
Occupational Safety and Health	Occupational Health and Safety	✓	✓	✓			✓	TCC's occupational safety and health management measures and policies, including workplace safety protection, construction and operation safety, occupational accident risk management, employee health management plans and health inspections.	The health and safety of employees will affect their ability to maintain operation of TCC and the invested power plants. The implementation of appropriate systems and measures can reduce the impact of hazardous operation on the safety and health of employees and contractors.	4.3 Healthy Workplace with Zero Work Injuries	123	

Material Topics	Topic Corresponding to GRI Standards	Internal Impact		External Impact			Topic Explanation	Major Impact	Response of TCC	Page No.		
		TCC Group	Invested Power Plans	Employees	Shareholders	Customers					Suppliers/Contractors	Government Agencies
Risk Management/Control	General Disclosures	✓	✓					The ability of TCC to identify and manage risks that may be encountered in operations, including business development assessment and management mechanisms, as well as operational risk identification, prevention, control, and crisis management.	The effectiveness of risk control and management will not only directly affect the operation of TCC and the invested power plants, but also affect the rights and interests of shareholders. On the other hand, it will also cause certain degree of indirect impact on customer energy supply and government energy policies.	1.3 Risk Management	059	
Talent Management and Development	Training and Education	✓	✓	✓				TCC's management mechanisms such as talent recruitment, cultivation, and performance evaluation, as well as the plans and practices to assist employees in their career development, and the passing on of the organization's experience.	The planning of training courses for employees and supervisors will affect the work efficiency and core technology management of individuals and departments within the Company, thereby affecting the overall operational performance of the Company.	4.2 Talent Development	117	
Energy Conservation, Carbon Reduction & Circular Economy	Emissions	✓	✓		✓		✓	In order to mitigate the impact of climate change, TCC continues to take measures to improve unit efficiency, renew environmental protection equipment, and recycle energy/resources, and implement energy-saving and carbon-reduction plans as well as a circular economy production model.	Carbon emissions and the use of energy/resources are closely related to climate change. In addition to impacting on the environment, government policies and regulations will also be affected by global trends. The Company may increase relevant operating costs in response to regulatory revisions.	3.1 Climate Change and Energy Management 3.2 Circular Economy and Environmental Protection	089 099	

Material Topics Management Approach

To effectively manage the material topics of TCC, meet the expectations of stakeholders and reduce potential negative impact on the economy, environment, and society, the management policies for material topics are summarized in the following table.

Material Topics	Policy	Commitment and Goals			Specific Actions in 2021	Achievements
		Quantitative Indicators or Major Milestones of 2022 Set for Material Topics	Mid-term Commitment and Goals Set for Material Topics	Long-term Commitment and Goals Set for Material Topics		
Renewable Energy Development	To comply with the goals of Taiwan's energy transition policy of "promote green energy, increase natural gas, reduce coal-fired, achieve nuclear-free", TCC continues to invest in renewable energy development, contract EPC as well as O&M projects, and expand its businesses in solar power, wind power, geothermal power, and renewable energy retailing.	<ol style="list-style-type: none"> 1. Complete the Wushantou Reservoir floating solar photovoltaic project and the Renewable Energy O&M Center second renovation, electromechanical and system furniture projects. 2. Obtain O&M contracts for large-scale offshore wind power, onshore wind power and solar photovoltaic power plant. 3. Obtain the approval for the establishment of a 40MW fishery and electricity symbiosis electricity enterprise. 4. Obtain the approval for the development and use of about 66MW of photovoltaic land. 5. Obtain the approval for the establishment of a 25MW onshore wind power electricity enterprise. 6. Renewable energy retailing reaches 185 GWh. 	In 2023, the cumulative installed capacity of renewable energy will reach more than 250MW.	In 2025, the cumulative installed capacity of renewable energy will reach more than 500MW.	<ol style="list-style-type: none"> 1. Actively invested in the development of renewable energy projects, such as fishery and electricity symbiosis, solar power, and onshore wind power, and made an effort to contract renewable energy related EPC and O&M projects. 2. Actively expanded the business of green energy trading, and integrated internal as well as external resources of the Group to improve the renewable energy retailing performance. 	<ol style="list-style-type: none"> 1. The 13.7MW Wushantou Reservoir solar photovoltaic project is expected to be completed in May 2022. 2. The Renewable Energy O&M Center has been completed in 2021 and is expected to operate in 2022. 3. Obtained the land development approval for 40MW fishery and electricity symbiosis project. 4. Chingshuei geothermal power began commercial operation in 2021. 5. Renewable energy retailing reached 109 GWh.
Economic Performance	Improve the operational performance of existing power plants, effectively reduce fuel costs, and actively expand renewable energy-related businesses to maintain long-term stable profits.	<ol style="list-style-type: none"> 1. Obtain EPC and O&M projects for large-scale offshore wind power, onshore wind power and solar photovoltaic power plants. 2. Register as a qualified trader on the Energy Trading Platform to bid in ancillary services, and obtain 15MW of qualified resources to participate in the bidding process. 	<ol style="list-style-type: none"> 1. Develop strategic direction for renewable energy business, and formulate overall goals year by year. 2. Strengthen the connection between employee performance and compensation system. 	Develop strategic direction for renewable energy business, and formulate overall goals year by year.	<ol style="list-style-type: none"> 1. Continued to carry out the projects in progress and actively contracted electric power-related projects. 2. Actively participated in the Energy Trading Platform, strove for the trading of ancillary services, and applied for qualified traders. 	<ol style="list-style-type: none"> 1. Completed the electrical engineering and the meter installation operations for the substation of Yunlin Xinxing Power Plant as well as the transmission line EPC project. 2. The Renewable Energy O&M Center obtained the operation permit on August 9, 2021. 3. The new construction project of Taipower's Tainan Yantian Solar Photovoltaic System was completed on August 25, 2021. 4. Obtained 9 professional qualification certificates for the qualified trader of the Energy Trading Platform. In December 2021, the qualified traders cloud management system of the Energy Trading Platform was introduced and a relevant operating mechanism was established.

Material Topics	Policy	Commitment and Goals			Specific Actions in 2021	Achievements
		Quantitative Indicators or Major Milestones of 2022 Set for Material Topics	Mid-term Commitment and Goals Set for Material Topics	Long-term Commitment and Goals Set for Material Topics		
Corporate Governance and Sustainability Strategy	The Company's vision is to "be an international energy and power company". We conduct annual reviews on a rolling basis to formulate future business strategies, establish the ESG Sustainability Committee to continuously strengthen the competencies of the Board of Directors and functional committees, refine the Company's systems and regulations, improve information disclosure, and reduce operational risks to fulfill corporate sustainable development.	<ol style="list-style-type: none"> 1. Strengthen the competencies of the Board of Directors and functional committees. 2. Improve the Company's systems and regulations, and consider compliance with corporate governance an important goal. 3. Continue to improve corporate governance and aim to rank in the top 5% of corporate governance evaluation. 4. The ESG Sustainability Committee meeting is held every year to supervise issues related to sustainable development and review ESG-related indicators. 5. The Company's annual KPIs are set to cover the performance of the current year and the indicators of future development. Moreover, the implementation results are linked to employee performance. 	Continue to improve the Company's systems and regulations, strengthen the competencies of the Board of Directors, safeguard the rights and interests of shareholders, and improve the transparency and accuracy of information disclosure, with the goal of becoming a corporate governance benchmark enterprise for listed companies.	<ol style="list-style-type: none"> 1. Continue to promote the sustainability strategy in the E (environmental), S (social) and G (governance) aspects. 2. Implement integrity management and legal compliance, strengthen communication and trust with stakeholders, fulfill corporate social responsibilities, and promote corporate sustainable development. 	<ol style="list-style-type: none"> 1. Starting from 2021, required certified public accountants to have a separate communication meeting with the Independent Directors before the financial statements are issued. 2. Revised the regulations of the Company including the "Rules of Procedure for Board of Directors Meeting", the "Regulations for the Performance Evaluation of the Board of Directors", the "Audit Committee Charter", the "Remuneration Committee Charter", the "Nominating Committee Charter", the "Rules Governing the Scope of Powers of Independent Directors", the "Procedures for Ethical Management and Guidelines for Conduct", the "Corporate Governance Principles" and the "Sustainability Development Principles". 3. Formulated the business strategy for the next 5 years, and completed the setting of the overall goal, its implementation and achievement review. 4. One ESG Sustainability Committee meeting was held to review policies related to sustainable development and discuss the annual promotion plan; the implementation of sustainable development promotion was reported to the Board of Directors in December. 	<ol style="list-style-type: none"> 1. Ranked in the top 5% of the 8th (2021) Corporate Governance Evaluation. 2. In 2021, the attendance rate of Directors of the Board of TCC was 95.73%, while the attendance rates of members of the Audit Committee, the Remuneration Committee and the Nomination Committee were all 100%. 3. Investor Conference is held quarterly; a total of 4 Investor Conferences were held in 2021. 4. In 2021, shares of TCC were listed as the constituent of the "Corporate Governance 100 Index". 5. Awarded the "Top 100 Fast-Growing Enterprises" by the CommonWealth Magazine in 2021. 6. Won the "Top 50 Corporate Sustainability Award" and the "Sustainability Report Gold Award" of the Taiwan Corporate Sustainability Awards (TCSA). 7. Ranked 13th in the "Excellence in Corporate Social Responsibility – Medium-sized Enterprise Award" of the CommonWealth Magazine.
Supply Stability and Reliability	Supply stable and reliable steam and electricity to customers in industrial areas with high-efficiency and low-polluting power generation methods.	Operation reliability should be $\geq 99.21\%$.	Achieve operational reliability of 100% and maintain a stable and reliable supply of steam and electricity to customers.	There is no abnormalities and accidents due to equipment or human errors throughout the year.	<ol style="list-style-type: none"> 1. Keep in touch with customers by phone, keep abreast of customer needs, and obtain customers' understanding of any accidents. 2. Conduct customer satisfaction survey annually. 3. Carry out annual maintenance work thoroughly. 4. Arrange the training and assessment for operators every month. 	<ol style="list-style-type: none"> 1. The annual reliability in 2021 reached 99.76%. 2. The 2021 customer satisfaction survey had a score of 94.38. 3. No abnormal trip due to operation error by personnel.
Legal Compliance and Integrity Management	The Company strictly abides by relevant laws and regulations. Based on the concept of integrity, transparency and responsibility, the Company requires its employees to uphold ethics and integrity standards in all business activities, and implement a self-supervision mechanism.	<ol style="list-style-type: none"> 1. Complete the report on the Company's Ethical Corporate Management Principles to the Board of Directors before the end of March. 2. Organize more than 2 sessions of education and training on integrity management, and continue to promote integrity management. 3. Organize 1 session of legal-related education and training for employees. 	Continue to improve and practice the integrity management supervision mechanism to ensure the effectiveness of the mechanism.	Continue to improve and practice the integrity management supervision mechanism to ensure the effectiveness of the mechanism.	<ol style="list-style-type: none"> 1. All departments have completed the 2021 internal control self-assessment, which was reviewed by the Internal Audit Office, and submitted to the Board of Directors in November 2021 for revision of the internal control system. 2. Completed the anonymous questionnaire on the topic of integrity and moral value for the parent company and subsidiaries. 3. The implementation status of the Ethical Corporate Management Principles for the previous year was reported to the Board of Directors on March 19, 2021. 4. Provided new Directors and Managers with the "Legal Compliance Handbook for Insiders", which includes insider reporting obligations, prohibition of insider trading, etc. In addition, emails are sent to insiders to raise the legal compliance awareness every month. 5. Incorporated measures/norms related to integrity management into the Company's new employee education and training, as well as statement. 	<ol style="list-style-type: none"> 1. For the results of the anonymous questionnaire on integrity and moral value, the average score of Star Energy, a subsidiary, has increased significantly, indicating that integrity management related education and training or awareness campaign was effective. 2. In 2021, two sessions of integrity management related education and training were held. 3. The Directors and Managers of the Company have issued the Integrity Management Policy Compliance Statement in 2021. 4. In 2021, one session of legal education and training was held.



Material Topics	Policy	Commitment and Goals			Specific Actions in 2021	Achievements
		Quantitative Indicators or Major Milestones of 2022 Set for Material Topics	Mid-term Commitment and Goals Set for Material Topics	Long-term Commitment and Goals Set for Material Topics		
Electricity Policy Evaluation and Response	The Company's future business strategy will include energy transition as an important issue. In response to the amendment of the Electricity Act, "actively expanding businesses" and "innovative business models" will be incorporated into the overall strategy to formulate corresponding action plans and specific actions, fulfilling corporate sustainable development.	<ol style="list-style-type: none"> 1. Formulate the future business strategy for 2023-2027, and review the implementation strategy on a rolling basis in accordance with the electricity policy. 2. Complete the energy policy tracking and analysis report. 	Continue to track energy policies of the government and formulate corresponding development strategies.	In response to the development of energy transition, the Company is committed to renewable energy investment and development, project contracting, O&M, green electricity retailing, and ancillary services. The Company also continues to expand the investment in the development of gas-fired power plants.	<ol style="list-style-type: none"> 1. In response to the energy transition policy, the Company actively invested in the development of renewable energy projects such as solar power, onshore wind power, and geothermal power. 2. Strove for renewable energy EPC, O&M projects, and renewable energy retailing businesses. 3. Analyzed changes in government energy policies and formulated countermeasures, including the Energy Trading Platforms, power supply and demand analysis, etc. 	<ol style="list-style-type: none"> 1. Completed the 2021 Energy Policy Tracking and Analysis Report. 2. Complete the formulation of future business strategies for 2022-2026.
Occupational Safety and Health	The Company strictly abides by relevant laws and regulations, conducts pollution prevention, implements EHS (environment, health & safety) policies and guidelines of full participation and continuous improvement, attaches great importance to risk management, and enhances the safety awareness of the Company and its suppliers to achieve the goal of no major occupational accidents in the workplace.	<ol style="list-style-type: none"> 1. Complete the renewal of ISO 45001:2018 and CNS 45001:2018 management systems for the Guan Tian Plant. Improve and optimize environmental safety in the Plant; complete at least 5 important improvement projects. 2. Formulate and implement the "Disaster Reduction and Risk Management Guidelines" of Star Energy. 3. Star Energy has no single major occupational safety violation and environmental protection violation with a fine of more than NT\$50,000. 4. Implement general occupational safety and health education and training for new and current employees. 5. Conduct worker health examination regularly. 	<ol style="list-style-type: none"> 1. Make good use of ISO 45001 Occupational Health and Safety Management System, strengthen in-plant hazard identification and risk assessment, and take appropriate preventive measures to avoid the occurrence of various hazards. 2. Run the "HSE APP" for each project of Star Energy. 	<ol style="list-style-type: none"> 1. Continuously review and improve ISO 45001 Occupational Health and Safety Management System to enhance the effectiveness of environment, safety and health management and achieve the goal of "zero accident for employees". 2. Formulate the "Plan for Preventing Unlawful Infringement in the Performance of Duties", the "Plan for Preventing Ergonomic Hazards", and the "Plan for Preventing Abnormal Workload-triggered Disorders" for the Taipei Office, striving to achieve the goal of zero occupational accident. 	<ol style="list-style-type: none"> 1. In December, employees were sent to participate in the occupational safety and health education and training, serving as first-aid personnel. 2. Formulated the "Safety and Health Work Rules" for the Taipei Office, which were approved in the labor-management meeting in December. 3. The Guan Tian Plant served as the core enterprise of Tainan's cogeneration safety and health family, assisting the government in promoting various safety and health promotions, on-site guidance and visits. In addition to conducting education and training, we also assisted family members in carrying out good occupational safety management. Completed 8 environmental safety improvements and optimizations for the plant. 4. Star Energy organized the "Road Safety Education and Training". 5. Star Energy carried out the actual operation of the HSE APP. 6. Star Energy formulated the incentives for the near-miss reporting, and implemented the accident reduction risk management measures. 7. Implemented the "COVID-19 Prevention and Response Plan". 	<ol style="list-style-type: none"> 1. Completed the education and training, on-site guidance and visits for the cogeneration safety and health family, and won the Outstanding Performance Award of the safety and health family for two consecutive years. 2. Became the core enterprise for promoting the safety and health family for 3 years, and was awarded a certificate of appreciation by the Occupational Safety and Health Administration. 3. Awarded the "2021 National Occupational Safety and Health Award - Small-Medium Enterprise Special Award" by the Ministry of Labor; also awarded the Occupational Safety Model Medal by the Tainan City Government. 4. Participated in various activities of the "Safety Alliance" for construction and confined space operations, and was awarded the 2021 "Occupational Safety and Accident Reduction Outstanding Achievement Award" by the Tainan City Government. 5. Completed a 2-hour digital education and training on general occupational safety and health for new employees. Held a 3-hour education and training on general safety and health for current employees in the Taipei office.

Material Topics	Policy	Commitment and Goals			Specific Actions in 2021	Achievements
		Quantitative Indicators or Major Milestones of 2022 Set for Material Topics	Mid-term Commitment and Goals Set for Material Topics	Long-term Commitment and Goals Set for Material Topics		
Risk Management/Control	Establish risk management system to effectively reduce the occurrence of risks, minimize or avoid the impact of risks, and incorporate risk management into business strategy planning and daily business practices, promoting risk awareness for all employees to shape a risk management culture.	<ol style="list-style-type: none"> Based on the established risk management system and the "Risk Management Implementation Plan", through the steps of risk identification/analysis/assessment, risk handling, communication and negotiation, supervision and review, which are operated on a rolling basis, and according to the TCFD (Task Force on Climate-Related Financial Disclosures) framework, the risks and opportunities related to climate change are taken into account in the analysis. Implement internal control system to manage corporate risks more effectively. 	<ol style="list-style-type: none"> Strengthen the internal control system and maintain the effectiveness of internal control. Complete the introduction of climate change related financial disclosures (TCFD). 	Based on the changes in the external environment, continue to improve the existing risk management system and structure to effectively reduce risks related to operation management and climate change.	<ol style="list-style-type: none"> Reviewed the implementation of risk management in the first half and the entire year of 2021, including the actual implementation of risk event control and the effectiveness of the control mechanism. Established the 2021 risk map and related control measures. Included climate change-related risks and opportunities in the risk management mechanism, and formulated countermeasures. Strengthened information security risk management and implemented information security enhancement measures such as equipment update, education and training, etc. Implemented self-assessment of internal control. 	<ol style="list-style-type: none"> Completed the review of the implementation of risk management, and implemented the risk management mechanism. Established and implemented the 2021 risk image and related control measures. There were no major internal control faults in 2021. Star Energy completed the revision of its internal control system in the third quarter of 2021, and conducted self-assessment of internal control in accordance with the new internal control system immediately.
Talent Management and Development	Link human resources plan with the Company's business strategy as well as future business development. With the goal of cultivating international professional talents, actively develop different recruitment channels, and expand talent recruitment in conjunction with university internship programs. Assist employees in career development planning, offer appropriate job rotation and promotion opportunities, and provide diversified training programs as well as competitive compensation and benefits to build a complete talent cultivation and retention structure.	<ol style="list-style-type: none"> Increase collaboration with talent hunting consultants. Collaborate with units that have potential talents to increase recruitment channels Promote the English Proficiency Program: number of employees with TOEIC score of above 600 is increased by 10. Middle and senior management training program: each middle and senior manager has more than 22 hours of training. Employee training hours reach more than 16 hours per person. Promote job rotation for employees. 	<ol style="list-style-type: none"> Establish the Talent Training Steering Committee to propose talent cultivation and training plans. For the evaluation and training of rotating employees, add and revise employee performance improvement mechanism as well as talent training regulations. 	Become the cradle of professional technology development and talent cultivation in the industry and an iconic company where talents are eager to enter, and offer the most competitive compensation and benefits among peer groups.	<ol style="list-style-type: none"> Reward for outstanding performance as well as elimination and mentoring mechanisms were implemented simultaneously. Provided flexible (variable) compensation plan to retain core talents, such as project allowances, project bonuses, special work allowances, etc. Improve employee benefits and workplace safety, such as implementing new employee care programs, carrying out professional training, and increasing holiday bonus as well as birthday cash gift. Actively developed various recruitment channels. Formulated and announced the rules for employee job rotation, which will be implemented in 2022. 	<ol style="list-style-type: none"> Collaborated with units having potential talents to increase recruitment channels: <ol style="list-style-type: none"> Signed internship programs with 2 universities. Signed MOU with 2 research and training institutions. Strengthened human resources: <ol style="list-style-type: none"> In 2021, among those who participated in the TOEIC test, 10 people received a score of 600 or above. The average learning hours per employee for digital and physical courses was 24 hours. The average learning hours of each middle and senior manager for digital and physical courses was 26 hours.
Energy Conservation, Carbon Reduction & Circular Economy	TCC complies with environmental protection regulations, attaches great importance to sustainable development of the environment, and promotes continuously unit efficiency improvement, environmental protection equipment renewal, waste recycling as well as energy/resource recycling to achieve energy conservation and carbon reduction, fulfilling the idea of circular economy.	<ol style="list-style-type: none"> Carry out the overhaul of steam turbines/maintenance of generators to improve operation efficiency and ensure the reliability of system operation, achieving an electricity saving rate of greater than 1% in 2022. Continue to burn scrap tire, and add SRF (Solid Recovered Fuel) as an alternative fuel before the end of the year, which is included in the annual KPI of the Guan Tian Plant. Continue to collaborate with suppliers to apply for joint reuse and recycle all the coal ash. Complete the GHG emissions inventories and verification report. 	<ol style="list-style-type: none"> From 2021 to 2024, the average annual electricity saving rate reaches more than 1% to meet the government's energy-saving policy, achieving the goal of energy conservation and carbon reduction. Promote GHG management. 	<ol style="list-style-type: none"> By increasing SRF as an alternative fuel, coal usage is reduced to lower greenhouse gas emissions. Complete the GHG inventory of subsidiaries in consolidated statements. 	<ol style="list-style-type: none"> Act in concert with the newly added SRF alternative fuel: Boiler manufacturer, SHI-FW, conducted the risk assessment for co-combustion, feeding system repair and new installation, application of environmental protection related permit, SRF supplier visit, etc. The surface of the superheater tube was treated by water jet and sand blasting to remove lagging, increasing heat exchange efficiency. Implemented waste recycling and reuse in accordance with existing circular economy policies. 	<ol style="list-style-type: none"> The average electricity saving rate from 2015 to 2021 was 1.44% (the estimated annual electricity saving rate in 2021 was 1.92%) In 2021, 31,034 tons of scrap tire were burned, which reduced the coal consumption by approximately 50,522 tons. In 2021, the amount of coal ash generated was 26,501 tons, and 100% of them were recycled and converted into CLSM (Controlled-Low-Strength-Materials).

Material topics	Responsibilities and Resources	Evaluation Management Mechanism	Grievance or Communication Channel
Renewable Energy Development	The Project Development Dept. is responsible for the feasibility and investment assessment of the renewable energy business, acquiring the business investment approval by the Board of Directors, and the corresponding development until commercial operation. The renewable energy retailing business is handled by TCC Green Energy, while the renewable energy projects are contracted by Star Energy.	Based on the annual key indicators, formulate the implementation plan and risk control plan, report the implementation status to the senior management via weekly and monthly reports, and hold regular development meetings to track the progress of each renewable energy project, review the schedule and eliminate obstacles.	<ol style="list-style-type: none"> Investor service : 02-87982000 ext.546 Email : csr@cogen.com.tw Website : https://www.cogen.com.tw/eng/news/contact 
Economic Performance	The Finance Dept. is primary responsible department. The operation of the existing cogeneration plant and the management of the invested power plants is the responsibility of the Guan Tian Plant and the Planning & Investment Management Dept., respectively. The Project Development Dept., the Engineering & Construction Dept., and Star Energy are in charge of power plant development, and investment, as well as the contracting of projects.	<ol style="list-style-type: none"> Depending on to the level and scope of the report, businesses are tracked and reviewed on a weekly, monthly and quarterly basis. Review the progress of the Company's annual KPIs on a quarterly basis. Report operating performance to the Board of Directors on a regular basis. 	<ol style="list-style-type: none"> Investor service : 02-87982000 ext.546 Email : csr@cogen.com.tw Website : https://www.cogen.com.tw/eng/news/contact 
Corporate Governance and Sustainability Strategy	<ol style="list-style-type: none"> The sustainable development strategy is reviewed and revised by the ESG Sustainability Committee, and the Planning & Investment Management Dept. is responsible for coordinating the implementation of ESG-related work. The Planning & Investment Management Dept. is responsible for the formulation and review of future business strategies and annual KPIs. The Secretariat of the Board is a designated unit of corporate governance, and the Director of the Secretariat of the Board is the chief corporate governance officer, managing various corporate governance affairs. 	<ol style="list-style-type: none"> The head of each department reports the implementation of the company's KPIs every month. Every quarter, the head reports the implementation status of the company KPIs to the management. The implementation results are reviewed at the end of the year, and is linked with employee performance. Report the implementation of corporate social responsibility through channels such as weekly reports and supervisor reports, and report to the Board of Directors at least once a year on the planning and implementation of sustainable development promotion. Formulate and review future business strategies every year, and report to the management as well as the Board of Directors. Regularly review and improve corporate governance, and continuously refine the practices of corporate governance. 	<ol style="list-style-type: none"> Investor service : 02-87982000 ext.546 Email : csr@cogen.com.tw Website : https://www.cogen.com.tw/eng/news/contact 

Material topics	Responsibilities and Resources	Evaluation Management Mechanism	Grievance or Communication Channel
Supply Stability and Reliability	It is the responsibility of the Guan Tian Plant.	<ol style="list-style-type: none"> Check operation-related data daily. Track operational reliability quarterly. Conduct customer satisfaction survey annually. 	<ol style="list-style-type: none"> Investor service : 06-6989014 ext.300 Email : csr@cogen.com.tw Website : https://www.cogen.com.tw/eng/news/contact 
Legal Compliance and Integrity Management	<ol style="list-style-type: none"> The Legal Affairs Office is responsible for providing consulting services on laws and regulations related to the Company, and is a dedicated unit for supervising the integrity management of the Company. The internal audit of the Company is carried out by the Internal Audit Office, and suggestions for improvement are provided as needed to ensure the effective implementation of the internal control system; the internal control self-assessment is conducted by each department and reviewed by the Internal Audit Office. 	<ol style="list-style-type: none"> Report to the Board of Directors on the implementation of integrity management and the results every year. At least once a year, conduct education and training or awareness campaign on integrity management to Directors, Managers and employees. Carry out internal control self-assessment and regular audit plan every year, and conduct ad hoc and irregular audits depending on the needs. 	<ol style="list-style-type: none"> Grievance hotline : 02-87982000 ext.626 Email : whistle@cogen.com.tw Website : https://www.cogen.com.tw/eng/news/contact 
Electricity Policy Evaluation and Response	The electricity policy evaluation and response strategy are mainly handled by the Planning & Investment Management Dept.; in response to the energy transition, the development and projects related to renewable energy and private gas-fired power plants are actively expanded, which are handled by the Project Development Dept., the Engineering & Construction Dept., and Star Energy.	<ol style="list-style-type: none"> Review future business strategies every year on a rolling basis, and formulate the implementation strategies in response to changes in electricity policies. For the Company's various investment and development businesses as well the contracted projects, set the annual KPIs for the Company, which are reviewed and tracked by the responsible department and the organizing unit on a monthly and quarterly basis. 	<ol style="list-style-type: none"> Investor service : 02-87982000 ext.546 Email : csr@cogen.com.tw Website : https://www.cogen.com.tw/eng/news/contact 

Material topics	Responsibilities and Resources	Evaluation Management Mechanism	Grievance or Communication Channel
Occupational Safety and Health	<p>1. TCC complies with occupational safety regulations, and regularly implements occupational safety and health related education and training. The environmental safety and health system of the Guan Tian Plant is managed by the Plant Manager, and the Occupational Environment Section is responsible for planning and promotion. Each section performs hazard identification and risk assessment according to their powers and responsibilities.</p> <p>2. The HSE Management Office and the work safety supervisors of each project are responsible for the occupational safety and health work in Star Energy. Both the Guan Tian Plant and Star Energy have established the Occupational Safety and Health Committees. The occupational safety and health of the Taipei Office is handled by the Administration Dept.</p>	<p>1. Implement ISO 45001 occupational safety management system and procedures, such as conducting regulation identification quarterly, and track relevant matters in monthly occupational safety meetings.</p> <p>2. Each project site of Star Energy conducts "Hazard Notification Toolbox Meetings" for workers of contractor every day, counts the number of work-related injuries at the end of each month, and regularly conducts walking inspections and inspections by the Safety, Health and Environment Management Office. Reports on occupational safety, health and environmental performance are submitted to the Occupational Safety and Health Committee every quarter.</p>	<p>1. Human rights protection hotline : 02-87982000 ext.515</p> <p>2. Email : hr@cogen.com.tw</p> <p>3. Website : https://www.cogen.com.tw/eng/news/contact</p> 
Risk Management/Control	<p>The Planning & Investment Management Dept. is mainly responsible for the overall compilation, and each department conducts risk identification, assessment, analysis and implementation of response strategies according to the responsible business.</p>	<p>1. The annual risk management plan is formulated every year, and the company-level risks are reviewed and tracked every six months.</p> <p>2. Non-company-level risks are managed by each department, and the implementation status is reviewed and tracked every six months.</p> <p>3. In case of sudden increase of risk scenarios or sudden increase of risk events, relevant departments shall report and take control measures as needed, and submit them to the Risk Management Committee for deliberation when necessary.</p>	<p>1. Investor service : 02-87982000 ext.546</p> <p>2. Email : csr@cogen.com.tw</p> <p>3. Website : https://www.cogen.com.tw/eng/news/contact</p> 

Material topics	Responsibilities and Resources	Evaluation Management Mechanism	Grievance or Communication Channel
Talent Management and Development	<p>The formulation and implementation of strategies for talent recruitment and cultivation are handled by the Administration Dept.</p>	<p>Diversified recruitment channels will be added, and human resources and core manpower development will be strengthened. Quantitative goals will be included in annual KPIs, and they will be tracked in supervisor meetings on a monthly basis.</p>	<p>1. Contact number : 02-87982000 (Human Resources)</p> <p>2. Email : hr@cogen.com.tw</p> <p>3. Website : https://www.cogen.com.tw/eng/news/contact</p> 
Energy Conservation, Carbon Reduction & Circular Economy	<p>1. The Engineering Section of the Guan Tian Plant is responsible for planning and implementing energy-saving and carbon-reduction projects.</p> <p>2. Carry out various equipment renewal and improvement projects during the annual maintenance period.</p> <p>3. According to the responsibilities of the Guan Tian Plant, the Plant is operated by four divisions Sections. The Administration Section is responsible for coordinating the supply of scrap tires and the SRF procurement. The Operation Section is responsible for burning scrap tires and adjusting SRF combustion.</p> <p>4. The Engineering Section is responsible for installing SRF conveying equipment, and the maintenance and repair of existing equipment.</p> <p>5. Occupational Environment Section is responsible for coal ash reuse and permit application for new SRF alternative fuels.</p>	<p>1. The implementation performance is evaluated on an annual basis, and at the same time, the scheduled implementation projects for the next year are planned.</p> <p>2. Based on the boiler's original design, the heating value ratio of 30% for scrap tire burning is used as the benchmark, and the co-combustion is adjusted according to the boiler's operating conditions.</p>	<p>1. Investor service : 02-87982000 ext.546</p> <p>2. Email : csr@cogen.com.tw</p> <p>3. Website : https://www.cogen.com.tw/eng/news/contact</p> 

Achievements of Materials Topics in 2021

Material Topics	2021 Goals/Important Milestones	Achievements	Corresponding Section
Economic Performance	<ol style="list-style-type: none"> In 2021, the heat value substitution ratio of scrap rubber in Guan Tian Plant reaches 32.26%. Complete Chingshuei geothermal power project in 2021. Acquire more than one EPC project and O&M project for large-scale offshore wind power, onshore wind power and solar photovoltaic power plants. 	<ol style="list-style-type: none"> Affected by the pandemic in 2021, the heat value substitution ratio of the Guan Tian Plant reached 26.1%. The goal has been reached. The Company actively carried out tender preparation operations for related O&M projects. 	<ol style="list-style-type: none"> 2.2 Reliable Green Electricity Expert 3.2 Circular Economy and Environmental Protection
Corporate Governance and Sustainability Strategy	<ol style="list-style-type: none"> The Corporate Social Responsibility Promotion Committee meeting is held annually to supervise the corporate social responsibility work and review the annual key performance indicators related to corporate social responsibility. The Company's annual KPIs are set to cover the current year's performance as well as future development-related indicators, and the implementation results are linked to employee performance. Continue to improve corporate governance with the goal of maintaining the top 5% rank in corporate governance evaluation. 	<ol style="list-style-type: none"> The goal has been reached. In 2021, the "ESG Sustainability Committee" meeting was held to supervise sustainable development related work and review ESG-related annual KPIs. The goal has been reached. Ranked 5% of listed companies in the 8th corporate governance evaluation. 	<ol style="list-style-type: none"> 2021 Sustainability Performance Highlights Sustainable Development
Renewable Energy Development	<ol style="list-style-type: none"> Chingshuei geothermal power plant starts commercial operation. Complete the Wushantou Reservoir solar photovoltaic project to begin commercial operation. Complete the Renewable Energy O&M Center. Obtain large-scale offshore wind power, onshore wind power and solar photovoltaic power plant O&M contracts The 5MW solar energy project of China University of Science and Technology is expected to be completed by the end of 2021. 	<ol style="list-style-type: none"> The goal has been reached. The Wushantou Reservoir solar photovoltaic project has been extended to May 23, 2022 due to the pandemic. The Renewable Energy O&M Center obtained the operation permit on August 9, 2021. The Company actively carried out tender preparation operations for related O&M projects. The goal has not been reached. 	<ol style="list-style-type: none"> 2.2 Reliable Green Electricity Expert
Risk Management/Control	<ol style="list-style-type: none"> Based on the established risk management system, the operations are carried out on a rolling basis, and the risks related to climate change are included in the analysis. Implement internal control system and formulate a risk management operation procedure for Star Energy. 	<ol style="list-style-type: none"> The goal has been reached. The 2021 annual risk management plan has been completed, and the risks related to climate change were included in the analysis. The internal control system was implemented. Star Energy has not yet formulated a risk management operation procedure; however, it currently follows the related policy of TCC to carry out relevant operations. 	<ol style="list-style-type: none"> 1.3 Risk Management
Electricity Policy Evaluation and Response	<ol style="list-style-type: none"> Formulate future business strategy from 2022-2026, and formulate the implementation strategy in response to the changes in the electricity policy. Complete the energy policy tracking and analysis report. 	<ol style="list-style-type: none"> The goal has been reached. The goal has been reached. 	<ol style="list-style-type: none"> 2.1 A New Direction for Energy Transition
Supply Stability and Reliability	Operational reliability needs to be $\geq 99.21\%$.	The goal has been reached. The operational reliability of the Guan Tian Plant reached 99.76%.	<ol style="list-style-type: none"> 2.3 High-Quality Customer Service
Legal Compliance and Integrity Management	<ol style="list-style-type: none"> Complete the implementation report of the Company's Ethical Corporate Management Principles to the Board of Directors before the end of March. Hold more than 2 sessions of education and training and awareness campaign related to integrity management. Hold 1 session of legal education and training for employees. 	<ol style="list-style-type: none"> The goal has been reached. The implementation report of the Company's Ethical Corporate Management Principles to the Board of Directors has been completed on 2021/3/19. The goal has been reached. The goal has been reached. 	<ol style="list-style-type: none"> 1.2 Corporate Governance and Integrity Management
Occupational safety and health	<ol style="list-style-type: none"> Guan Tian Plant continues to promote ISO 45001:2018 and CNS 45001:2018, and complete the follow-up verification. Star Energy continues to promote ISO 45001, and complete the follow-up verification. 	<ol style="list-style-type: none"> The goal has been reached. The goal has been reached. 	<ol style="list-style-type: none"> 4.3 Healthy Workplace with Zero Work Injuries
Energy conservation, carbon reduction & circular economy	<ol style="list-style-type: none"> Renew the current transformer (CT) and potential transformer (PT) of the power transmission system to improve power quality. The boiler feed water pump (BFP) will be overhauled to improve operating efficiency, so that the electricity saving rate in 2021 can reach more than 1%. Continue to burn scrap tires, which is included in the annual KPI of the Guan Tian Plant. The heating value ratio in 2021 is set at 32.26%. Continue to collaborate with contractor to apply for joint reuse, and recycle all coal ash. 	<ol style="list-style-type: none"> The goal has been reached. The goal has been reached. The estimated electricity saving rate in 2021 was 1.92%. Affected by the pandemic, the heating value ratio of co-firing scrap tire in 2021 was 26.1%. The goal has been reached 	<ol style="list-style-type: none"> 3.1 Climate Change and Energy Management 3.2 Circular Economy and Environmental Protection

Vision and Strategy for Sustainable Development

The United Nations released the Sustainable Development Goals (SDGs) in 2015, leading the government and enterprises to recognize and take action on sustainable topics. The energy industry, which TCC belongs to, is considered to have a crucial role regarding these issues. Therefore, with the vision of "becoming an international power and energy company", TCC adheres to our core business philosophy, follows important sustainable trends, and considers environmental, policy changes internally and externally. The company proposes sustainable promotion strategies in aspects such as environmental, society and governance, adjusts our operational direction in a timely manner. TCC will continue to respond to the United Nations sustainable development goals with concrete actions that fulfill corporate sustainable operation.



TCC's long-term goal is to become an international enterprise that offers comprehensive services in power and energy-related investment, project contracting, O&M, renewable energy retailing and energy storage.

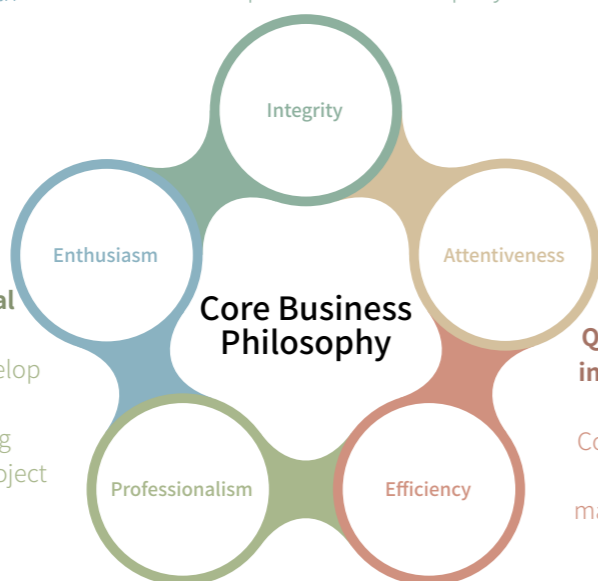
Enthusiasm

Challenge, achievement is always the greatest reward.

The Company's development vision is linked to the career planning of its employees, with enthusiasm and the courage to serve, we strive to achieve a shared future of common good for the Company and employees.

Professionalism

Quality, thorough and comprehensive professional services.
TCC has the capability to develop and execute a full range of power-related plans, including development preparation, project planning, financing, project management, procurement and contracting, construction supervision, operation and maintenance, to provide customers and partners with the best services.



Integrity
Integrity, and act with transparency
Originated from the philosophy of integrity, transparency and responsibility, we establish a trusting relationship between the Company and stakeholders to achieve sustainable operation and development for the Company.

Attentiveness
Be responsible and work hard to do better.
Put effort in each and every job we do, review it at any time, reach the highest quality, and pursue/maintain the satisfaction of customers and partners as our definitive practices to demonstrate responsibility.

Efficiency
Quickness, keep the schedule in mind and complete tasks in time.
Complete the work as scheduled with the highest quality to maximize the invested resources. Emphasize on work efficiency, expend overall performance, improve business results, and achieve corporate goals.

To achieve corporate sustainable operation, TCC has formulated an overall strategy and action plan according to the Company's vision, business philosophy, major short-term and medium-term issues, internal/external environment, major government policies, manpower and its finance. The plan is set for 5 years. Future business strategies are reviewed and updated annually, so we can keep track on changes around the internal/external environment, adjust the Company's overall strategy and business direction, ultimately fulfill the SDGs.

Direction of Sustainability Strategy		Medium- and Long-Term Goals	
<ul style="list-style-type: none"> ▶ Actively expand business ▶ Innovate business model ▶ Strengthen sustainable management 	<ul style="list-style-type: none"> ▶ Expand the development of green energy business ▶ Strengthen environmental management and pollution prevention ▶ Implement environmental sustainability ▶ Establish a green circular economy model 	<ul style="list-style-type: none"> ▶ Actively develop renewable energy projects, and strive for offshore wind power transmission & distribution as well as large-scale photovoltaic projects ▶ Develop renewable energy retailing, ancillary services and energy storage businesses ▶ Renewable Energy O&M Center and its integration with the local O&M work ▶ Continue to promote the establishment of environmental and energy-related management systems, update power plant units and pollution prevention equipment, and strengthen the energy efficiency of units ▶ Set carbon rights management and carbon control countermeasures, and target for the percentage of renewable energy use ▶ Fulfill the idea of regional resource integration and circular economy 	
	<ul style="list-style-type: none"> ▶ Promote digital transformation ▶ Strengthen sustainable management 	<ul style="list-style-type: none"> ▶ Establish a complete talent management and training mechanism ▶ Create a happy and healthy workplace ▶ Implement social participation and contribution 	<ul style="list-style-type: none"> ▶ Improve the human resources recruitment system, talent rotation system and internal mentor system, and strengthen the elimination and coaching mechanism ▶ Strengthen employee performance evaluation and management structure and link with the strategy, core values and vision of the Company ▶ Maintain zero occupational injury, strengthen employee health management, and create a good working environment ▶ Improve supplier/contractor industrial safety management ▶ Actively integrate the focus of social participation activities with the Company's businesses and encourage employees to participate
		<ul style="list-style-type: none"> ▶ Improve operational performance ▶ Actively expand business ▶ Innovate business model ▶ Promote digital transformation ▶ Strengthen sustainable management 	<ul style="list-style-type: none"> ▶ Improve corporate governance and competency of the Board ▶ Improve the transparency and timeliness of information disclosure ▶ Build risk response capabilities ▶ Build a sustainable supply chain ▶ Improve service quality ▶ Expand existing businesses and develop innovative business models



▲ Environmental aspect ▲ Social aspect ▲ Governance aspect

CHAPTER 01



Integrity Management, Sustainable Governance

- 1.1 About TCC
- 1.2 Corporate Governance and Integrity
- 1.3 Risk Management

Chapter Highlights

- ◆ EPS NT\$ 1.52
- ◆ In 2021, the Company received the Taiwan Corporate Sustainability Awards (TCSA) and the "Excellence in Corporate Social Responsibility Award" of the CommonWealth Magazine
- ◆ Ranked top 5% in corporate governance evaluation
- ◆ Listed in the Corporate Governance 100 Index

1.1 About TCC

1.1.1 About TCC Group

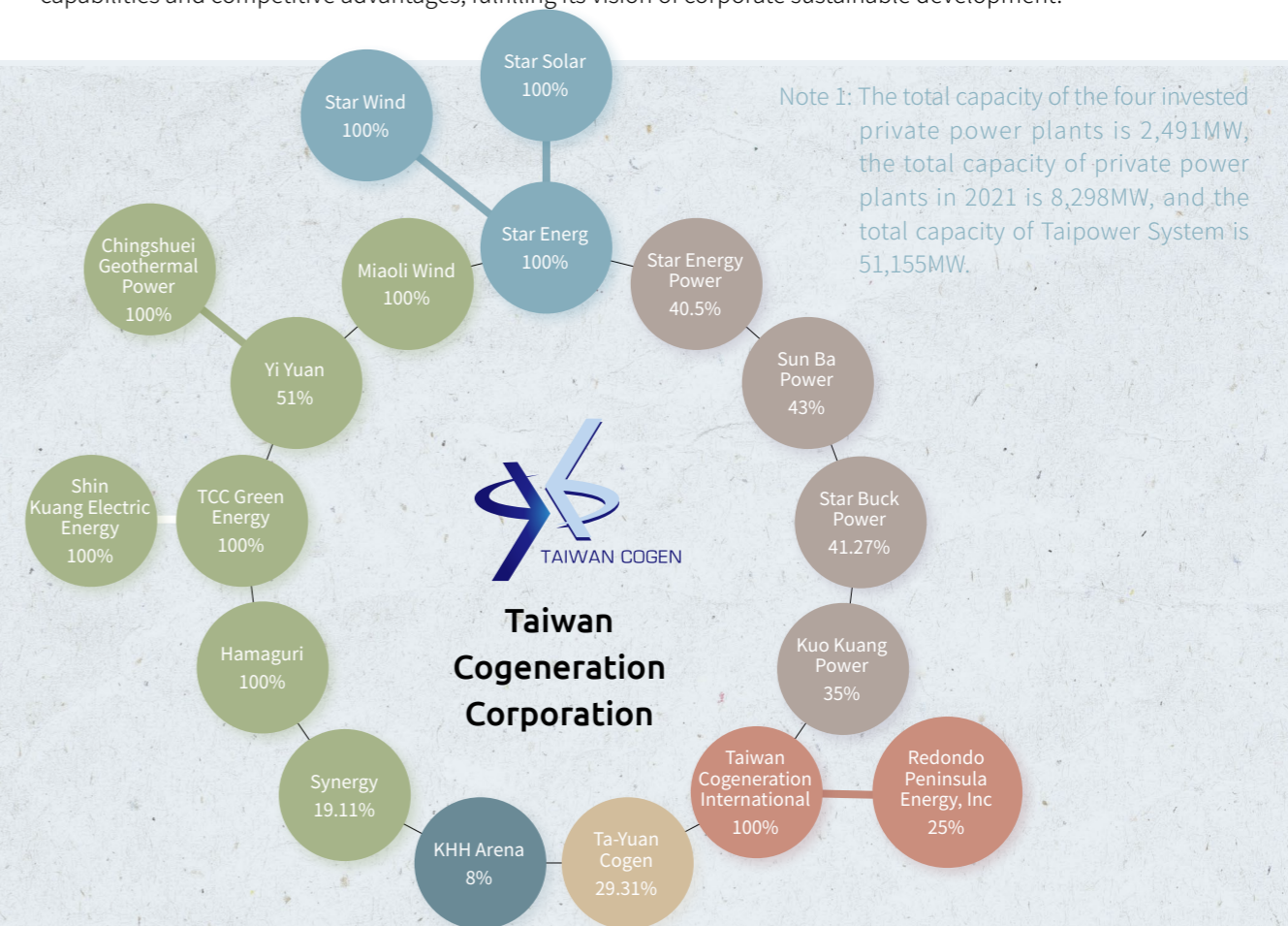
TCC was established in 1992 and listed on the market in 2003, with a paid-in capital of NT\$ 5.89 billion, making it a leading private electric power group in Taiwan.

At the beginning of its establishment, the Company aimed to provide cogeneration technology and assist industries in building cogeneration systems. In addition to investing in the establishment of Ta-Yuan Cogen Co., Ltd. through joint venture, TCC has successively collaborated with I-MEI, Uni-President and other enterprises to build a number of diesel engine cogeneration power plants based on the BOT (Build-Operate-Transfer) model. In 1998, to answer the demand for steam and electricity in the Guantian Industrial Zone, the Company became the sole investor during the construction of the Guan Tian Cogeneration Plant, providing professional cogeneration technology and regional energy integration services.

In 2000, to coincide with the government's energy policy, TCC engaged in the investment, construction and operation of independent gas-fired power plants including Star Energy Power, Sun Ba Power, and Star Buck Power. In 2011, it also invested in Kuo Kuang Power through equity acquisition. Currently, the four independent gas-fired power plants account for about 30% of the total installed capacity of domestic independent power plants and nearly 5% of the total installed capacity in Taiwan, playing an important role in domestic power supply¹. As for the overseas business, Taiwan Cogeneration International Corporation, a subsidiary of TCC, has invested in Redondo Peninsula Energy, Inc. in the Philippines.

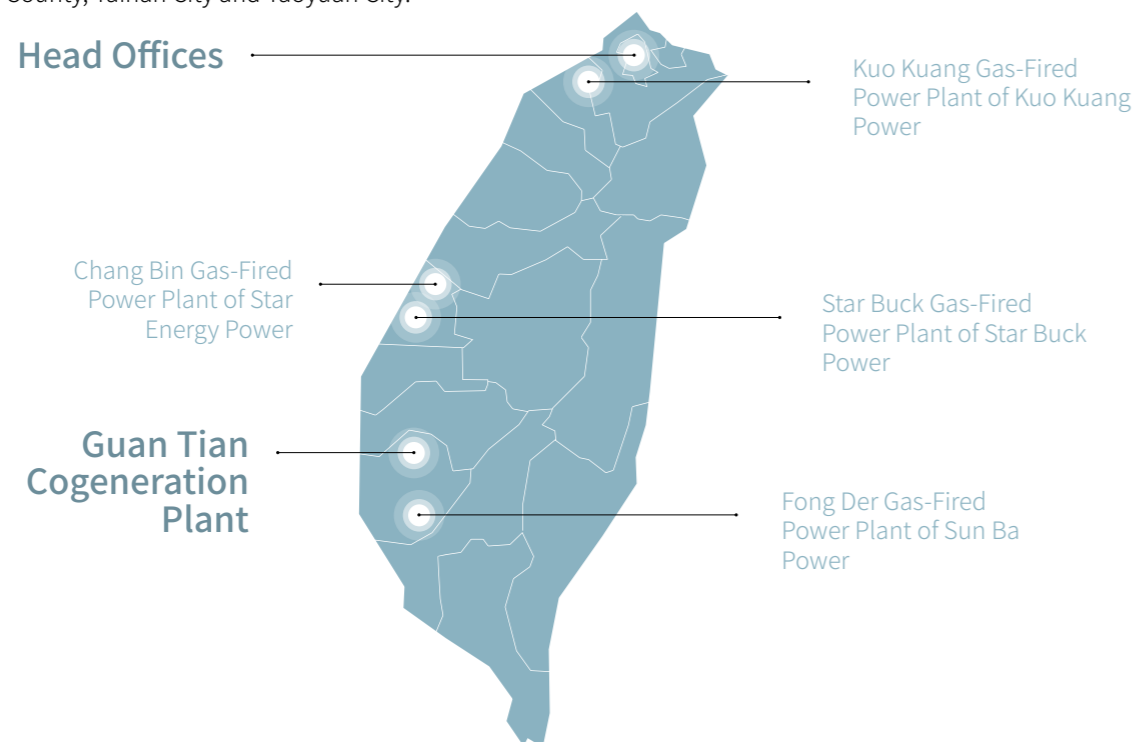
In recent years, in response to the domestic and international trends of sustainable development and the energy transition policies of the government, TCC has actively invested in renewable energy-related businesses, becoming the first professional enterprise in Taiwan that can provide a full range of renewable energy related services including investment and development, construction, O&M, green electricity retailing, and energy storage. The subsidiary, Star Energy, is a well-known professional engineering company in Taiwan. In addition to the acquirement of various solar power, wind power, substations and transmission lines EPC projects, it also invests in the development of its own projects for solar power and onshore wind power. Furthermore, the wholly-owned subsidiary, TCC Green Energy, has obtained a renewable energy retailer license, and is currently the largest green electricity retailer in Taiwan, demonstrating outstanding performance in the green electricity retailing business.

TCC Group has been operating steadily and innovatively for 30 years. In the future, it will continue to improve its core capabilities and competitive advantages, fulfilling its vision of corporate sustainable development.



Geographical Location of Operating Bases

The head offices of TCC and Star Energy are located in Taipei City, and their operating bases also include the Guan Tian Cogeneration Plant in Tainan City. The independent power producers (IPPs) invested by TCC are located in Changhua County, Tainan City and Taoyuan City.



Investment and Development

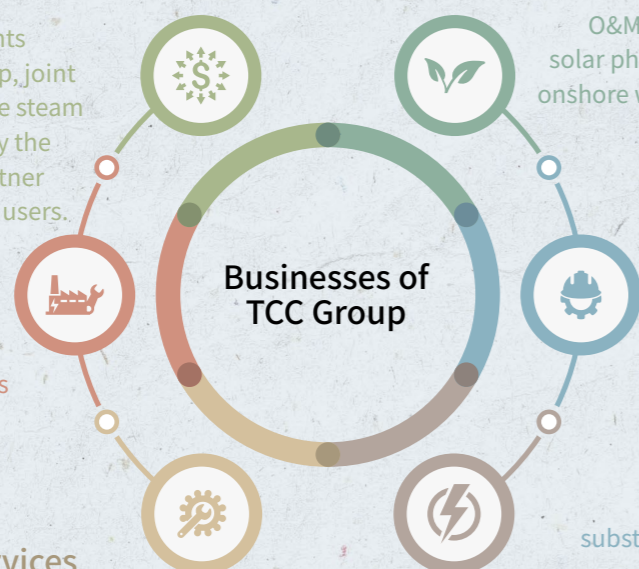
Invest in cogeneration plants through sole proprietorship, joint venture or BOT, and sell the steam and electricity produced by the cogeneration plants to partner companies or neighboring users.

Vertical Integration

Investment, construction, O&M of thermal power plants, cogeneration plants and renewable energy power plants.

Comprehensive Services

Comprehensive and vertically integrated services including planning, design, procurement, installation, construction management and financial planning, environmental protection and O&M of power plants, cogeneration plants, renewable energy power plants, transmission lines, substations, and related projects.



Renewable Energy O&M

Taiwan's first Renewable Energy O&M Center; O&M for large-scale solar photovoltaic power plants and onshore wind farms; integrating local offshore O&M teams.

Construction

Engineering and construction, technical support and consulting services for thermal power plants, cogeneration plants, renewable energy power plants, transmission lines, substations, and related projects.

New Energy Services

Renewable energy retailing, ancillary services, energy storage system planning and EPC.

Category	Name of the Invested Company	Major Businesses and Characteristics
Gas-fired Power Plant	Star Energy Power Corporation	Operation of Chang Bin Gas-Fired Power Plant with an installed capacity of 507MW
	Sun Ba Power Corporation	Operation of Fong Der Gas-Fired Power Plant with an installed capacity of 1,014MW ▶ The largest independent gas-fired combined cycle power plant in Taiwan
	Star Buck Power Corporation	Operation of Star Buck Gas-Fired Power Plant with an installed capacity of 490MW ▶ The EPC project built by TCC, which is the first company in Taiwan with the EPC project experience for gas-fired combined cycle power plant.
	Kuo Kuang Power Co., Ltd	Operation of Kuo Kuang Gas-Fired Power Plant with an installed capacity of 480MW ▶ Invested by TCC through mergers and acquisitions of overseas equity
Cogeneration Plant	Ta-Yuan Cogen Co., Ltd.	Operation of Ta-Yuan Cogeneration Plant (82MW) and the plant in the Taoyuan Environmental Science & Technology Park ▶ An OTC company ▶ Dayuan Industrial Park energy and resource integration services
Construction Engineering (Electricity Professional)	Star Energy Corporation	Design, planning, procurement, contracting, construction, and O&M of power plants, transmission lines and renewable energy related projects ▶ Contracted Taipower's 150MW solar PV project in Tainan, which is the largest in Taiwan ▶ Built Taiwan's first Renewable Energy O&M Center
Overseas Power Business Investment	Taiwan Cogeneration International Corporation	Overseas investment business
	Redondo Peninsula Energy Inc.	Development of Subic Bay Coal-Fired Power Plant in the Philippines
Renewable Energy Development	Yi Yuan Corporation	The main businesses include geothermal energy technology services, investment management consulting and international trade. ▶ Collaborated with the Yilan County Government to conduct Chingshuei geothermal development through BOT
	Chingshuei Geothermal Power Corporation	Construction and operation of Chingshuei Geothermal Power Plant with an installed capacity of 4.2MW ▶ Taiwan's largest geothermal power plant, which began its commercial operation in 2021
	TCC Green Energy Corporation	Green energy investment and development, renewable energy retailing and ancillary services ▶ In 2019, it obtained the second renewable energy retailer license in Taiwan ▶ The first kWh of renewable electricity was sold in October 2020, and the cumulative electricity sold in 2021 exceeded 100 GWh
	Hamaguri Co., Ltd.	Fishery and electricity symbiosis project investment and development
	Shin Kuang Electric Energy Co., Ltd.	Operation of the Shin Kuang Photovoltaic Power Plant ▶ The largest RC rooftop 5MW photovoltaic power plant in northern Taiwan, which began commercial operation in 2019
	Star Wind Corporation	Onshore wind power investment, development, construction and operation ▶ Star Wind's 10.35MW wind farm, which began commercial operation in 2020
	Star Solar Corporation	Solar photovoltaic investment, development, construction and operation ▶ Wushantou Reservoir floating photovoltaic power plant with an installed capacity of 13.7MW
	Miaoli Wind Co., Ltd.	Operation of the Dapeng and Zhunan onshore wind farms, with a total installed capacity of 49.8MW
	Synergy Co., Ltd.	Renewable energy projects development and O&M
Others	KHH Arena Corporation	Operation and management of Kaohsiung Arena and its ancillary facilities

1.1.2 Economic Performance

Financial Performance

Creating value for investors is an important responsibility of TCC. In recent years, TCC has steadily been performing well. The consolidated net profit after tax in 2021 was NT\$ 905,389,000. For more financial information, please refer to the annual report.



Unit: NT\$ 1,000 (NT\$ for dividends per share)

Year	Direct Economic Value Generated (Revenues)	Economic Value Distributed (Expenditure)								Economic Value Retained (Net Profit for the Current Period)
		Operating Costs	Employee Salary and Benefits	Cash Dividends	Dividends Per Share	Interest on Debts/Loans	Tax	Fee	Community Investments	
2019	8,033,910	6,671,356	350,488	1,001,383	1.7	37,661	6,303	864	3,615	1,096,335
2020	10,014,512	8,592,737	423,058	1,119,192	1.9	48,945	50,541	846	3,848	1,070,583
2021	7,107,172	5,630,497	451,938	1,030,835	1.75	66,981	121,012	919	2,323	905,389

Major Business Income

Unit: NT\$ 1,000

Major Business Income	Amount	Percentage (%)
Sales Revenue	1,311,137	20%
Construction Services, O&M and Consulting Service Revenue	5,095,859	80%
Total	6,406,996	100%

Net Profit After Tax and EPS

Unit: NT\$ 1,000

	2019	2020	2021
Net Profit After Tax (Owners of the Corporation)	1,098,048	1,068,547	897,884
EPS	NT\$ 1.86	NT\$ 1.81	NT\$ 1.52

Operating Revenue

Unit: NT\$ 1,000

	2019	2020	2021	Reason for Change
Sales Revenue	970,601	1,047,141	1,311,137	An increase in revenue in 2020 compared with 2019 : mainly due to the revenue from the electricity retailing of Shin Kuang Electric Energy (sub-subsidiary) and Miaoli Wind (subsidiary) acquired during the year, after deducting the net impact of the decrease in electricity retailing at the Guan Tian Plant and the discount for steam users during the COVID-19 pandemic. An increase in revenue in 2021 compared with 2020 : mainly due to the revenue from sales of electricity of Miaoli Wind (subsidiary), Star Wind (sub-subsidiary) and Chingshuei Geothermal Power (sub-subsidiary), after deducting the net impact of the reduction in electricity retailing at the Guan Tian Plant and the adjustment of the contract price of steam customers.
Construction Services, O&M and Consulting Service Revenue	6,215,485	8,266,583	5,095,859	An increase in revenue in 2020 compared with 2019 : mainly due to the increase in the construction progress recognized of Star Energy (subsidiary) and Chingshuei Geothermal Power (sub-subsidiary), which leads to an increase in project revenue. A decrease in revenue in 2021 compared with 2020 : mainly due to the fact that some construction projects recognized of Star Energy (subsidiary) and Chingshuei Geothermal Power (sub-subsidiary) have been successively completed, resulting in a decrease in project revenue.
Total	7,186,086	9,313,724	6,406,996	

Non-Operating Revenue and Expenses

Unit: NT\$ 1,000

	2019	2020	2021	Reason for Change
Investment Income	822,942	658,916	631,227	A decrease in revenue in 2020 compared with 201 : mainly due to factors such as the decrease in electricity prices with gas prices compared with last year, and the increase in the recovery of Renewable Energy Development Fund. A decrease in revenue in 2021 compared with 2020 : mainly due to the net impact of the decrease in profit from the fire accident in Star Buck Gas-fired Power Plant, which is still under repair, and the increase in the dispatch of other IPPs by Taipower.
Others	(23,245)	(7,077)	(45,051)	A decrease in loss in 2020 compared with 2019 : mainly due to the increase in other income and foreign currency exchange benefits. An increase in loss in 2021 compared with 2020 : mainly due to foreign currency exchange losses and increase in financial costs.
Total	799,697	651,839	586,176	

Net Defined Benefit Liabilities

Unit: NT\$ 1,000

	2019	2020	2021
Net Defined Benefit Liabilities	123,593	126,425	124,387

Note: Net defined benefit liabilities are the employee pension provided in accordance with the Labor Standards Act.

Earning Distribution

The dividend distribution and shareholders' return on investment in the last three years are as follows:

Unit: NT\$ 1,000 (NT\$ for dividend per share)

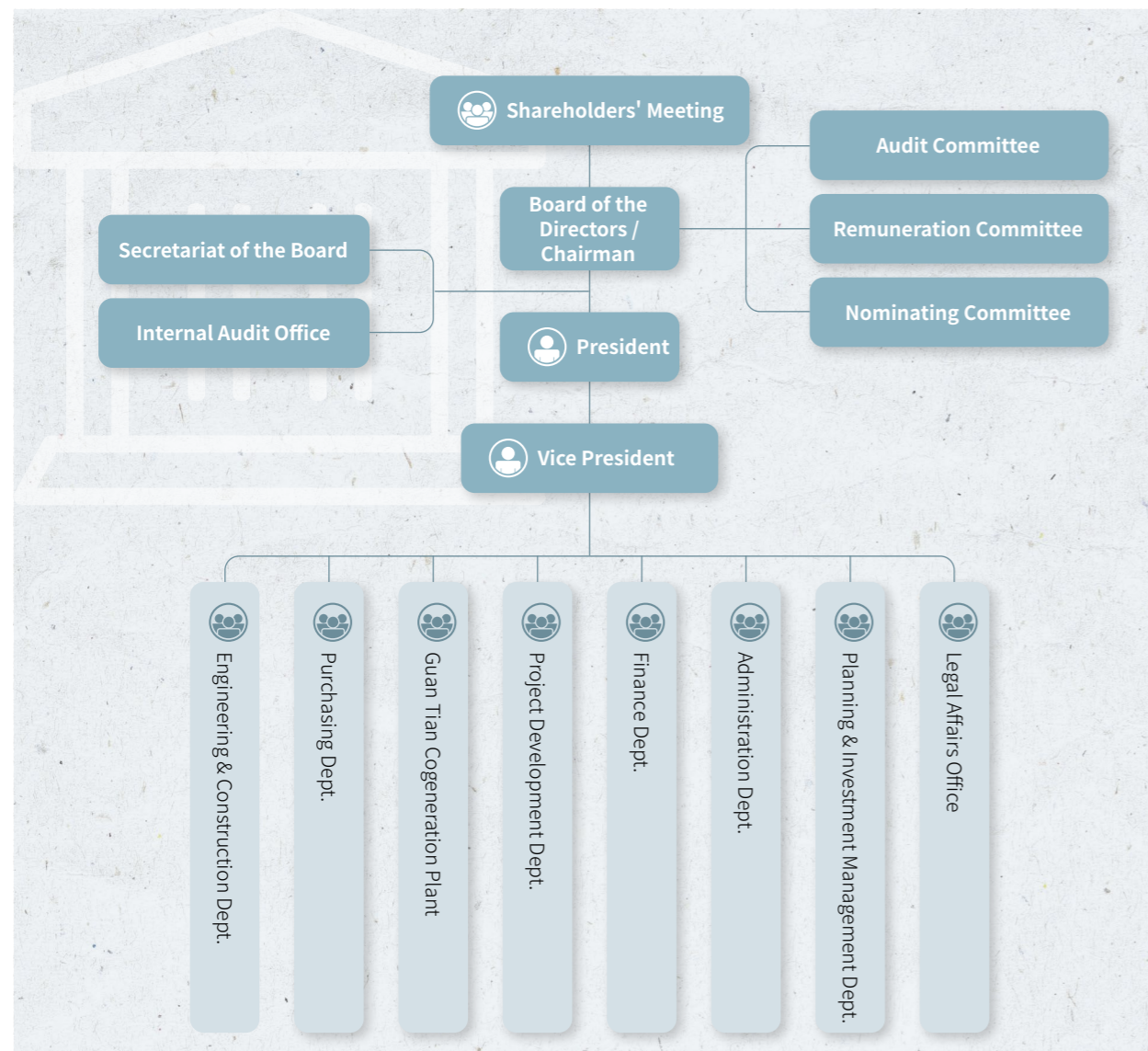
	2019	2020	2021
Net Profit After Income Tax (Owners of the Corporation)	1,098,048	1,068,547	897,884
Earnings Per Share	1.86	1.81	1.52
Add: Adjustment Item (Note 1)	0.10	0.13	0.39
Earnings Per Share Available for Distribution	1.96	1.94	1.91
Dividends Per Share	1.70	1.90	1.75
Dividend Distribution Ratio (Note 2)	96%	109%	102%

Note 1: The effect of independent power plant IFRS adjustment is added

Note 2: The ratio after deducting the legal reserve of 10%.

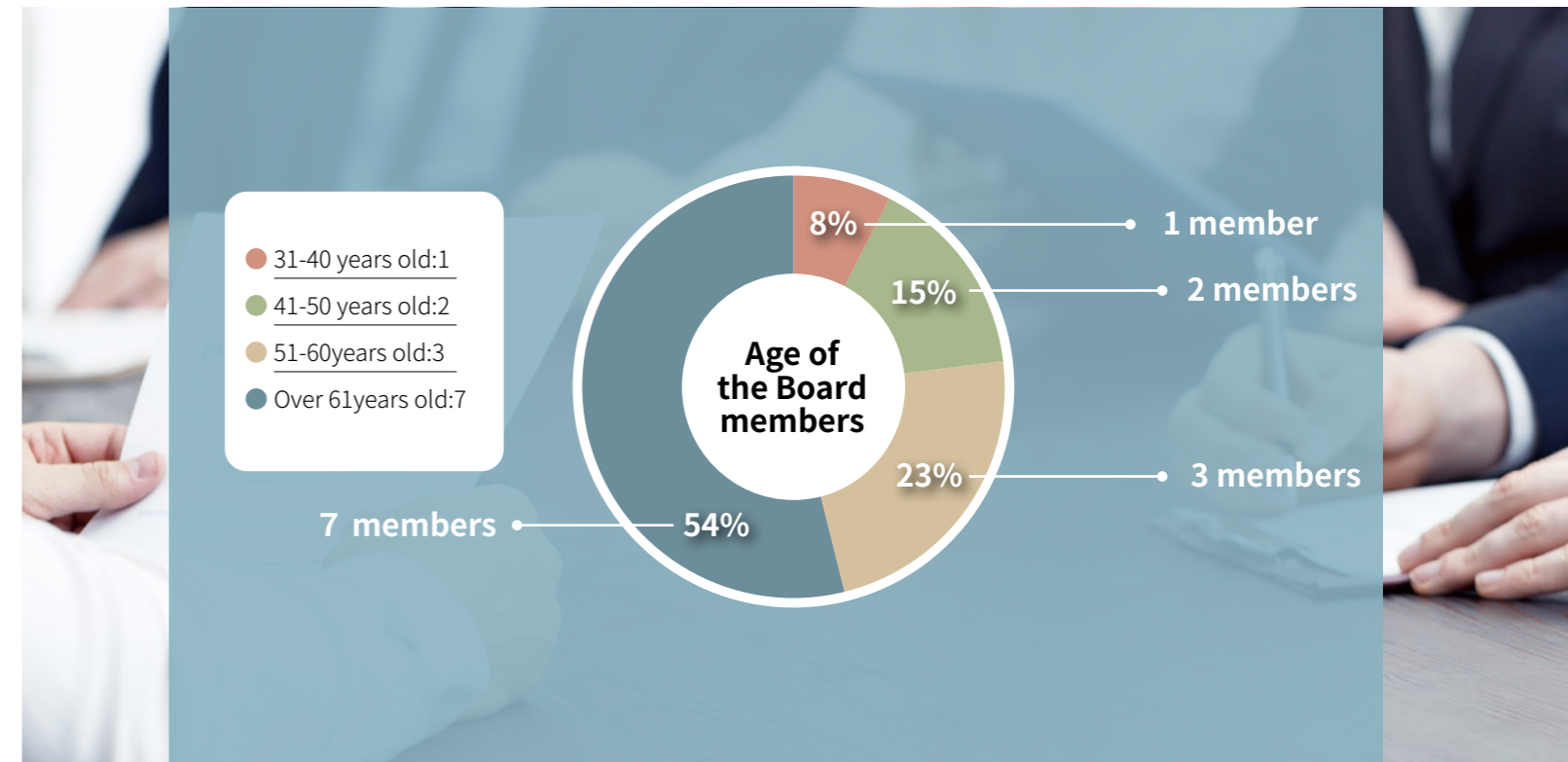
1.2 Corporate Governance and Integrity Management

1.2.1 Corporate Governance



Implement Diversification of the Board

The Shareholders' Meeting is the highest decision-making body of the Company. The shareholders' meeting elects Directors to carry out the Company's businesses. According to the Company's Articles of Incorporation, there are 13 Directors, including 3 Independent Directors, for a term of 3 years. To improve the structure of the Board of Directors, the basic conditions, such as gender and age, of the Board members are diverse. They also have diverse backgrounds, including different professional backgrounds in academics, work experience, and industries. The current Board of Directors has 3 members with the age in between 30 and 50, 10 members with the age of over 50, and 1 female Director. In the future, we will continue to reduce the gender difference among the Board members.



Regulations for the Performance Evaluation of the Board of Directors

To implement corporate governance and improve the competency of the Board of Directors, TCC has established the "Rules for Performance Evaluation of the Board", which clearly stipulates that an internal performance evaluation of the Board should be carried out every year, including the performance evaluation of the entire board, individual directors and functional committees. Furthermore, evaluation shall be conducted by an external independent professional institution or a panel of external experts and scholars at least once every three years. The items of evaluation include participation in the operation of the company, improvement of the quality of the board of directors' decision making, composition and structure of the board of directors, election and continuing education of the directors, internal control, alignment of the goals and missions of the company, awareness of the duties of a director, management of internal relationship and communication, awareness of the duties of the functional committee, decision-making quality and election of the committee members. Evaluation is carried out based on the operation of the Board of Directors and functional committees, as well as the involvement of the Directors and committee members. The results are reported to the Nominating Committee and the Board of Directors, and improvement measures are proposed if necessary. The performance evaluation results of the Board of Directors, Audit Committee, Remuneration Committee and Nomination Committee in 2021 are all "Good".

The QR code for downloading TCC's "Regulations for the Performance Evaluation of the Board":



The Internal Audit Office is subordinate to the Board of Directors, which is responsible for the internal audit of various operating activities, ensuring the continuous and effective implementation of the internal control system, and assisting the Audit Committee in fulfilling its supervisory responsibilities. The Board also has a Secretariat of the Board and a designated chief governance officer, responsible for matters relating to the shareholders' meeting, the Board of Directors, functional committees and corporate governance. In 2021, a number of regulations have been revised to strengthen the competency of the Board of Directors and improve corporate governance.

Please refer to the following table for the members of the Board of Directors on 2021/12/31:

Title	Name	Gender	Major Experience (Education)
Director	Taiwan Power Company Representative Shun-I Huang (Chairman)	Male	<ul style="list-style-type: none"> MS, Electrical Engineering, Cornell University, NY, USA Director, Department of Business, Taipower Chairman, Taiwan Electric Research & Testing Center
	Representative Tien-Ho Kuo	Male	<ul style="list-style-type: none"> Graduate Institute of Electrical Engineering, National Cheng Kung University Plant Manager of Datan Power Plant, Plant Manager of Dalin Power Plant, Director of Department of Generation, Taipower Vice President, Taipower
	Representative Tsao-Hua Hsu	Male	<ul style="list-style-type: none"> PhD, Civil Engineering, National Chung Hsing University Director, Department of Corporate Planning, Taipower Vice President, Taipower
	Representative Ming-Teh Chiang	Male	<ul style="list-style-type: none"> MS, Refrigerating Air-Conditioning Engineering, National Taipei University of Technology Director, Department of Nuclear and Fossil Power Project, Taipower Vice President, Taipower
	Representative Li-Cheng Chen	Female	<ul style="list-style-type: none"> MS, Department of Statistics and Actuarial Science, University of Iowa, USA Director of Department of Finance, Taipower
	Representative Yuh-Ming Lee	Male	<ul style="list-style-type: none"> PhD, Geography and Environmental Engineering, Johns Hopkins University, USA Professor, Graduate Institute of Natural Resource Management, National Taipei University
Director	Ta Ya Electric Wire & Cable Representative Wen-Bing Lee	Male	<ul style="list-style-type: none"> MBA, National Chengchi University General Manager, NIC Business Group, Ta Ya Electric Wire & Cable Co., Ltd
	Orijuin Investment Representative Sen-Chun Wang	Male	<ul style="list-style-type: none"> MA, Department of Management, Boston University, USA Chairman, Orijuin Investment Ltd.
	Jian-Sheng Investment Representative Fu-Chin Hong	Male	<ul style="list-style-type: none"> MA, Department of Law, Central Police University MA, John Jay College of Criminal Justice, City University of New York, USA Director, Department of Public Affairs Office, Taiwan Provincial Government Chairperson, China Textile Co., Ltd.
	BJ Investment Representative I-Hsien Chen	Male	<ul style="list-style-type: none"> BA, Department of International Business, Tunghai University Chairman, BJ Investment Co.

Independent Director	Yao-Wen Lin	Male	<ul style="list-style-type: none"> MA, Executive Master of Public Policy Program (EMPP), National Sun Yat-Sen University Director-general, Information Department, Kaohsiung City Government Chief, Premier's Office Chairperson, New Culture Foundation
	Han-Shen Li	Male	<ul style="list-style-type: none"> BA, Department of Business Administration, Tamkang University President, Taipower
	Ji-Sheng Yeh	Male	<ul style="list-style-type: none"> LLB, Department of Law, National Taiwan University Responsible Person, JSY Law Firm

For the operation of the Board of Directors in 2021, please refer to page 26-29 of the annual report, and for important resolutions, please refer to page 27-28.



Audit Committee

- ▶ The Audit Committee consists of 3 Independent Directors.
- ▶ The Audit Committee held 8 meetings in 2021. Independent Directors had no unqualified or qualified opinions. All members of the Committee attended 8 of the meetings and the attendance rate was 100%. For more information on the attendance, please refer to page 30 of the annual report.



Remuneration Committee

- ▶ The Remuneration Committee has 5 members, including 3 Independent Directors; the other 2 seats are held by relevant experts.
- ▶ A total of 6 Remuneration Committee meetings were held in 2021. All members of the Committee attended 6 of the meetings, and the attendance rate was 100%. For more information on the attendance, please refer to page 37 of the annual report.



Nominating Committee

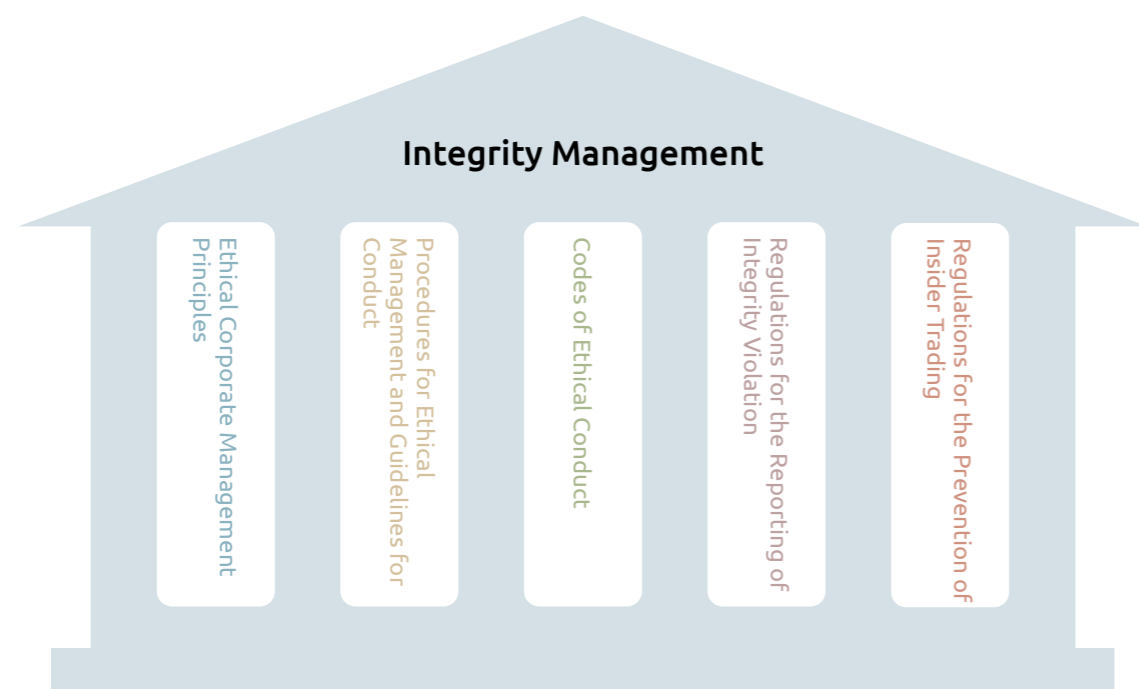
- ▶ On December 20, 2019, the organization rules of the Nominating Committee were formulated and the first-term Nominating Committee was established.
- ▶ The Nomination Committee has 5 members, including 3 Independent Directors.
- ▶ A total of 2 Nominating Committee meetings were held in 2021, with an average attendance rate of 100%. For more information on the attendance, please refer to page 41 of the annual report.

Link to the organization and operation of the Company's functional committee:
<https://www.cogen.com.tw/eng/manages/Committee>



1.2.2 Regulation Compliance and Integrity Management

TCC is founded on "integrity, transparency, and responsibility". Based on ethics and integrity, it has long adhered to the integrity norms to engage in all business activities, abiding by the guidelines such as avoidance of interests, confidentiality of information, non-discrimination and exclusion, not accepting illegitimate benefits, and operating with integrity, and it is committed to establishing a good corporate culture of integrity management.



Responsible unit:

The Legal Affairs Office is responsible for supervising the implementation of integrity management and reporting to the Board of Directors at least once a year.

- 1 Provide supervision and assistance for incorporating integrity and ethical values into the Company's business strategy, and formulate malpractice prevention measures.
- 2 Supervise the development guidelines for conduct.
- 3 Supervise the planning of organization as well as the related responsibilities, and configure a supervision and checking mechanism for high-risk business activities.
- 4 Supervise the promotion and coordination of integrity policy awareness campaign and training.
- 5 Supervise the planning of reporting system to ensure the effectiveness of implementation.
- 6 Assist the Board of Directors and management in reviewing and evaluating the effectiveness of preventive measures and report on a regular basis.

QR code for downloading TCC's integrity management norms:



Promotion of Integrity Management in 2021

01 Report to the Board of Directors	<p>On March 19, 2021, the Legal Affairs Office of the Company reported to the Board of Directors on the promotion of integrity management, including policy implementation, system establishment, training activities, and reporting channels, all operated and implemented in accordance with the Ethical Corporate Management Principles with no discrepancies.</p>
02 Education and Training	<ol style="list-style-type: none"> 1 On September 9, 2021, the course on "Case Study of Insider Trading" was held, and Prosecutor Chih-Hung Chiu, an external speaker from the Taiwan High Prosecutors Office, was invited to give a lecture. A total of 48 people attended the class, and the class duration was 2 hours. 2 On September 28, 2021, the course on "How to Avoid Breach of Trust and Unconventional Transactions in Directors' Decision-Making" was held, and lawyer, Ming-Wei Lo, was invited to give a lecture. A total of 26 people attended the class, and the class duration was 3 hours. <p>The participants of the training course include Directors, supervisors, and employees of the Company, Directors and Supervisors of the investment companies and suppliers.</p>
03 External Disclosure and Reporting	<p>The Company's Corporate Social Responsibility/Sustainability Report and website all disclose/promote the Company's integrity management policies and related reporting channels. The 6th Corporate Social Responsibility Report issued in June 2021 won the Sustainability Report Gold Award from the Taiwan Corporate Sustainability Awards (TCSA), showing that the Company has maintained a good communication channel with stakeholders.</p>
04 External Recognition	<p>In addition to winning the honor of ranking in the top 5% of listed companies in the 8th (2021) Corporate Governance Evaluation, the Company also received the "Top 50 Corporate Sustainability Award" of the Taiwan Corporate Sustainability Awards (TCSA), and the "Excellence in Corporate Social Responsibility Award" of the CommonWealth Magazine. Furthermore, shares of TCC were listed as the constituent of the "Corporate Governance 100 Index", showing that the Company's performance in corporate governance and integrity management has earned external recognition.</p>
	<p>Whistleblowing Channel</p> <p>Reporting email : whistle@cogen.com.tw Reporting hotline : (02) 8798-2000 Ext. 626</p>

Regulation Compliance

TCC operates with honesty and integrity, abides by laws and regulations, actively strengthens improvement measures for violation incidents, and implements the required advocacy and management. In 2021, there were no violations and penalties.

Litigation Regarding Fair Trade Commission

In March 2013, the independent power producers TCC invests (including Star Energy Power, Sun Ba Power, Star Buck Power and Kuo Kuang Power, collectively referred to as the "IPP Companies") were fined by the Fair Trade Commission for violating Paragraph 1, Article 14 of the Fair Trade Act while they actually did not engage in any concerted actions and then filed litigations of revocation with the administrative court in November 2013. As of the end of 2021, those cases were still in trial. The related details are as follows:

Date	Litigation Status
November, 2013	After discussing with lawyers, TCC was convinced that there were no concerted actions among the IPP Companies, so the IPP Companies filed litigations of revocation with the Taipei High Administrative Court.
October, 2014	The Taipei High Administrative Court ruled in favor of the IPP Companies and revoked the administrative disposition of concerted actions which was made by the Fair Trade Commission.
October, 2014	The Fair Trade Commission filed an appeal with the Supreme Administrative Court. Afterwards, the Supreme Administrative Court remanded for a new trial to the Taipei High Administrative Court.
May, 2017	The Taipei High Administrative Court ruled in favor of the IPP Companies and revoked the administrative disposition of concerted actions which was made by the Fair Trade Commission.
September, 2018	The Fair Trade Commission filed an appeal with the Supreme Administrative Court. Afterwards, the Supreme Administrative Court remanded for another trial to the Taipei High Administrative Court.
May, 2020	The Taipei High Administrative Court ruled in favor of the IPP Companies and revoked the administrative disposition of concerted actions which was made by the Fair Trade Commission.
June, 2020	The Fair Trade Commission filed an appeal with the Supreme Administrative Court.

The above-mentioned litigations were still in trial, and the fines imposed by the Fair Trade Commission have been paid in installments for the time being. For more information, please refer to the following table:

Company	No. of Cases	Incident	Amount (NT\$ 100 million)	Basis of Laws and Regulations	Competent Authority
Sun Ba Power	1	The Fair Trade Commission considered that the IPP Companies had violated the Fair Trade Act on account of concerted actions.	4.89	Paragraph 1, Article 14 of the Fair Trade Act	Fair Trade Commission
Star Energy Power	1		3.92		
Star Buck Power	1		1.00		
Kuo Kuang Power	1		3.71		

In addition, Taiwan Power Company ("Taipower") also filed actions for monetary damages against the IPP Companies based on the aforementioned violation of the Fair Trade Act. For more information, please refer to the following table:

Unit: NT\$ 100 million

Company	The amount of damages claimed by Taipower in civil action 1	The amount of damages claimed by Taipower in civil action 2	Total	Explanation
Sun Ba Power	42.57	86.60	129.17	The outcome of such actions will very likely be affected by the results of the administrative litigation concerning whether the IPP Companies violate the Fair Trade Act or not.
Star Energy Power	24.89	49.90	74.79	
Star Buck Power	3.07	6.23	9.30	
Kuo Kuang Power	24.90	48.90	73.80	

Note: The above-mentioned "civil action 1" were lawsuits filed by Taipower with the Taipei District Court. Taipower has reduced the damages it claimed against Sun Ba Power to about NT\$ 1.416 billion, the damages it claimed against Star Energy Power to about NT\$ 829 million, the damages it claimed against Kuo Kuang Power to about NT\$ 829 million, and the damages it claimed against Star Buck Power to about NT\$ 102 million. The above-mentioned "civil action 2" were originally filed by Taipower with the High Administrative Court and then transferred to the Taipei District Court. However, Taipower has withdrawn the civil action 2 during June to July 2020 and therefore "civil action 2" were deemed to have never been initiated.

1.2.3 External Collaboration

By engaging in external organizations, TCC exchanges with related industries and actively participates in activities organized by various associations to learn more about industrial development and market trends. In addition, TCC also participates in the Taiwan Cogeneration Association, with the Company's senior managers serving as the Chairman and Secretary of the Association, to plan academic and technical seminars, publish the "Cogeneration Journal", and conduct visits to domestic power plants/cogeneration plants or related energy facilities, promoting industry-government-university-institute collaboration.

Participating Units	Participated Associations	Method of Participation
TCC	Taiwan Cogeneration Association	Chairman/Group Leader
	Chinese Association for Energy Economics (CAEE)	Director/Member
	Taiwan Institute for Sustainable Energy (TAISE) / Center for Corporate Sustainability (CCS)	Director/Member
	Taiwan Electric Power Association (TEPA)	Director/Member
	The Taiwan Electrical Contractors Association (TTECA)	Member
	Taiwan Association of Energy Service Companies	Member
	Taiwan Wind Energy Association	Member
	Taiwan Photovoltaic Industry Association (TPVIA)	Member
	Chinese Petroleum Institute	Member
	Taipei Neihu Technology Park Development Association	Member
	Taiwan Power and Energy Engineering Association	Member
	Solar PV Generation System Association (PVGSA)	Member
Star Energy	Taiwan Cogeneration Association	Member
	Taiwan Regional Engineering Contractors Association (TRECA)	Member
	Taiwan Society for Circular Economy	Member
	Taiwan Wind Energy Association	Member
	Taiwan Wind Industry Association (TWIA)	Member
	Taiwan Electric Power Association (TEPA)	Member
	Taiwan Refrigeration & Air-conditioning Engineering Association of R.O.C.	Member
	Taiwan Water Pipe Engineering Association (Taipei Office)	Member
	Taiwan Electrical and Electronic Manufacturers' Association (TEEMA)	Member
	The Taiwan Electrical Contractors Association (TTECA)	Member
	Solar PV Generation System Association (PVGSA)	Member
	Water Industry Development & Promotion Association (WIDPA)	Member
	Taiwan Photovoltaic Industry System Association (TPISA)	Director/Member
	Electric Power Research Institute (EPRI)	Member

1.3 Risk Management

TCC has established a risk management mechanism. Through the attention and commitment of the top management, it guides and promotes employees' risk awareness from top to bottom, and conducts reviews and revisions of the annual risk management plan on a rolling basis every year to effectively reduce the occurrence of risk and the impact on the Company, ensuring the sustainable operation of the Company and improving the Company's operating performance.

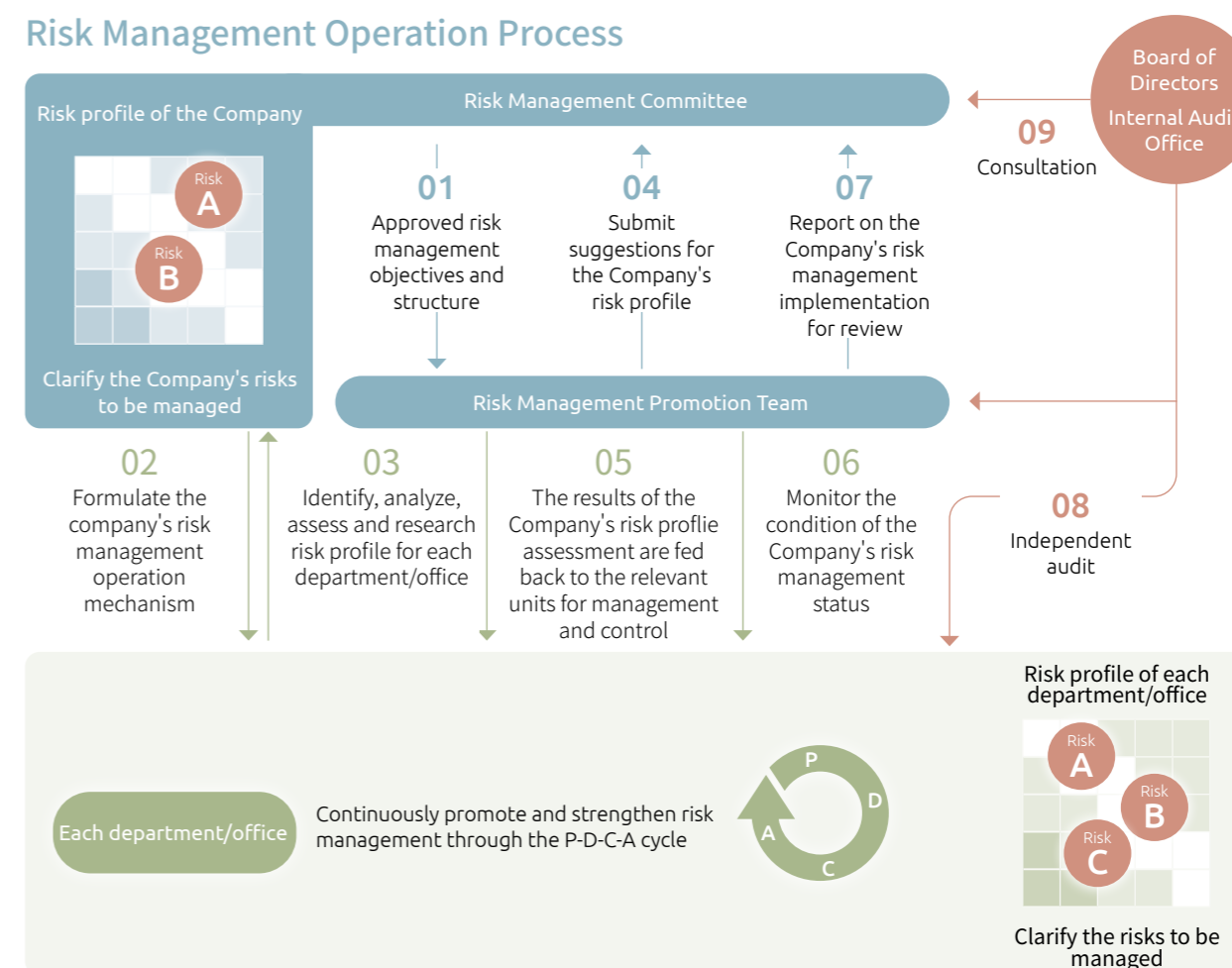
To implement the risk management system of the Company smoothly and comprehensively, we have formulated the "Risk Management Policy" and the "Risk Management Implementation Plan" to include risks associated with investment, operation, management and climate change into the scope of management and control. We hope that through risk identification, analysis, evaluation, processing and monitoring, risk management can be incorporated into various operating plans, business operations and daily management. In addition, through education and training, risk management knowledge and tools can be developed to shape a risk management culture.

Organizational Structure of Risk Management

The Board of Directors is the highest decision-making unit of the Company's risk management, ensuring and supervising the Company's compliance with relevant laws and regulations, as well as the effectiveness of the risk management mechanism. The Risk Management Committee is chaired by the Chairman of TCC, and other members of the Committee include President and Vice President of TCC, who are responsible for reviewing the Company's risk management operation mechanism, risk management plans and control measures.

A risk management team is set up under the Committee, and each department is responsible for carrying out its related risk assessment and control. The Planning & Investment Management Dept. is responsible for the formulation, revision, promotion, and control of the operation mechanism, to ensure the effective implementation of the risk management mechanism and procedures. The Internal Audit Office is responsible for formulating audit plans, reviewing independent risk management matters, and reporting to the Board of Directors at least once a year.

Risk Management Operation Process



Risk Management Promotion in 2021

Date	Work Item	Specific Results
2021/02	Risk profile review meeting	Compiled the risk profiles of various departments to create the company-level risk profile.
2021/03	Complete the risk management plan	Completed the 2021 risk management plan. The company-level risk profile is mainly divided into five aspects, and is managed and controlled according to the plan.
2021/07	Review the implementation of risk management measures	Reviewed the implementation of risk management measures for the first half of 2021.
2022/01	Review the implementation of risk management measures	Confirmed that all risk management measures in 2021 were implemented in accordance with the predetermined plan, the actual risk profile was consistent with the predetermined plan, and the management measures were effective.

Risk Items and Countermeasures

Category	Item	Countermeasures/Controls
Investment	1. Project Development Investment	Formulate countermeasures for the risks of different projects such as renewable energy, IPPs, overseas investment and green electricity retailing: <ul style="list-style-type: none"> ▶ With the assistance of a professional team and careful selection of collaborative vendors, accelerate the development schedule. ▶ Set up a task force to review, track and report regularly. ▶ Gather information on government policies, laws and regulations, continue to communicate and negotiate with government agencies to get a full understanding of the development variables. ▶ Strengthen the communication and coordination with environmental protection groups and local communities, and strive to reduce ecological impact. ▶ Stay updated on changes of the external environment and evaluate investment benefits constantly.
Operation	2. Engineering Project Contracting	Formulate countermeasures for the risk of delay in the contracting of power engineering projects: <ul style="list-style-type: none"> ▶ Implement various tasks in accordance with the predetermined construction schedule, and hold project meetings regularly to review the status of management and control. ▶ Strengthen the implementation of control measures for the COVID-19 pandemic and occupational safety regulations. In addition to the daily inspection of safety equipment, occupational safety management and penalties for violations are strictly implemented.

Operation	3. Operation of the Guan Tian Plant	Formulate countermeasures for the risks of operation, skill sharing, environmental protection laws, and material sources that may arise in the operation of the Guan Tian Cogeneration Plant: <ul style="list-style-type: none"> ▶ Strengthen the standardization system of operation and environmental quality control, and upgrade pollution control equipment. ▶ Recruit new employees, and pass on technology and experience through the Group's knowledge management (KM) platform and core skill training program. ▶ Keep abreast of the dynamic changes in the coal and rubber (scrap tire) market, and fully utilize rubber burning in compliance with regulations and safety to control costs, improve operational flexibility, and implement the circular economy.
Management	4. Management of Investment Business	Formulate countermeasures for the risks that may be encountered in the investment business: <ul style="list-style-type: none"> ▶ Actively participate in seminars or conferences to grasp changes in laws and regulations, and take immediate countermeasures. ▶ Set KPIs for investment companies to ensure operational performance. ▶ Through the experience sharing of the Group's knowledge management (KM) platform, the occurrence of operational accidents is reduced. ▶ Supervise the investment business to implement epidemic prevention regulations and related response measures.
	5. Human Resource Management Risk	Formulate countermeasures for the manpower-related risks that may be encountered due to fierce competition in the market of talents: <ul style="list-style-type: none"> ▶ Increase diversified recruitment channels and collaborate with professional training institutions in related fields. ▶ Organize training programs to enhance employees' professional skills. ▶ Arrange flexible salary and benefit program to retain professional talents.

Note: TCC also identified related risks in response to climate change. For details, please refer to 3.1 Climate Change and Energy Management.

Information Security Enhancement

The Company refers to the information security management system (ISO/IEC 27001) and related guidelines for its operation, and actively carries out information security management related actions, including formulating the "Information Security Policy", the "Information Security Management Mechanism", the "Information Audit Plan" and establishing the "Information Security Promotion Team". It follows the "Information Security Education and Training Plan" that is formulated annually to strengthen employees' awareness of information security, promote the importance of employee information security protection, and send employees to attend the lead auditor course of ISO /IEC 27001:2013 Information Security Management System for the auditor certificate. The Company establishes a good information security management system by regulating the management, system and technical aspects to achieve the information security management goals.

In 2021, the Company will continue to update relevant information security protection and control measures in accordance with the "Cyber Security Guidelines for TWSE/TPEX-Listed Companies", including the introduction of security threat detection management mechanism (SOC), the addition of the intrusion detection and defense mechanisms as well as an advanced defense mechanism for persistent threatening, the continuous update of antivirus software, network firewall improvement, and an effective email filtering mechanism.

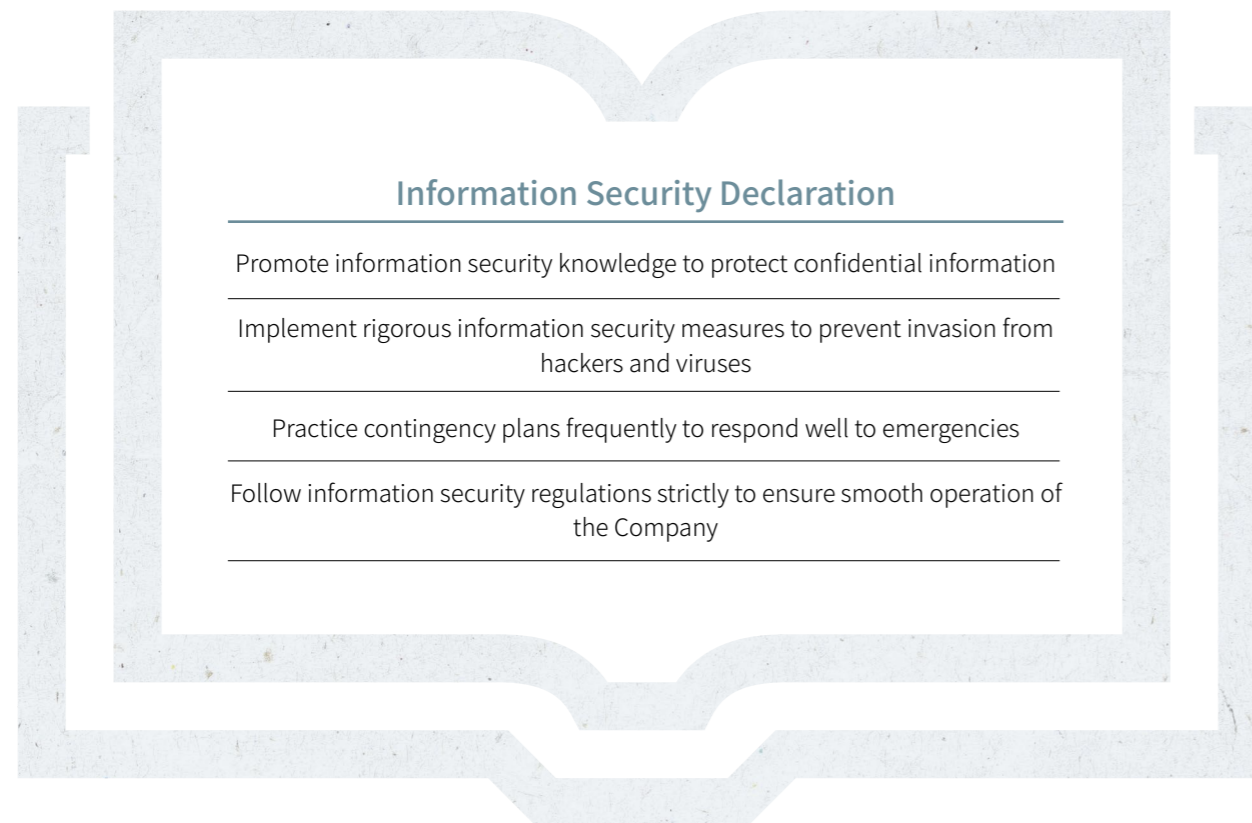
In addition, the Company has supervised the invested power plants to introduce information security-related monitoring service mechanisms. Since 2019, the Company has actively participated in the "On-site Interviews for Information Asset Risk Assessment and Guidance for Private Power Companies" conducted by the Bureau of Energy, Ministry of Economic Affairs every year. Through the help of the information security consulting group, the inventory of information assets and risk assessment (re-assessment) work is carried out to strengthen the asset inventory and risk assessment capabilities of invested power plants. Each power plant has followed the suggestions for improvement in the report submitted after each year's interviews, carried out control and improvement operations, and achieved good results.

The link for downloading the information security policy and management mechanism of TCC is shown below:
<http://www.cogen.com.tw/manages/?p=4>



Information Security Policy

To ensure the confidentiality, integrity, availability and legality of the Company's information assets and key information infrastructure, we implement information security risk control and contingency plans, strengthen the employees' awareness of information security, while the information security policy of the Company is established.



The Company regularly reviews the information security management system, and adjusts the information security policy as well as related management measures according to business changes, information technology development trends, and risk assessment results.

Information Security Management Mechanism

Regarding the information security policy, the Company has established an "Information Security Management Mechanism", which is implemented based on three aspects: technology application, information security governance, and regulation compliance.

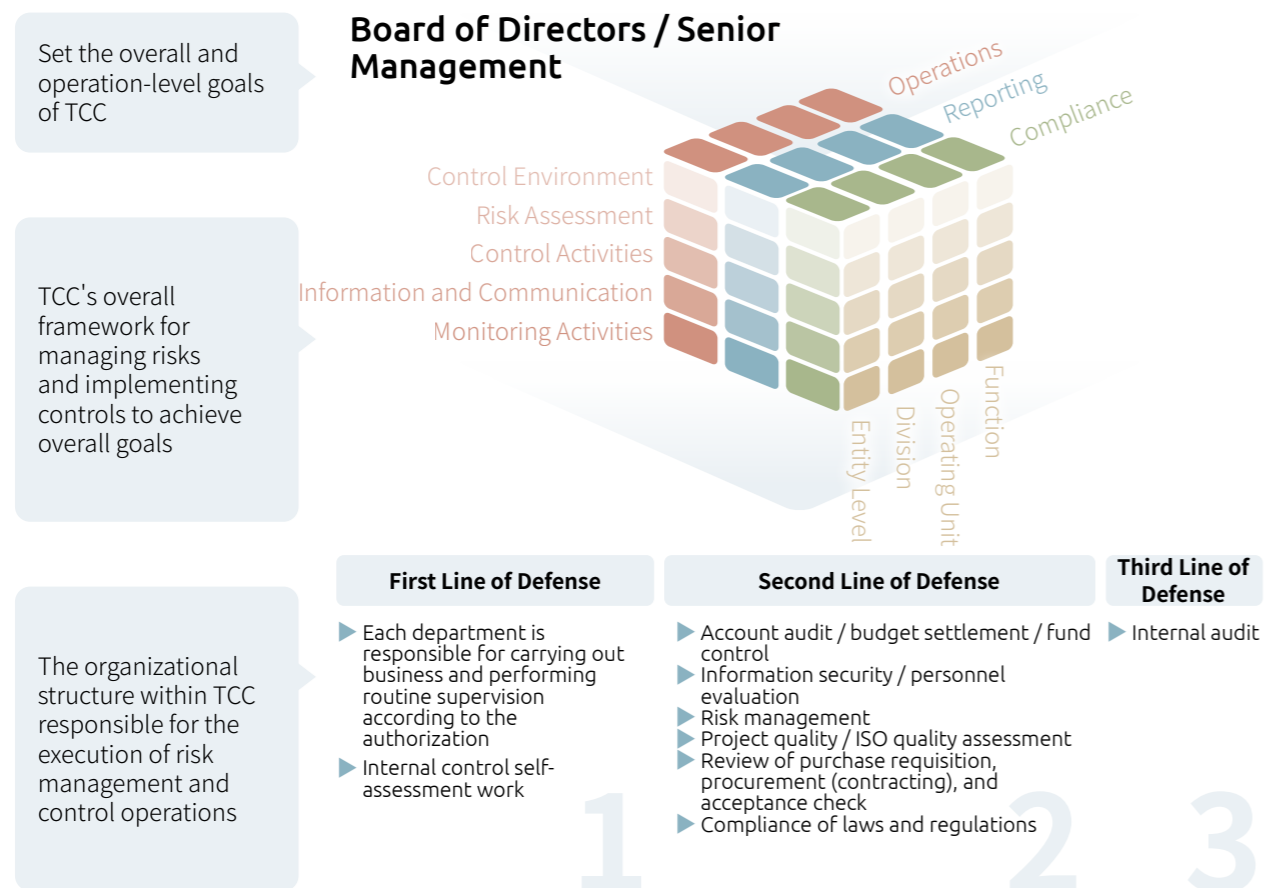


<p>Technology Application</p>	<ul style="list-style-type: none"> ▶ Check and plan the overall network structure of the computer room, update network information security equipment and system servers in stages, and build additional storage equipment and network backup mechanisms ▶ Email social engineering drill to improve employees' information security awareness ▶ System vulnerability scan, set up antivirus software and firewall to strengthen information security protection ▶ Update network information security equipment in the computer room, and implement information management software as well as wireless network real-name system ▶ Introduce security threat detection management mechanism (SOC), hacking detection and defense mechanism, and defense measure for advanced persistent attacks
<p>Information Security Governance</p>	<ul style="list-style-type: none"> ▶ Formulate corporate network control and access rules, including wireless network access rules, network control rules of the Group, physical network port and internal network isolation measures. ▶ Control audit of information security inspection ▶ Strengthen information security education and training ▶ Introduce information security infrastructure and perform 24-hour information security real-time monitoring via outsourced electronic platform
<p>Regulation Compliance</p>	<p>To improve the information security management mechanism continuously, the Company plans to establish the "Information Security Maintenance Plan", including: setting up a "Promotion Team" and assigning management representatives, annual education and training plan, implementation of maintenance plan, audit plan, audit projects, audit results, improvement reports, and performance tracking reports, to review and revise regularly the circulation mechanism and internal operating specifications, complying with the information security laws and regulations.</p>

Risk Management

Three Lines of Defense for Internal Control

In order to enable the internal control system to effectively manage risks and help achieve the Company KPIs, we refer to the research report of "Leveraging COSO Across - The Three Lines of Defense" released by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in July 2015, while each department would implement various control operations according to its responsibilities to form the first and second lines of defense. The internal audit would evaluate the implementation of the first and second lines of defense to form a third line of defense.



Design and Implementation of Internal Control System

To promote the sound operation of the Company, the management department has completed the establishment of an internal control system suitable for the Company, in accordance with the "Regulations Governing Establishment of Internal Control Systems by Public Companies" and TCC's industrial characteristics, covering the five major elements such as control environment, risk assessment, control activities, information and communication, as well as monitoring activities. In addition, internal audit implementation rules and internal control self-assessment procedures are incorporated to ensure that the following three goals are achieved:



Regular Revision of Internal Control System

To implement the mechanism of self-supervision and respond to changes in the environment in a timely manner, the Internal Audit Office of the Company has initiated the revision of the internal control system in the middle of the year. The management department is requested to propose the control operation items that need to be revised, and formulate/revise relevant rules and measures according to the internal control self-assessment report of the previous year. Considering the impact of the COVID-19 pandemic on daily business operation practices, and in conjunction with the launch of the e-procurement system and material management system, as well as the adjustment of the Company's organization, comprehensive review and revision of the internal control system are carried out accordingly. Through the internal control system, good corporate governance and corporate social responsibility are internalized into corporate culture to achieve the goal of sustainable operation.

The internal control of subsidiary, Star Energy, has also been adjusted in accordance with its organizational changes and operational activities, while an internal control system that includes the five major elements has also been established. In 2021, since its business is focused on the investment and development of renewable energy, EPC project contracting, and O&M, the company's internal control system has been revised and strengthened to facilitate risk management.

Implement Internal Control Self-Assessment

Every year, the Company initiates the annual internal control system self-assessment operation in November. Each department will evaluate the effectiveness of internal control system's design and implementation according to each of its operating procedures, and briefly record the status of the operation, with required supporting materials attached. The self-assessment results and the department-level internal control declarations are submitted to the Internal Auditing Office for review. Based on the results, each department reviews and improves the internal control self-assessment annually, revising the internal control system accordingly. Based on the result of the Company's internal control self-assessment for the current year, no major faults were found.

To encourage and motivate all departments to continuously improve their internal control self-assessment, since 2019, the department with the best internal control self-assessment has been selected and given substantial rewards. Currently, the evaluation indicators include "delivery time of self-assessment report", "detailed description (including data, improvement of faults, etc.)", "data supporting materials", "whether there is division of work within the department", and "supervisor's score", hoping to shape a better corporate governance culture than before. To internalize the internal control system for the employees, from 2021, all departments are encouraged to put forward the benefits of implementing internal control when conducting self-assessment operation.

Perform Internal Audits

The Internal Audit Office of the Company carries out regular and special audits to assist the Board of Directors and Managers in inspecting and reviewing defects in the internal control systems, as well as measuring operational effectiveness and efficiency, and shall make timely recommendations for improvements to ensure the sustained operating effectiveness of the systems, and to provide an important basis for review and correction.

The Internal Audit Office conducts a comprehensive risk assessment with reference to the Company's annual risk management plan, projects concerned by the competent authorities, directors and senior management, the feedback in handling audit operations, and projects that have not been audited for a long period of time, to formulate an audit plan for the following year, which is then submitted to the Audit Committee for review. After the approval from the Board of Directors, regular audits are carried out in sequence, and irregular special audits are also conducted depending on actual needs.

Each audit report during the year has been reported to the Independent Directors for review in accordance with the regulations. No major internal control defects were found this year. Recommendation for improvements have been regularly tracked until the improvement has been made by the responsible department. The actual improvements are summarized and submitted to the Audit Committee and the Board of Directors for review in May and November of each year. The tracking for improvement shall be dismissed afterward.

According to the audit plan approved by the Board of Directors, the integrity and moral values of the Company and its subsidiaries have been reviewed, and an anonymous questionnaire survey was conducted to understand the promotion of the Company's integrity and ethics. The overall survey results show that when compared with the previous questionnaire survey (2019), the average performance of TCC remained unchanged (a slight increase from 94% to 95%), while that of the subsidiary, Star Energy, increased significantly from 68% to 93%, suggesting that the overall integrity management related to education, training or advocacy for Star Energy has been successfully implemented.

CHAPTER
02

Stable and Reliable Green Electricity Partner

- 2.1 A New Direction for Energy Transition
- 2.2 Reliable Green Electricity Expert
- 2.3 High Quality Customer Service
- 2.4 Sustainable Supply Chain

Chapter Highlights

- ◆ The renewable energy sold in 2021 exceeded 100 GWh
- ◆ 3 invested power plants sold 9,690 GWh of electricity
- ◆ The Guan Tian Plant had a customer satisfaction score of 94.38, and an operation reliability of 99.76%
- ◆ Green procurement exceeded NT\$ 220 million

2.1 A New Direction for Energy Transition

Domestic Policies and Markets

According to the policy goals of "promote green energy, increase natural gas, reduce coal-fired, achieve nuclear-free" planned by the Bureau of Energy, Ministry of Economic Affairs, the percentage of renewable energy and gas-fired power generation will increase significantly. The structure of electricity market will gradually shift towards the development of zero/low-carbon-emission power generation such as renewable energy and natural gas in the future.

In response to the energy transition policies mentioned above, numbers of renewable energy power plants have been connected to the grid. With the government's policy to reduce coal while increase gas usage, the demand for gas-fired power plants is on the rise. In addition, Taipower has put the 2025 and 2026 commercial-operation electricity procurement contract out for tender, increasing the opportunities to expand the existing power plants, or add plants in the future. It is estimated that gas-fired power plants will still play an important role in Taiwan's electricity market.

In terms of renewable energy, the government has started the first stage of power transition with the "Green Energy First" policy and gradually opened up the energy trading market, benefiting the development of renewable energy-related businesses, such as investment and development, project contracting, O&M, and renewable energy retailing. On the other hand, the "Regulations for the Management of Setting up Renewable Energy Power Generation Equipment of Power Users above a Certain Contract Capacity" has been in effect since 2021, which stipulates the obligation of energy-heavy industries to install renewable energy sources. Moreover, the increasing number of domestic enterprises that attach importance to carbon reduction further expands the demand for renewable energy, stimulating the green energy trading market. As of the end of December 2021, the total amount of green electricity wheeled has exceeded 600 GWh, an increase of more than 11 times when compared with 2020. Furthermore, as more trading items are being added to the Energy Trading Platform, the demand for ancillary services will gradually increase, boosting up the energy storage market and expanding related businesses.

Advantages/Disadvantages of TCC's Development and Countermeasures

✓ Advantages

- ✓ The promotion of the Energy Trading Platform and the reduction of unit energy storage costs are favorable for participating in ancillary services and demand response businesses
- ✓ Increase in domestic electricity demand will increase dispatch opportunities
- ✓ The government's green energy policy will benefit the Company to develop its renewable energy business
- ✓ The technical entry barrier of large development project is high; the Company's has a competitive advantage due to its electric power expertise
- ✓ The increasing demand for offshore wind power O&M, and the government's policy to promote the localization of domestic wind industry will benefit the development of wind power O&M business
- ✓ Combine AI technology with professional O&M technology to improve the efficiency of renewable energy O&M and reduce costs

✗ Disadvantages


- ✗ Issues such as the environmental disputes of adding LNG (liquefied petroleum gas) terminals and the priority connection of renewable energy to the grid are affecting the operation and development of the Company's gas-fired power plants
- ✗ Fluctuations in international fuel prices affect the revenue of cogeneration and invested independent power plants
- ✗ The increasing strictness of environmental protection regulations and the direction of government policy will affect the operation of existing cogeneration plants, and increase investment in environmental protection equipment
- ✗ Affected by the COVID-19 pandemic, the price of raw materials has risen sharply, which will affect the revenue of future power plants; in addition, the import/export of equipment and the traveling of personnel from/to Taiwan may be restricted
- ✗ Growing competition due to domestic and international companies starting to invest in renewable energy-related industries subsequently

Countermeasures:

- 1 Actively develop steam users, reduce the wholesale of surplus electricity, and improve the renewal of environmental protection as well as power plant equipment to meet the discharge standards of environmental protection regulations and improve units' efficiency.
- 2 Complied with the revision of the Electricity Act and energy transition, we actively develop cogeneration, power generation from independent power plant, and renewable energy businesses to expand our scale of business.
- 3 Pay close attention to the price fluctuations in the foreign exchange and energy market, to avoid and minimize potential risks.
- 4 Operate with the backing of our solid financial foundation and carry out risk management.

2.2 Reliable Green Electricity Expert

Energy development is essential for the economic growth and social development of a country while renewable energy incorporates key topics of environmental protection and sustainability into energy development. Today, energy conservation and carbon reduction are no longer topics just for advocacy, but key actions that need to be implemented around the world. Under the government's promotion, Taiwan is also developing renewable energy at full throttle. TCC continues to develop renewable energy under the idea of environmental protection, sustainability and energy saving, making us the first company in Taiwan that has full experience and expertise in renewable energy investment and development, project contracting and O&M, while providing comprehensive services in green electricity retailing and energy storage. In terms of investment and development, the Company actively invests in the development of solar power, wind power, and geothermal power generation. As for O&M, TCC continues to strengthen our field of expertise of renewable energy O&M based on experience from our subsidiary, Star Energy. TCC Green Energy, another subsidiary of TCC, sold its first kWh of green electricity in 2020. By the end of 2021, it has sold a total of more than 140 GWh, which is equivalent to 140,000 Renewable Energy Certificates (RECs).

 Solar Photovoltaic Power	<ul style="list-style-type: none"> ▶ Invested in the development of rooftop and floating photovoltaic systems ▶ Large-scale solar photovoltaic EPC projects (Taipower's 100MW photovoltaic project in the Changhua Coastal Industrial Park, and 150MW photovoltaic project in Tainan) ▶ Invested in the development of fishery and electricity symbiosis project ▶ Engaged in the operation of solar photovoltaic joint booster station ▶ Renewable energy O&M
 Wind Power	<ul style="list-style-type: none"> ▶ Invested in the onshore wind power projects of Miaoli Wind and Star Wind ▶ Wind turbine EPC turnkey project ▶ Onshore wind turbine O&M ▶ Offshore wind power transmission and distribution turnkey project, transmission line and substation planning, onshore tube bank civil engineering project ▶ Offshore wind power O&M
 Geothermal Power	<ul style="list-style-type: none"> ▶ Completion and operation of the Chingshui Geothermal Power Plant through BOT with the Yilan County Government
 Renewable Energy Retailing and Ancillary Service	<ul style="list-style-type: none"> ▶ In 2020, the first kWh of electricity was sold via wheeling ▶ As of the end of 2021, a total of more than 140 GWh of electricity was wheeled ▶ Assisted customers to achieve RE planning ▶ Obtained ETP Expertise Certificate to perform trading in ancillary service market

2.2.1 Solar Photovoltaic Power

With regard to the investment and development of solar photovoltaic power, TCC has the professional capability to perform vertical integration, from preparation, planning, construction, installation, to O&M. We have engaged in various types of solar photovoltaic projects including rooftop photovoltaic, floating photovoltaic and ground-mounted photovoltaic projects. The TCC Group has developed and constructed the Wushantou Reservoir floating photovoltaic power plant with a capacity of 13.7MW, 18 GWh of annual generation, as well as approximate 9,000 tons of annual carbon reduction. It is currently the largest reservoir-based floating photovoltaic power plant in Taiwan. The construction started in January 2021, and reached its first milestone when the 69 kV substation was completed in January 2022. It is expected that the entire plant will be completed and connected to the grid in the first half of 2022.



Aerial view of the module assembly area



Modules are being moved to their positions

TCC also has the capability to undertake large-scale solar photovoltaic EPC projects. In a contract with TCC, the 150 MW solar PV project of Taipower in Tainan is not only the largest solar photovoltaic project in Taiwan, it also sets the record for the fastest completion of a domestic large-scale photovoltaic project.



Completing the greening of the embankment



Landscape facilities such as wooden walkway and bird watching pavilion

In addition, TCC has acquired Hamaguri Co., Ltd. in 2020, and proposed a fishery and electricity symbiosis project on a 61.4-hectare fish farm located in Fangyuan Township, Changhua County. The first stage of the project is expected to have a total installed capacity of 40MW. We hope that by combining 30 years of experience in electrical business with a unit of aquacultural experts, a development team that possesses expertise can be formed to assist local fishermen in response to the government's fishery and electricity symbiosis policy, creating a win-win situation for both local development and fishery and electricity symbiosis.



Aerial view of the fish farm

What is "Fishery and Electricity Symbiosis"?

"Fishery and electricity symbiosis" is a term that is often mentioned within the energy industry in recent years. It refers to the integration of aquaculture with solar photovoltaic power to improve land utilization. Compared with traditional ground-mounted photovoltaic power, fishery and electricity symbiosis not only maintains the core spirit of "agricultural land for agricultural use", but also improves Taiwan's energy independence through the development of solar power, fulfilling national security indicators via a mutual-benefit approach.

Currently, due to the issue of grid-connection capacity in domestic solar photovoltaic power, the development of Taiwan's solar power may be delayed. To overcome this challenge, TCC complies with national policies by actively invests in the construction of common substation with solar PV system, through standard modular designs. TCC not only pursues the Group's renewable energy development goals, but also seeks a business model to achieve green energy for common good. We wish to solve the grid-connection capacity issue in the solar power developing hot zone, and extend Taiwan's passion for solar power development.

2.2.2 Wind Power

In terms of onshore wind power, the Company invested in Miaoli Wind, which has onshore wind turbines with a total installed capacity of 49.8MW and an annual power generation of over 100 GWh, making it a significant contributor to domestic low-carbon power generation. Through the long-term green electricity purchase agreement signed between TCC Green Energy and domestic electronic communication industries, approximately 28.5 GWh of green electricity can be wheeled annually from Star Wind's onshore wind turbines that has a total installed capacity of 10.35MW. Moreover, Star Energy, a subsidiary of TCC, has outstanding performance in both EPC contracting and O&M businesses, undertaking a total of 61 wind turbines in 7 wind farms of Taipower, as well as 2 onshore wind turbines (7.2MW) from Taiwan Cement Corporation Green Energy's EPC project. It is responsible for the O&M of 116 wind turbines in Taiwan, serving as a wind turbine O&M company with the most experience and expertise in Taiwan. Whether it is O&M proficiency or service attitude, Star Energy is widely recognized by its customers.

In addition, in order to comply with the government's promotion of renewable energy policies and its plans to participate in the O&M of offshore wind farms in the future, the Group has built the Taiwan's first Renewable Energy O&M Center in the Changhua Coastal Industrial Park, which was completed in 2021 and is expected to begin operation in 2022. The O&M Center will integrate various facilities that are required for the operation and maintenance of renewable energy such as onshore wind power, offshore wind power and solar power, from spare-parts warehouse, office area to dormitory, the center provides a full range of services for renewable energy O&M, fulfilling the policy goal of localizing O&M technologies.



Wind turbines of Star Wind



Wind turbines of Miaoli Wind

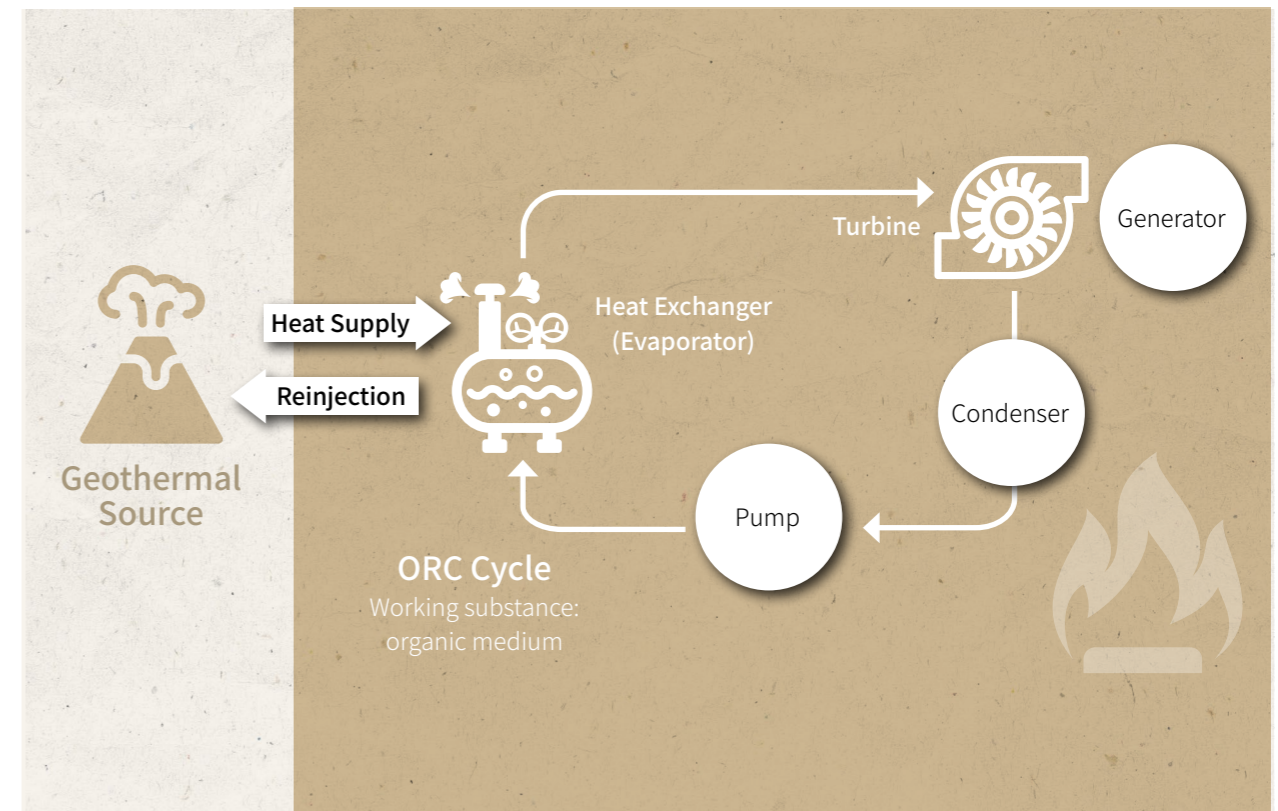


2.2.3 Geothermal Power

In addition to solar and wind power generation, geothermal energy is also a rich natural resource in Taiwan. As the pioneer of geothermal power generation, TCC signed a BOT contract with the Yilan County Government in 2017 through its subsidiary, Yi Yuan, to build the Chingshuei Geothermal Power Plant with installed capacity of 4.2MW, which is currently the largest geothermal power plant in Taiwan, reaching another important milestone for domestic renewable energy development.

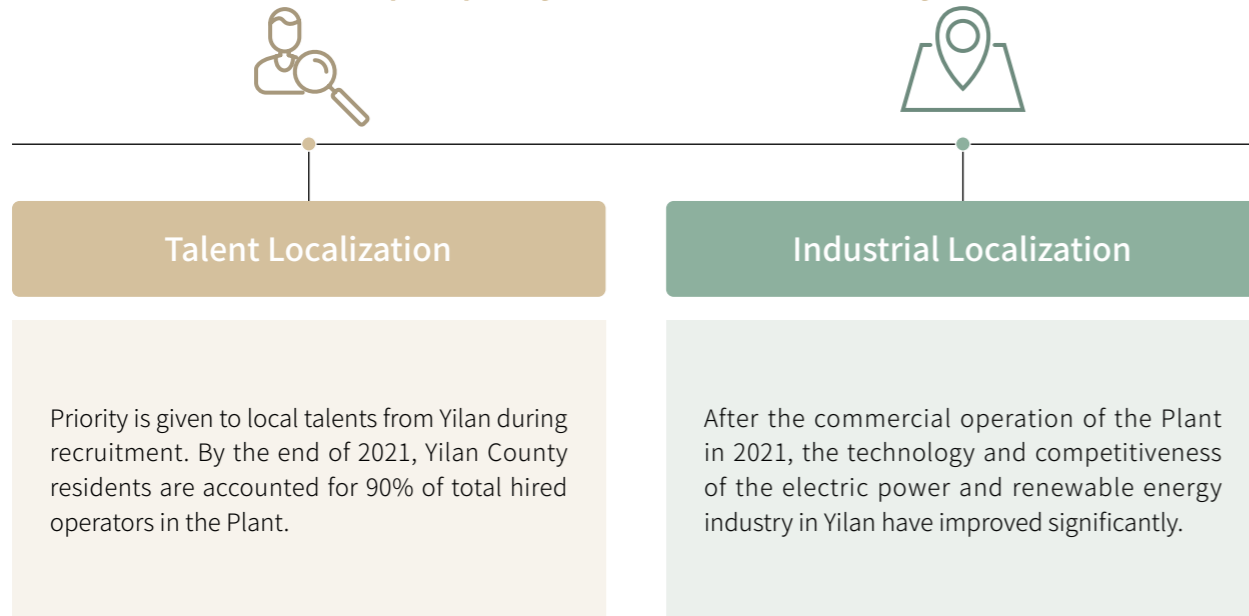
Chingshuei Geothermal Power Plant has overcome several difficulties, including the risk in heat source management at the early stage of construction, and the incompleteness of domestic geothermal regulations, etc. Furthermore, the pandemic has affected the delivery of unit equipment as well as the entry of technical personnel from abroad, resulting in the postponement of the project. Finally, the commercial operation of the Plant has begun since end of October 2021. Chingshuei Geothermal Power Plant adopts the heat exchange method of organic Rankine cycle (ORC) and uses geothermal energy to generate electricity. Geothermal tail water obtained during this process is then reinjected into the ground, combined with cooling method such as air-cooled condenser, which has the advantage of low water consumption, to ensure the sustainable operation of the power plant.

Organic Rankine Cycle (ORC) System



So far, the Plant can generate about 60,000 kWh of electricity per day for wholesale to Taipower, which is the only stable energy source that can be used as base-load power among three major renewable energy sources. As of the end of 2021, the Plant has provided about 9 GWh of green electricity to the grid in the Yilan area. In the future, heat source transmission and storage facilities will be added to improve the efficiency and stability of geothermal energy conversion. The evaluation on the feasibility of drilling of new geothermal wells will be carried out to fully utilize the heat source in the region. Furthermore, domestic geothermal research will be integrated to make contribution to the development of geothermal energy in Taiwan. Nevertheless, Chingshuei Geothermal Project combines local sightseeing, guided tours and environmental experience facilities. Besides supplying hot spring resorts, the Project also proposes a geothermal education center and a historical park to promote and introduce knowledge related to geothermal energy, which is significant to the development of geothermal power in Taiwan. Through the construction and operation of a geothermal power plant, coexistence and co-prosperity with the local community can be achieved, bringing positive benefits to local residents.

Practices from Chingshuei Geothermal Power Plant to Achieve Co-prosperity with Local Community



The first power plant-level independent geothermal power plant in Taiwan was completed and put into use

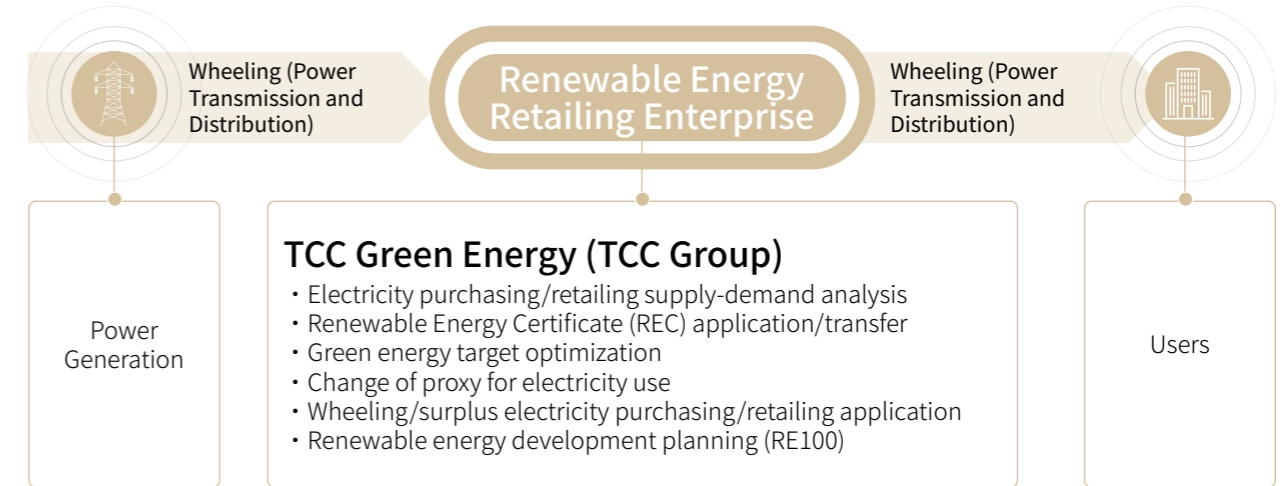
Chingshuei Geothermal Power Plant obtained the electricity enterprise license on October 27, 2021, and held an opening ceremony on November 23, 2021. Vice President of Taiwan, William Lai Ching-te attended the event and expressed his emphasis on geothermal energy. During his speech, he reaffirmed the importance of geothermal power to Taiwan's renewable energy development in the future.

Chingshuei Power Plant is the first Type I geothermal power plant in Taiwan. After its commercial operation, it has become a popular site for companies from the energy industry and schools to visit. We hope that this plant not only promotes geothermal energy education, but also opens up the opportunity for geothermal energy to flourish in Taiwan.

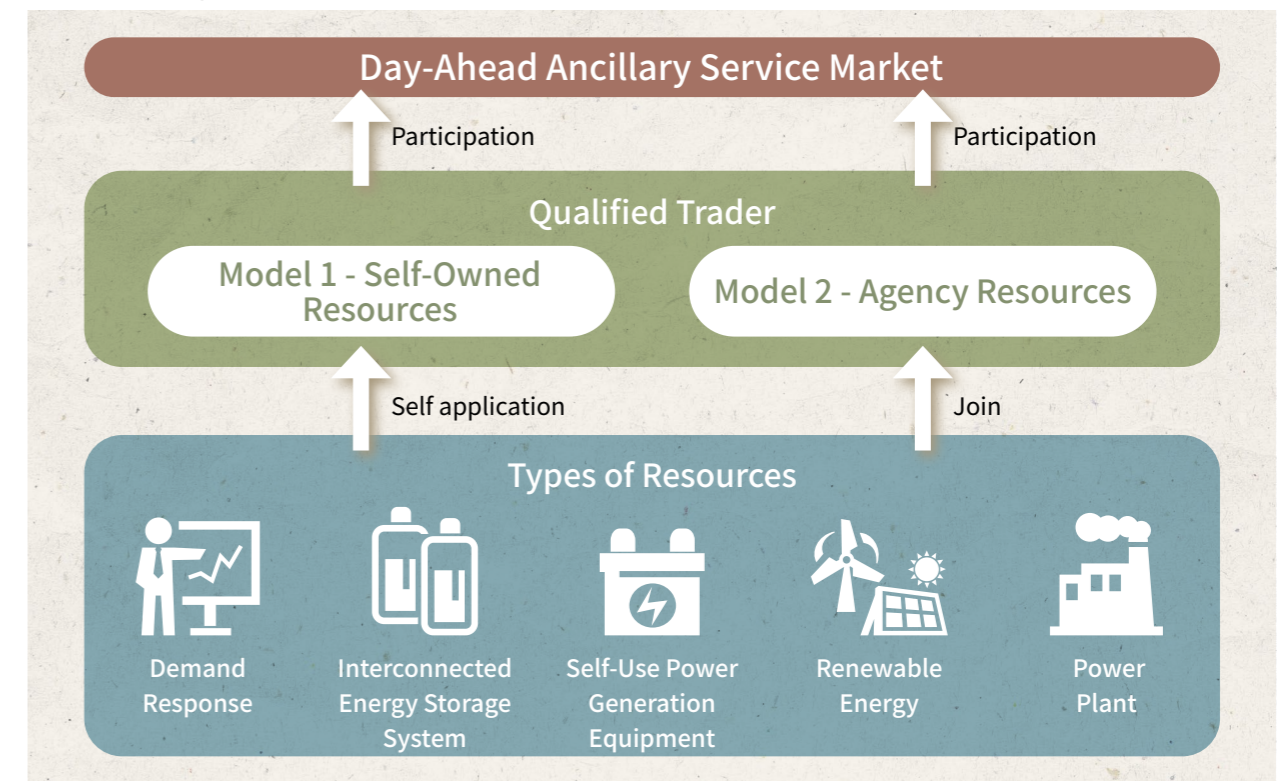


2.2.4 Integration of Renewable Energy Value Chain

Combining the Group's electric power expertise and the sensitivity that we have developed through long-term experience in the energy market, TCC analyzes the electricity consumption patterns of different customers, and provides the most appropriate green electricity plan to maximize profits. Currently, renewable energy customers include companies from semiconductor industry, financial industry, communication industry, consulting service industry, electronics industry as well as foundations.



In recent years, Taipower has actively encouraged various electricity enterprises and independent power plants to participate in ancillary services in order to maintain safe and stable operation of the power system, or to restore the system to normal after an accident. Taipower has set up an Energy Trading Platform for private enterprises that is open for bidding. In view of this, TCC has obtained 9 ETP Expertise Certificates for the Energy Trading Platform in 2021. In December of the same year, the cloud management and operating mechanism system for qualified traders to participate in the Energy Trading Platform has been introduced. Initially, Guan Tian plant will be used as an agency resource. It is expected that the Plant will officially enter the ancillary service market in the first quarter of 2022 to participate in the bidding, introducing external resources to strengthen the Group's future expansion of the renewable energy value chain.



2.3 High Quality Customer Service

Attentiveness, Diligence, Professional Team, Enthusiastic Service

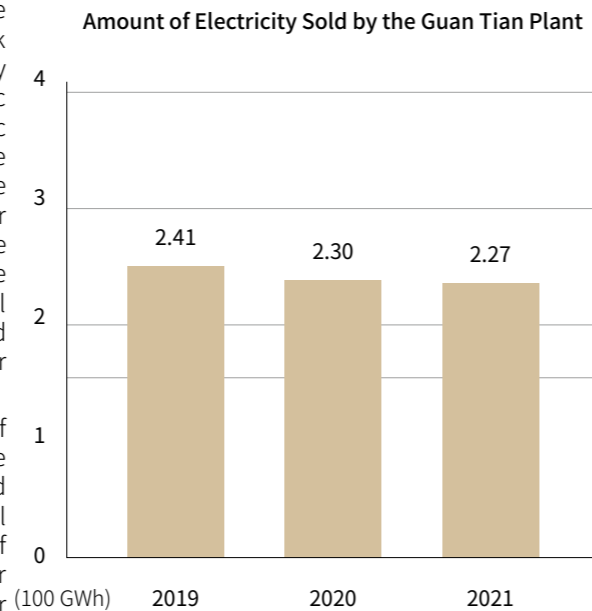
To realize its commitment to quality, TCC adheres to the quality policy of "Attentiveness, Diligence, Professional Team, and Enthusiastic Service", and strictly requires its employees to follow the quality management system, improves the quality of products and project services, and constantly strives for excellence to become a benchmark enterprise. Externally, the Company understands customers' demands, strengthens communication with customers, and provides customers with the highest service quality.

The main products and services provided by TCC are steam and electricity from cogeneration plant, electric power development, investment planning as well as electric power-related engineering services, all of which follow the P-D-C-A (Plan → Do → Check → Action) cycle for continuous improvement of product quality, engineering services, customer trust and client satisfaction. To demonstrate our commitment to product and service quality, TCC Taipei office, Guan Tian Plant and Star Energy have obtained ISO9001:2015 quality management system certification.

2.3.1 Stable Power Supply

In terms of domestic power supply and demand, there are 45 days in a year when percent operating reserve is less than 10%, and 3 days in a year when percent operating reserve is less than 6%. The power supply is relatively stable; however, the fluctuation of operating reserve is quite significant. In terms of electricity demand, the highest peak load of the system hit a record high of 38.84 GWh on July 27, 2021, suggesting factors such as domestic economic stability, returning of businesses, promotion of electric vehicles and extreme climate, coupled with the increase in the number of people working and studying from home due to the pandemic, are the reasons why the demand for electricity continues to grow. Furthermore, as the percentage of renewable power generation increase in the future, the demand for ancillary services in the electricity market will rise accordingly. Therefore, independent power plants and cogeneration will still play a key role in stabilizing power supply and improving grid stability.

TCC's establishment is based on the development of cogeneration with the integration of regional energy. The Guan Tian Plant has been invested, built, operated and maintained by TCC. With a successful start to its commercial operation in 2000, the company has created a new era of cogeneration plant investment and development after completing the BOT-based cogeneration projects for I-MEI and Uni-President, while establishing the capacity and foundation for subsequent electric power project's planning, construction management, O&M, and operation management. Guan Tian Plant has been providing stable power supply during its 20 years of operation. It continues to attract new energy users. Currently, it serves eight clients in the Guantian Industrial Park, which not only improves the efficiency of regional energy used, but also reduces the regional power supply load.



Note: Taipower has not implemented summer off-peak purchases and emergency purchases, so the amount of electricity sold in 2021 is not significantly different compared with 2020, totaling to about 227 GWh.

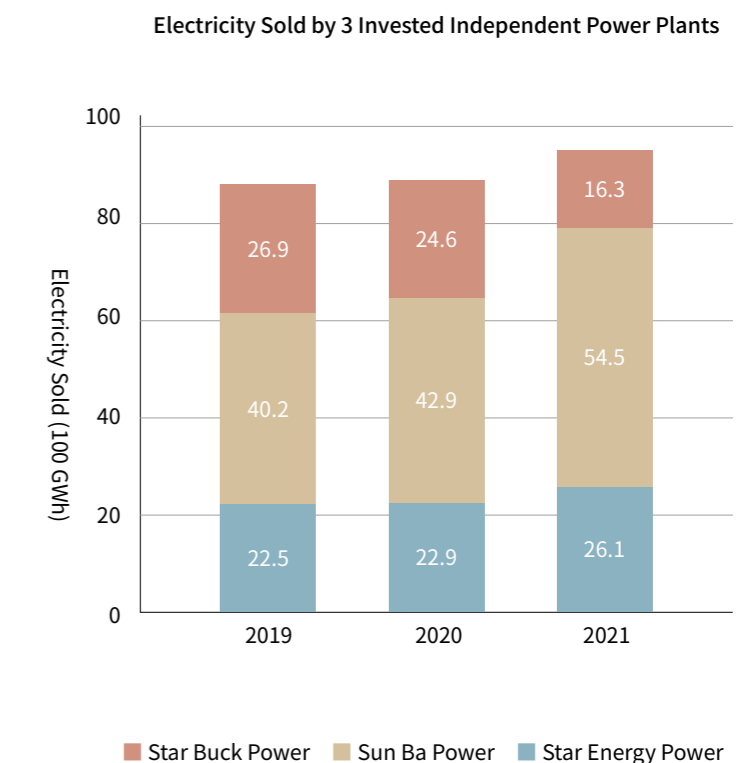
"Utilizing high-efficiency and low-pollution power generation methods to provide stable power supply and serve electricity users" is the intention and mission of TCC since its establishment. The following list shows the cogeneration plants and independent power plants invested by TCC, or have TCC as its largest shareholder.

Name	Installed Capacity	Type
Guan Tian Cogeneration Plant	48MW	Coal-fired circulating fluidized bed boiler and steam turbine generator unit
Chang Bin Gas-Fired Power Plant of Star Energy Power	507MW	1 unit of gas-fired multi-shaft combined cycle generator
Fong Der Gas-Fired Power Plant of Sun Ba Power	1,014MW	2 units of gas-fired multi-shaft combined cycle generator
Star Buck Gas-Fired Power Plant of Star Buck Power	490MW	1 unit of gas-fired multi-shaft combined cycle generator

In 2021, three independent power plants invested by TCC has sold a total of approximately 9,690 GWh of electricity to Taipower through wholesale. The amount of electricity sold has increased and reached new heights every year. The partial replacement of some coal-fired power generation units by gas-fired power generation units can reduce total domestic air pollution emissions, demonstrating the efforts and achievements of TCC Group to stabilize domestic power supply and provide low-carbon power energy in recent years.

Operational Reliability

Stable operation is the primary concern of power plants. Reported incidents of Power supply shortage in the past were often caused by failures of boiler tube or unit malfunctions in the power plant that led to emergency stop, resulting in the reduction of estimated percent operating reserve by 2~3%, the switch of power supply status from yellow to orange, or even further down to the red light for power shortage warning. This indicated that under the condition of a tight power supply, the operation status of any unit may affect the overall power supply in Taiwan.

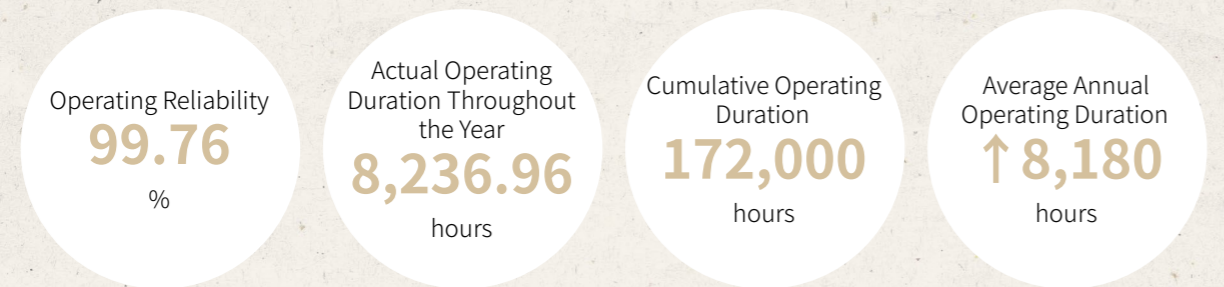


To maintain stable power and steam supply for clients, Guan Tian Plant has a management mechanism based on the following three aspects: maintenance, emergency response, as well as operation and system design. All aspects have detailed work procedures and standardized quality manuals. Employee education, training, drills and other activities are carried out regularly to ensure that all personnel in the Plant are familiar with and follow relevant procedures. Detailed management operation mechanism is shown below.

Guan Tian Plant Operation Reliability Management Mechanism

Management Mechanism	
Equipment Maintenance	Daily Maintenance
	Annual Overhaul
Equipment Failure Emergency Response	Equipment Failure Emergency Response
	Accident Emergency Response
Operation and System Reliability	Daily Operation
	Double-Loop Power Supply Design

With successful operation of the management mechanism, the operating reliability of Guan Tian Plant in 2021 was 99.76%, and the actual operating hours throughout the year had reached 8,236.96 hours. Since the start of its commercial operation in December 2000, the cumulative total operating hours are about 172,000 hours (as of December 2021), and the average annual normal operating hours are more than 8,180 hours (after deduction of about 20 days of annual overhaul). Moreover, there have been zero accidents and no equipment failure for several years, demonstrating TCC's outstanding techniques and unit stability.



Average Duration of Power Outage

A power supplier must be able to provide continuous and uninterrupted power on-demand. If a trip or failure does occur, it should be able to deal with the problem quickly and restore the power supply. The average duration of power outage here refers to the average duration of service outage experienced by users of each power plant.

2021					
	TCC(Guan Tian Plant)	Star Energy Power	Sun Ba Power	Star Buck Power	Total
No. of users	4	1	1	1	7
Total duration of outage from all users (min)	27	0	105	315,508	315,640
Average duration of outage per user (min)	6.75	0	105	315,508	45,091

2020					
	TCC(Guan Tian Plant)	Star Energy Power	Sun Ba Power	Star Buck Power	Total
No. of users	5	1	1	1	8
Total duration of outage from all users (min)	0	170	0	14,717	14,887
Average duration of outage per user (min)	0	170	0	14,717	1,861
2019					
	TCC(Guan Tian Plant)	Star Energy Power	Sun Ba Power	Star Buck Power	Total
No. of users	5	1	1	1	8
Total duration of outage from all users (min)	0	0	0	0	0
Average duration of outage per user (min)	0	0	0	0	0

Frequency of Power Outage

Whether the electricity can be supplied stably and continuously is also one of the indicators that measures the operability of an electricity supplier. The average power outage frequency here refers to the average number of service outages experienced by users of each power plant.

2021					
	TCC(Guan Tian Plant)	Star Energy Power	Sun Ba Power	Star Buck Power	Total
No. of users	4	1	1	1	7
Total number of outage events from all users (No. of times)	3	0	1	3	7
Average outage frequency per user (No. of times/user)	1	0	1	3	1
2020					
	TCC(Guan Tian Plant)	Star Energy Power	Sun Ba Power	Star Buck Power	Total
No. of users	5	1	1	1	8
Total number of outage events from all users (No. of times)	0	1	0	4	5
Average outage frequency per user (No. of times/user)	0	1	0	4	1
2019					
	TCC(Guan Tian Plant)	Star Energy Power	Sun Ba Power	Star Buck Power	Total
No. of users	5	1	1	1	8
Total number of outage events from all users (No. of times)	0	0	0	0	0
Average outage frequency per user (No. of times/user)	0	0	0	0	0

Note: The average outage frequency per user is the total outage frequency of all users divided by the number of users, rounded to the nearest whole number.

2021				
	TCC(Guan Tian Plant)	Star Energy Power	Sun Ba Power	Star Buck Power
System Average Interruption Duration Index (SAIDI)	6.75	0	105	315,508
Average Interruption Frequency Index (SAIFI)	0.75	0	1	1
Customer Average Interruption Duration Index (CAIDI)	9	0	105	315,508

Note: Star Buck Power's No. 1 heat recovery boiler overheated and caught fire on January 24, 2021. After repairs and insurance claims, the reconstruction was completed and the power supply was restored on April 24, 2022.

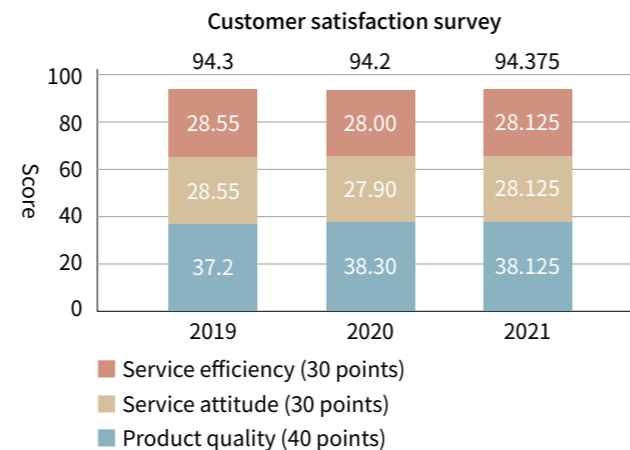
2.3.2 Meet Customer Needs

Meeting customer needs as well as continuous improvement has always been the core value of TCC's operations. The operation of the Company is to create maximum value for customers. Customer needs and satisfaction are our goals to pursue.

Customer Satisfaction

TCC has formulated an operating procedure for customer satisfaction survey. The "satisfaction survey" is carried out annually, since the opinions of our customers can be evaluated for further improvement, serving as reference approaches for the Company's operation. According to customer satisfaction surveys in the past, the results always meet a certain level of customer satisfaction. Customer satisfaction is also evaluated through interviews, and the results serve as the basis for corporate performance indicators, as well as direct reflection of actual customer needs, prompting ourselves to improve and enhance service quality.

The results of Guan Tian Plant's customer satisfaction survey in the past three years are shown on the right:



Note: The data above shows the score of average customer satisfaction from eight customers in 2021 and 2020, and nine customers in 2019.

In 2021, Star Energy's outstanding performance in engineering technology and wind farm O&M has been recognized by customers in aspects such as engineering quality, communication and coordination, and service attitude. In particular, the maintenance of Taipower's 86 onshore wind turbines, the solar photovoltaic construction project in Tainan and the onshore substation project of Ørsted's offshore wind farm remain in high quality. In the annual customer satisfaction survey, the company receives "satisfied" for quality, coordination, and service attitude from all responses. We attach great importance to the trust and commitment that we shared with customers, and strictly follow the contract for customer data and privacy protection.

Looking forward the construction of large-scale ground-mounted and floating solar photovoltaic projects, the construction and maintenance of onshore wind turbines, and the onshore substation projects for offshore wind farms are starting off one after another. With a strong management team and a positive, diligent service attitude, TCC is committed to provide customers with the highest standard of engineering quality, achieving our 3 objectives of customer satisfaction, environment protection and corporate sustainability.

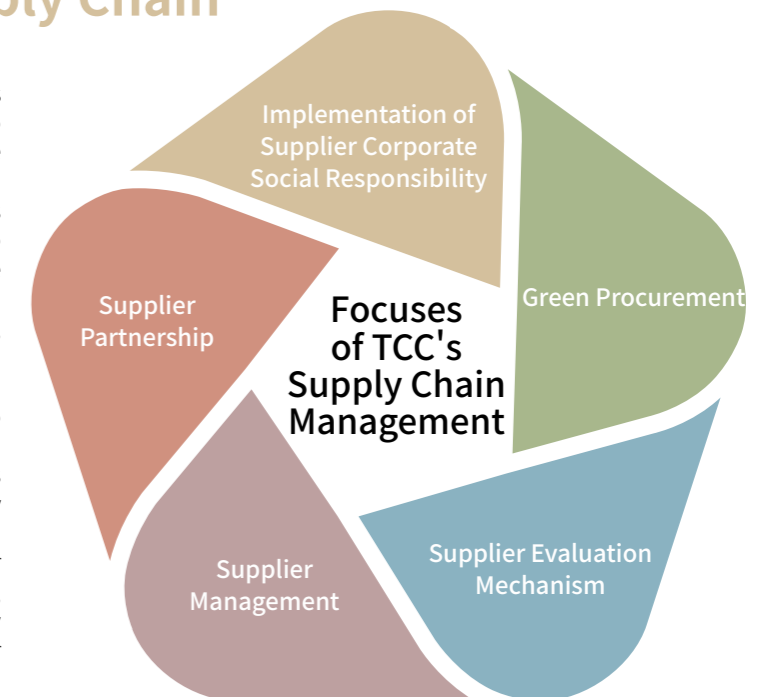
Customer Privacy and Complaint Handling

TCC values customers' opinions. In addition to the annual satisfaction survey, a "Customer Complaint Handling Procedure" was established to ensure that the opinions of customers are responded and handled appropriately for greater customer satisfaction.

As we enhance our customer services, we also attach great importance to intellectual property rights and the privacy of customer information. All personnel of related businesses should follow the rules of confidentiality. As a result, there was no violation of customer privacy rights, damages to customer rights due to data loss, nor customer complaints in 2021.

2.4 Sustainable Supply Chain

To build a sustainable supply chain, TCC has reinforced its relationship with the suppliers to develop a well-coordinated and cooperative association, achieving a win-win situation for everyone. Since 2016, the Company has carried out new actions every year, hoping to use its influence to strengthen the corporate social responsibility of suppliers, to align with the international sustainable trend, and to drive the cycle of the industry and supply chain towards green procurement and green supply chain. Together, we strive to become a power of positive social impact and sustainable future. The Company also pays attention to supply chain management by carefully selects collaborative partners based on quality, cost and risk. We stand by our decision to uphold the principle of honesty, integrity, commitment and responsibility by establishing a comprehensive "Supplier Management Evaluation Mechanism".



New Achievements in 2021

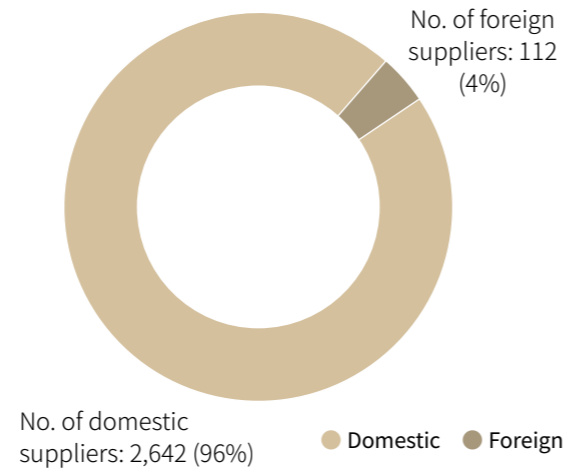
- 1 The procurement management and material management systems were officially launched on June 7th and continued to be optimized to simplify the operation process, improve the operation efficiency, and greatly reduce labor as well as operation time.
- 2 The Company values the human rights of migrant workers. Therefore, the management regulations and evaluation for migrant workers were added to "New Supplier Review and Evaluation" and "Corporate Social Responsibility Commitment".
- 3 The amount of green procurement has increased significantly in 2021, reaching NT\$ 220 million, which surpassed the qualification for recognitions by both the Environmental Protection Administration (NT\$ 5 million) and the Environmental Protection Administration (NT\$ 50 million).

2.4.1 Good Supply Chain Partnership

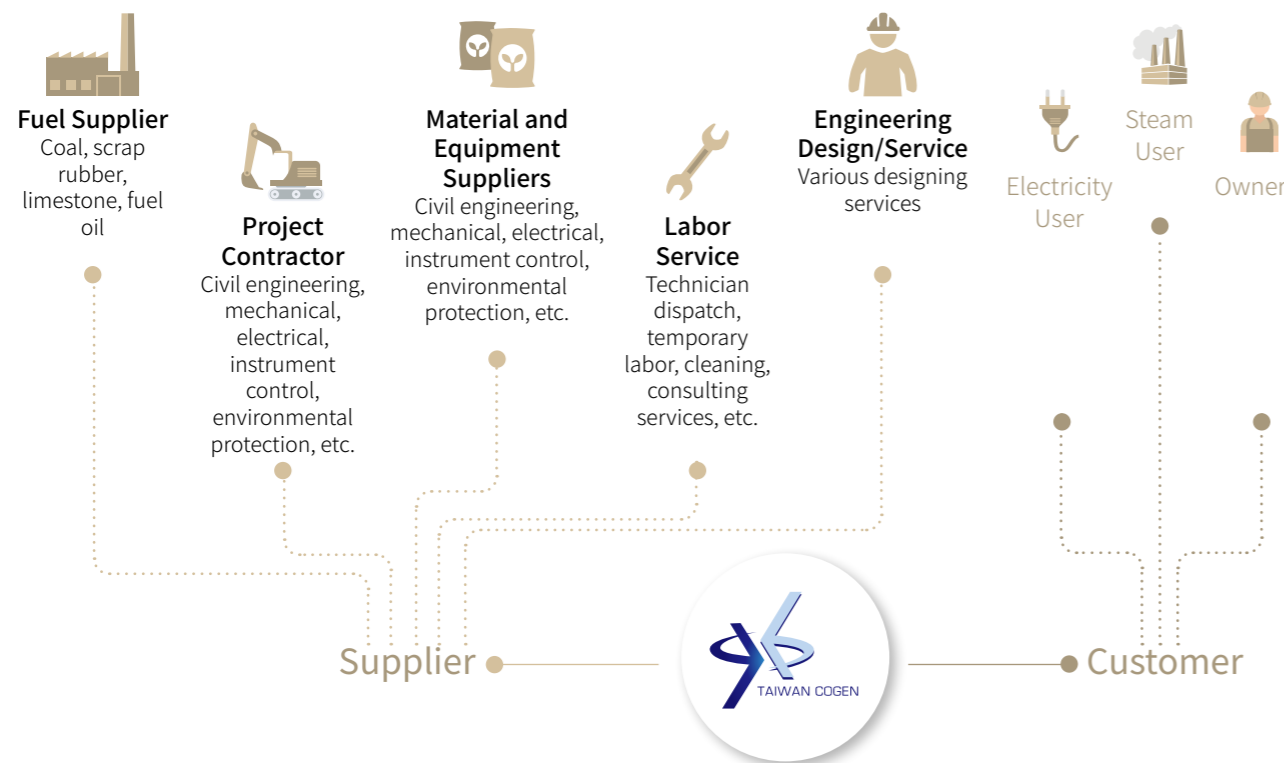
TCC is well-aware that establishing partnerships with suppliers is an important basis to reduce operation costs, improve power generation efficiency and ensure stable supply of fuel. Furthermore, such partnership is essential to TCC's sustainable development. Therefore, TCC continues its effort to establish a sustainable and competitive supply chain structure, and is committed to maintain long-term, good partnerships with high-quality suppliers around the globe.

As of 2021, there have been 2,754 suppliers registered in TCC Group's supplier database, of which 2,642 (account for 96%) are domestic suppliers, with an increase of 158 compared with that of 2019. These suppliers mainly provide services such as fuel procurement, project contracting, materials and spare parts procurement, labor services and engineering design/services. There are 112 international suppliers in 2021 (account for about 4%), most of them provide maintenance and spare parts supplience of foreign equipment. In response to rapid development of renewable energy nowadays, the number of domestic suppliers has increased each year, which would boost up domestic industry and economy.

Percentage of Local Suppliers

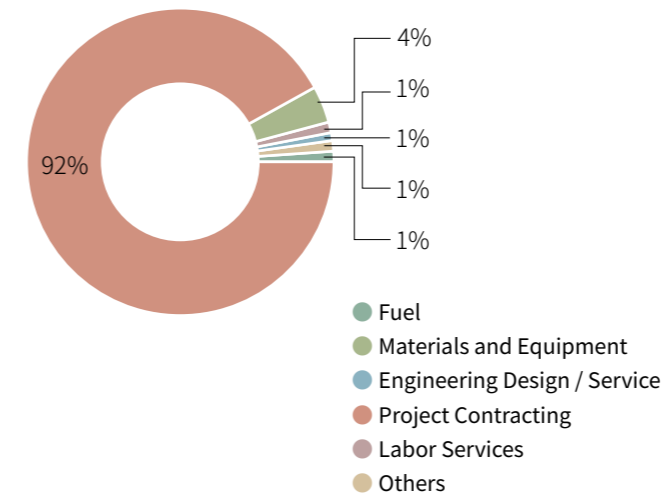


The Company's suppliers can be divided into five categories: fuel suppliers, project contractors, material and equipment suppliers, labor services and engineering design/services.

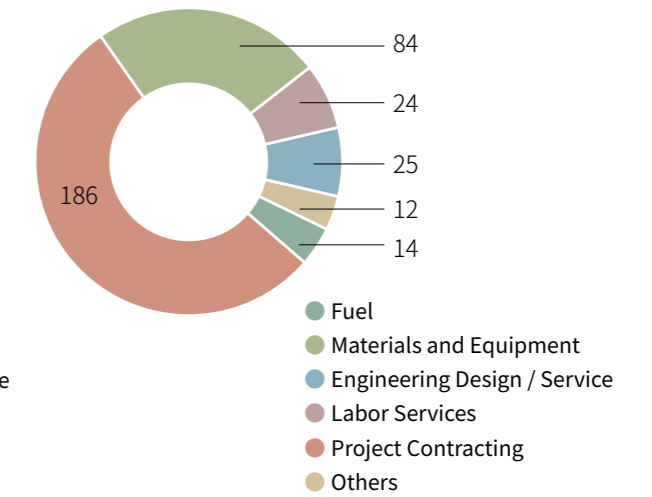


Number of suppliers by category of procurement in 2021 and the corresponding percentage of procurement amount are as follows:

Percentage of Procurement Amount by Category of Procurement in 2021

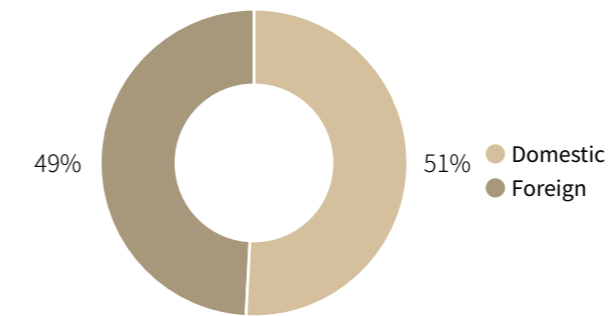


Number of Suppliers by Category of Procurement in 2021

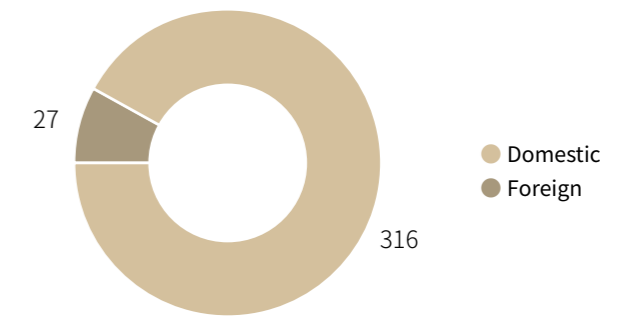


Number of domestic/foreign suppliers of procurement in 2021 and the corresponding percentage of procurement are as follows:

Percentage of Procurement Amount from Domestic / Foreign Suppliers of Procurement in 2021



Number of Domestic / Foreign Suppliers of Procurement in 2021



2.4.2 Systematic Procurement Management and Material Management

The Group's electronic system of material management and purchase requisition/payment integrates operations from application, procurement, acceptance check to payment requisition/payment and material management. Each step of the system uses electronic sign-off mechanism to carry out process operations, and cooperates with authorization leveling to build electronic processes for sending and receiving. The introduction of the system can further strengthen and refine traditional management, such as reduction of ineffective operations, management transparency, optimization of operation processes, efficiency management, control accuracy, and concatenation of data value, etc. In doing so, we can achieve faster transmission and collection of information, thereby reduce time cost and improve operation efficiency that enhance the overall performance of the Group. The system has begun online testing for the Group in November 2020, and was officially launched in June 2021.

The seven categories of functions of this system are as follows:

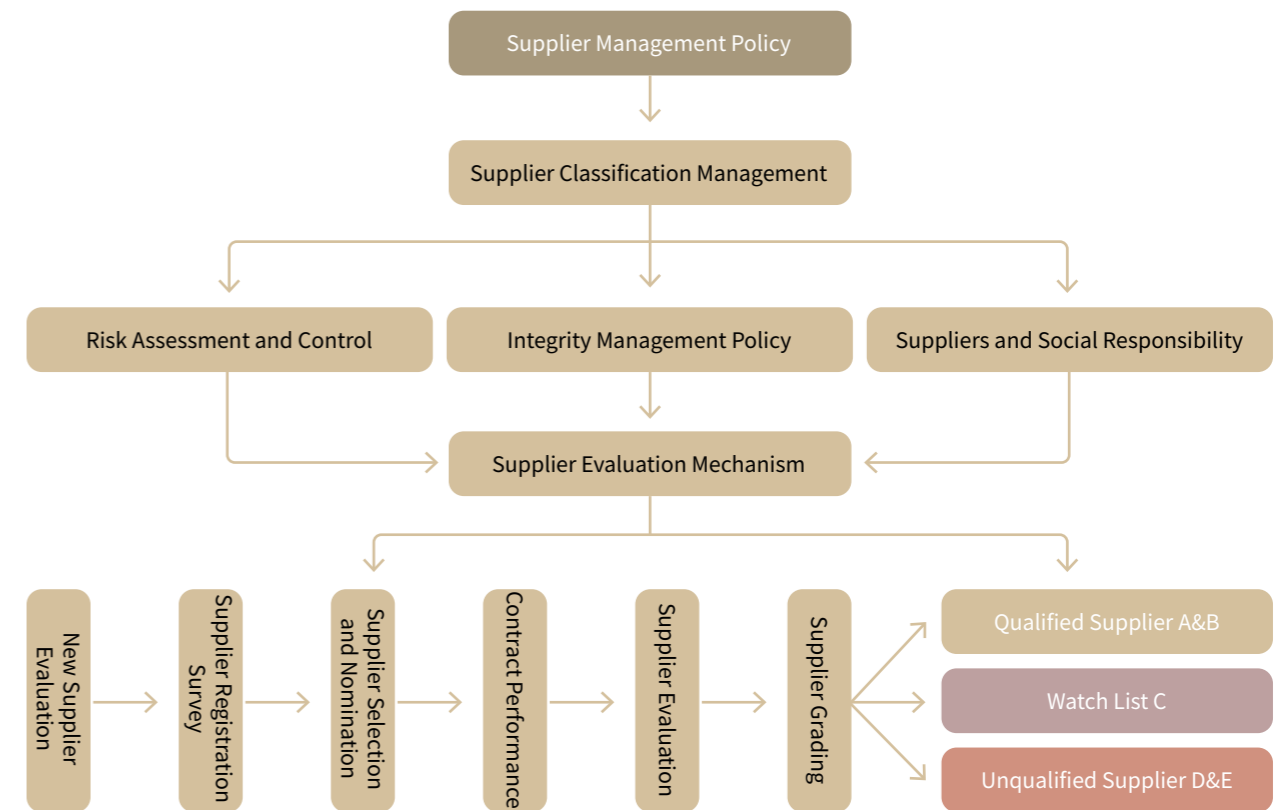


2.4.3 Comprehensive Supplier Management

For the procurement of equipment and spare parts, as well as the outsourcing of various projects, we carefully select suppliers with excellent performance in areas such as of supply coordination, product quality, price and cost, environmental protection and work safety, to ensure stable supply for the needs of each power plants. The overall planning, central purchasing and outsourcing are all carried out in accordance with the Company's procurement procedure, which is certified by ISO 9001. TCC promises to make professional, appropriate procurement decisions and operations based on the principle of fairness and reasonableness.

Formulated by TCC and its suppliers, procurement and project contracts have clear regulations and terms regarding product quality, delivery time, payment methods, overdue penalties, contract performance and warranty responsibilities. Under this model where the supplier management has created a win-win situation, we are seeking mutual benefits with suppliers to demonstrate the best procurement performance.

Supplier Management Structure



To ensure that suppliers are well qualified, capable of completing projects on time and fulfilling their corporate social responsibilities, the purchasing unit will issue "New Supplier Review and Evaluation Form" to and conduct evaluation on suppliers who will be participating in the procurement or outsourcing for the first time. The items of evaluation include financial status, contract performance capability, project (delivery) experience, corporate integrity, professional skills, "ISO 9001, 14001, 45001 verification", corporate social responsibility commitment, environmental protection, as well as occupational safety and health. Only those with a score of 70 and above can participate in the procurement and outsourcing of TCC. In addition, to implement the human rights protection for migrant workers, the Company has added management regulations and evaluation for migrant workers to "New Supplier Review and Evaluation" and "Corporate Social Responsibility Commitment" in 2021.

Implement Integrity Management Policy

In order to establish and implement integrity as a part of our corporate culture, prevent dishonesty, improper conducts or acceptance of improper benefits, TCC has established the following terms in the contract:

1. In the event of dishonest behavior, the contract may be terminated or rescinded unconditionally at any time.
2. If one has received commissions, rebates or other illegitimate benefits, he/she should immediately and truthfully report the action, provide relevant evidence and cooperate with related parties for investigation.
3. If the Company suffers damage from such improper action, it may request compensation for damages.
4. Grievance Mechanism - whistleblowing procedure and channels are available

Continues to Enhance the Sustainability Value of the Supply Chain

The Company adheres to the implementation of integrity management policy and ideology as well as the enhancement of the supply chain's overall sustainability value. We have been offering supplier integrity management courses since 2018. However, due to the pandemic in 2021, suppliers have not been invited to participate in our integrity management education and training. Nevertheless, relevant provisions of the supplier's integrity management are stipulated in contract, letter of commitment and self-assessment questionnaire.

Supplier Evaluation Mechanism

To ensure quality and effective management, the purchasing unit and the procurement application unit will conduct supplier evaluation after the completion of project and services, as well as "Supplier Evaluation Form" or "Construction Contractor Evaluation Form", which contains evaluation on reliability, price, quality and delivery. Each Supplier should also complete a Corporate Social Responsibility Commitment as a reference.

The result of supplier evaluation is classified into five grades. Based on the score of the supplier evaluation, the suppliers are graded with A, B, C, D, or E. The criteria for the grading are described as follows:

Grade	Grade	Grade	Grade	Grade
A	B	C	D	E
Score of 85 or above	Score of 70~84	Score of 60~69	Score of 51~59	Score of 50 or below
Regarded as qualified suppliers; given priority to participate in price negotiation	Regarded as qualified suppliers	On the watch list and will be re-evaluated after improvement; the period for evaluation is one year	Regarded as unqualified suppliers; not allowed to participate in the Company's procurement and contracting for three years	Regarded as unqualified suppliers; not allowed to participate in the Company's procurement and contracting for five years

The evaluation results for 2021 are as follows:

There are 355 qualified suppliers and 0 unqualified supplier. In 2021, 2 new suppliers were suspended due to dishonesty and breach of contract.

Name	No. of Qualified Suppliers	No. of Unqualified Suppliers	No. of Suspended Suppliers as of the End of 2021
TCC (including the Guan Tian Plant)	108	0	11
Star Energy	55	0	
Chang Bin Gas-fired Power Plant of Star Energy Power	44	0	
Star Buck Gas-fired Power Plant of Star Buck Power	53	0	
Fong Der Gas-fired Power Plant of Sun Ba Power	95	0	

The supplier evaluation of TCC focuses on the constant strengthening of supplier management. There is still a relatively small number of suppliers in the "Unqualified Supplier List". If faults are found during the performance of the contract, suppliers are required to carry out revision, propose appropriate solutions, and provide clear goals and schedule for the improvement. If suppliers are unwilling to cooperate, the breach of contract mechanism will be activated immediately, deducting progress payment, balance payment, performance bond or suspension of rights, protecting the Company's greatest rights and interests.

Key Items of Supplier Social Responsibility Assessment

Fuel Supplier (Coal and Scrap Tire Rubber)

- ▶ To commit to the practice of sustainable development, suppliers of coal and scrap rubber must sign relevant specifications including compliance with ethics, environmental protection, labor practices and social perspective. In addition, suppliers of scrap rubber are required to comply with the scrap tire recycling policy of the Environmental Protection Administration.

Project contractors, materials and equipment, engineering design/ services, labor services and other suppliers

- ▶ Suppliers shall comply with relevant specifications of ethics, environmental protection, labor practices and social aspects in accordance with the provisions of procurement specifications, bidding instructions, engineering specifications, drawings, technical documents, business terms or contractors' work safety and health management rules.
- ▶ Procurement or project contracts clearly states that the supplier's employment of workers must comply with relevant government laws and regulations, including "Labor Standards Act", "Occupational Safety and Health Law", "Labor Inspection Act", "Hazardous Work Place Review and Inspection Regulations" and their corresponding enforcements.

Supplier's Corporate Sustainability Commitment

TCC Group aims to establish a supply chain that protects the environment and pays attention to social responsibility, labor rights, safety and health as well as sustainable development. While complying with relevant laws and regulations, it also urges suppliers to comply with relevant standards of conduct, such as prohibition of child labor or violation of human rights.



Since 2017, TCC has started to ask contracted suppliers to sign the "Corporate Social Responsibility (CSR) Commitment". At the end of 2021, 645 of our 681 contracted suppliers have signed the Corporate Social Responsibility Commitment, reaching the set target of 95%.



Looking into the future, we have set the goal to keep the signing rate of our 2022 CSR Commitment 95% or above. TCC will be more diligent with its suppliers, fulfilling its corporate social responsibility, and devoting itself to the sustainable development of both the corporation and the environment.

Summary of "Corporate Social Responsibility Commitment"

<p>Service Responsibility</p> 	<ul style="list-style-type: none"> ▶ The procurement, project contracting business and services provided by suppliers shall comply with laws and international standards. ▶ If there is any violation, TCC has the right to request for improvements or terminate the contract in accordance with the contract requirements.
<p>Human Rights Protection</p> 	<ul style="list-style-type: none"> ▶ Suppliers must comply with labor laws and protect the human rights as well as the rights of their employees, including temporary workers, migrant workers, part-time employees, contract workers, and any other type of workers. ▶ Suppliers shall comply with international labor rights, such as guaranteeing freedom of association and the rights of collective bargaining, caring for vulnerable groups, prohibiting child labor, ending all forms of forced labor, and eliminating employment discrimination, etc., and ensure that human resources policy does not create differential treatment in gender, race, socioeconomic class, age, marital and family status, etc. ▶ Suppliers shall provide a safe and healthy working environment in accordance with local laws and regulations.
<p>Ethics</p> 	<ul style="list-style-type: none"> ▶ Suppliers shall abide by the principle of business integrity and shall not request, promise, deliver or accept any form of gifts, entertainment, kickbacks, bribes or other improper benefits for profit. ▶ Suppliers shall ensure that they do not disclose any confidential information of TCC and its affiliated companies.
<p>Environmental Protection</p> 	<ul style="list-style-type: none"> ▶ To protect public health and safety and environmental sustainability, suppliers shall comply with relevant laws and international standards, and operate in an environmentally trustworthy manner.

Supplier Sustainability Performance Self-Assessment

Since 2019, TCC has required suppliers to provide self-assessment questionnaires on their corporate social responsibility commitments in greater details, seeking a better understanding of suppliers' practice and implementation of the commitments in economic, social, human rights, and environmental aspects. The results of suppliers' self-assessment questionnaires serve as references for future supplier management and improvement, enhancing the implementation and management of CSR and ESG. Currently, self-assessment questionnaires are provided during the performance of the contract. The response rate of self-assessment questionnaires in 2021 has reached 85.8%, an increase of 1.8% compared to 2020. In the future, we will work with suppliers with a more positive attitude, fulfill corporate social responsibility, and improve the management performance of sustainable supply chain.

On-Site Audit of Supplier Sustainability Performance

Since 2019, the Company has conducted irregular on-site visits to important suppliers, recorded the results, and performed audit on supporting documents, checking their progress on the implementation of ESG. The evaluation criteria are divided into four levels: conforming items, observing items, minor non-conformance items and serious non-conformance items. On-site audit score of 70 or higher is regarded as a pass. A score of 9-10 will be given to each question if it is a conforming item; a score of 7-8 will be given if it is an observing item; a score of 4-6 will be given if it is a minor non-conformance item; finally, a score of 0-3 will be given if it is a serious non-conformance item. For serious non-conforming items, suppliers must formulate and implement remediation for all levels of deficiencies. In addition to the requirement of submitting reports of remediation within a time limit, the Company also conducts random inspections on non-conforming suppliers to eliminate potential risks. Minor non-conforming items and observing items are monitored regularly. We audited 4 suppliers in 2021, all of them met the criteria for Corporate Social Responsibility Commitment.

Supplier On-Site Audit



2.4.4 Actively Promote Green Procurement

With the idea of saving resources, lowering pollution, promoting recyclability and implementing corporate sustainable development, TCC Group is paying attention to issues such as global warming, environmental pollution and climate change. The company is an active promoter the idea of "green procurement", aiming to establish the image of an outstanding corporate to gain competitive advantages. The total amount of green procurement in 2021 has exceeded NT\$ 220 million. This year, the green procurement amount has significantly increased due to green electricity retailing. Compared to 2020, the amount of green procurement has increased by more than NT\$ 210 million, reaching the criteria of recognitions by the Department of Environmental Protection and the Environmental Protection Administration. On December 6, 2021, the Company was invited by the Department of Environmental Protection of the Taipei City Government to attend the "Taipei Green Procurement Outstanding Enterprises and Groups Commendation". Commendation by the Environmental Protection Administration will happen in mid-to-late 2022. TCC upholds its love for Earth and the environment. With joint efforts from everyone to reduce the wasting resources, mitigate environmental impact and improve environmental quality, we strive to enhance our green supply chain.



CHAPTER 03



Protect the Environment to Build a Green Homeland

- 3.1 Climate Change and Energy Management
- 3.2 Circular Economy and Environmental Protection

Chapter Highlights

- ◆ Fly ash and bottom ash in Guan Tian Plant were 100% recycled
- ◆ The electricity saving rate of Guan Tian Plant in 2021 reached 1.92%
- ◆ The energy-saving and carbon-reduction plans have reduced 2.82 GWh of electricity, 115 tons of coal and 10,000 m³ of natural gas

3.1 Climate Change and Energy Management

3.1.1 Response Strategy and Environmental Management

Global warming is becoming more severe and creating more climate-related risks. To mitigate the impact of climate change, COP26 adopted the "Glasgow Climate Pact" in 2021, aiming to limit the global temperature increase to within 1.5 °C, and urged countries to propose their own carbon reduction timetables and pathways. One after another, the international community has responded to the initiative and announced the "net-zero carbon emission" goals, leading to active responses from domestic and international companies.

TCC pays close attention to the trend of global climate change as well as the market flow. In order to mitigate the direct or indirect impacts of climate change, and respond to policies and regulations, potential climate-related risks and opportunities have been identified in accordance with the framework of the Task Force on Climate-related Financial Disclosures (TCFD), along with the corresponding countermeasures.

Aspect	Management Action	Corresponding Section
Governance	<ul style="list-style-type: none"> ▶ The Board of Directors is the highest governance body for risk management. ▶ A Risk Management Committee has been established, including the Chairman and President as members. The Committee is responsible for reviewing the Company's risk management operation mechanism, risk management plan as well as control measures, and reports the operation to the Board of Directors every year. 	1.3 Risk Management
Strategy	<ul style="list-style-type: none"> ▶ Gather global trends, policies, regulations and norms, and formulate response strategies for short-, medium- and long-term climate change risks and opportunities to reduce the impact on operations and seize potential opportunities in time. ▶ Consider the aspects of "mitigation" and "adaptation" simultaneously. Based on different climate change scenarios, such as RCP2.6 (the "peak" scenario that requires early emission reduction from all the main emitters) and RCP8.5 to assess potential risks and opportunities of climate change and take corresponding measures. 1 Transition risks are mainly associated with the assessment and countermeasures for the impact of regulations and technologies such as renewable energy, fuel and energy tax on TCC. 2 Physical risks are mainly associated with the assessment and countermeasures for the impact of regulations and technologies such as renewable energy, fuel and energy tax on TCC. 3 Opportunities mainly include the increasing engagement of companies on topics such as renewable energy and energy integration due to the trend of sustainability both at home and abroad, leading to the expansion of TCC's businesses. 	3.1 Climate Change and Energy Management
Risk Management	<ul style="list-style-type: none"> ▶ After researching on relevant topics, those that may cause impact to the Company are compiled. Corresponding strategies are formulated for further management. 1 Standards such as ISO 14001 and ISO 14064 are introduced for systematic management. Continue to inspect the greenhouse gas emissions of the Company every year, and plan reduction measures. 2 Implement transition risk management along with suppliers. Reduce the impact of climate change on the supply chain through measures such as the supplier evaluation mechanism, the supplier's corporate sustainability commitment, and the on-site audit of sustainability performance. ▶ Incorporate climate-related risks and opportunities into the scope of risk management policies and risk management plans, review and update on a rolling basis, and hold work meetings and Risk Management Committee meetings to discuss and identify relevant risks across departments. 	2.4 Sustainable Supply Chain 3.2 Circular Economy and Environmental Protection



S U S T A I N A B I L I T Y
R E P O R T

Aspect	Management Action	Corresponding Section
Metrics and Targets	<ul style="list-style-type: none"> ▶ According to topics associated with the impact of climate change risks and opportunities on the Company, KPIs related to energy conservation and carbon reduction, as well as short-, medium- and long-term goals are set to reduce the impact of climate change. ▶ Check and disclose Scope 1 and 2 greenhouse gas emission data periodically. Assess relevant transition risks and countermeasures. ▶ Continue to carry out energy saving and carbon reduction related measures, including process improvement, power saving, to improve business performance and reduce energy consumption. In 2021, related projects were implemented by Guan Tian Plant to save about 623,000 kWh of electricity and 115 tons of coal. The estimated annual electricity saving rate was 1.92%, and the carbon reduction was about 549.3 tons of CO₂e. 	3.1 Climate Change and Energy Management

Aspect	Item	Impact/Effect on TCC	Response Strategy
Climate-related Risk - Transition Risk	Renewable Energy, Fuel/ Energy Tax and Regulations	<ul style="list-style-type: none"> ▶ Loss in investment due to changes in policies or regulations ▶ Change of regulations leads to increased operation costs of existing power plants 	<ul style="list-style-type: none"> ▶ Promptly gather information on government policies and legislation implementation schedules to carry out assessment on the impact and countermeasures in advance ▶ Convey suggestions to competent authorities in a timely manner and carry out external engagement
	Cap and Emission Trading	<ul style="list-style-type: none"> ▶ The limit on total greenhouse gas emissions increases operation costs ▶ In the future, the government will impose carbon tax, leading to an increase in operation costs 	<ul style="list-style-type: none"> ▶ Reduce internal energy consumption and reduce carbon emissions ▶ Greenhouse gas inventory management and power plant energy audit system ▶ Carry out maintenance regularly and replace old equipment to reduce energy consumption and carbon emissions
Climate-related Risk - Physical Risk	Events of Extreme Weather	<ul style="list-style-type: none"> ▶ The occurrence of extreme weather events such as typhoon, flood, and drought have increased, resulting in delay of projects or operation losses 	<ul style="list-style-type: none"> ▶ Purchase relevant insurance to avoid huge losses from natural disaster ▶ Review the progress of projects every week and respond to emergencies promptly ▶ Establish an emergency response system for disasters and conduct drills periodically
Climate-related Opportunity	Domestic and International Trends	<ul style="list-style-type: none"> ▶ The rise of international environmental initiatives, such as RE100, SBTi and green supply chain, promotes trading in the green energy market ▶ The regulations for energy-heavy industries have increased the demands for renewable energy purchase and installation 	<ul style="list-style-type: none"> ▶ Actively expand renewable energy retailing business ▶ Seek collaboration with renewable energy power plants outside of the Group
	Energy and Resource Integration	<ul style="list-style-type: none"> ▶ Expand regional energy integration, improve energy efficiency, and reduce environmental impact 	<ul style="list-style-type: none"> ▶ Integrate the electricity and steam demand in the region to improve energy and resource efficiency
	Development of Renewable Energy	<ul style="list-style-type: none"> ▶ In response to the government policies, domestic demand for services related to renewable energy has increased 	<ul style="list-style-type: none"> ▶ Expand the renewable energy business ▶ Undertake domestic large-scale renewable energy projects ▶ Establish various renewable energy O&M teams

In response to climate change, TCC has adopted the idea of "mitigation" and "adaptation" based on relevant laws and regulations, reducing the impact of climate change on the Company's operations. The so-called "mitigation" refers to improving the efficiency of existing fossil fuel power plants, reducing the use of fossil fuels, implementing energy resource reduction plans, and developing renewable energy to achieve the goal of energy saving and carbon reduction. The other strategy, "adaptation", is to establish emergency response system for disasters. Through an emergency commanding system, appropriate measures will be taken to fight against natural disasters (storms, droughts, typhoons, earthquakes, etc.) that may be caused by climate change.



3.1.2 Energy-Saving and Carbon-Reduction Actions and Results

Greenhouse Gas Emissions

Global warming and climate change, caused by greenhouse gas emissions, are important environmental topics faced by countries around the world. It is necessary to take economical and active emission reduction measures to effectively reduce greenhouse gas emissions and minimize the impact on the environment.

As a member of global citizens, Guan Tian Plant has received guidance and begun voluntary inventory since 2005 to conduct greenhouse gas inventory and registration every year in order to fulfill its corporate social responsibility. Third-party verification has been carried out since 2014 to ensure data accuracy and grasp the status of greenhouse gas emission, continuing to promote effective control work based on the results of the inventory. In the future, the Company will continue to carry out related work such as unit efficiency improvement, environmental protection equipment upgrades and waste recycling, fulfilling the goals of the energy-saving and carbon-reduction plans.

TCC's operating locations include the headquarters office in Taipei and Guan Tian Cogeneration Plant in Tainan. The headquarters office conducts its own assessment of Scope 2 indirect greenhouse gas emissions, as shown in the table below.

Carbon Dioxide Equivalent (tons of CO ₂ e)				
Region	Scope	2019	2020	2021
Taipei Office	Scope 2	402	390	422

Note: 1. 0.509 kgCO₂e/kWh for 2019, and 0.502 kgCO₂e/kWh for 2020. The national electricity emission factor in 2021 has not been announced; therefore, the emission factor in 2020 was used for estimating the emissions in 2021.

- The types of gases include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride.
- The basic data of location for 2020 was corrected to 390. The reason for the correction is that instead of using the national electricity emission factor of the previous year, the emission factor that has been announced in the current year will be used.

Direct Greenhouse Gas Emissions

The direct greenhouse gas emissions (Scope 1) of Guan Tian Plant mainly come from the greenhouse gas generated by the boiler during power generation process, while others come from transportation vehicles such as company cars and stackers, septic tanks, refrigerant leakage and maintenance operation.

The direct (Scope 1) and indirect (Scope 2) greenhouse gas emissions of Guan Tian Plant in 2021 are shown in the table below. Due to the impact of the COVID-19 pandemic in 2021 and the increase in the number of companies using scrap tires as auxiliary fuel, the purchasing of scrap tires on the market was decreased compared to 2020. As a result, the amount of coal used in 2021 was higher than 2020, which led to higher greenhouse gas emissions and total energy consumption.

Carbon Dioxide Equivalent (tons of CO ₂ e)				
Region	Scope	2019	2020	2021
Guan Tian Plant	Scope 1	373,001.3	369,209.4	378,796.0
	Scope 2	4,177.9	3,574.4	3,151.8
	Total	377,179.1	372,783.8	381,947.8
	Emission Intensity (steam) (ton/ton)	0.330	0.335	0.340
	Emission Intensity (electricity) (ton/kWh)	0.000959	0.000974	0.000989

Note: 1. The data in 2021 is only the preliminary internal inventory data.

- The calculation of greenhouse gas emissions for Guan Tian Plant is mainly based on the global warming potential value announced in the Second Assessment Report in 1995, adopting the "emission factor approach". Moreover, some adopted the mass balance approach for calculation. The emission factor approach is mainly based on the Greenhouse Gas Emission Factor Table and the electricity emission factor announced by the Bureau of Energy, Ministry of Economic Affairs.
- The types of gases include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride.
- After the external audit performed by a third-party verification body, the Scope 1, total, and emission intensity for 2020 were revised.

The greenhouse gas emissions and emission intensity of the three gas-fired power plants invested by the Company are shown in the table below. The average emission intensity of the three gas-fired power plants in 2021 was 0.379 kgCO₂e/kWh, which is 0.123 kgCO₂e/kWh lower than the national electricity emission factor (2020). If the calculation is based on the amount of electricity sold by the three gas-fired power plants in 2021 (compared to the national average carbon emission factor), the annual carbon emission reduction is about 1.19 million tons of CO₂e, which is equivalent to the carbon absorbed by 3,065 Daan Parks. (Note: assuming one Daan Park can absorb approximately 389 tons of carbon per year)

Carbon Dioxide Equivalent (tons of CO ₂ e)				
Region	Scope	2019	2020	2021
Three Invested Power Plants	Scope 1	3,441,646.59	3,469,842.95	3,749,452.49
	Scope 2	14,823.61	15,142.12	9,072.47
	Total	3,456,470.21	3,484,985.07	3,758,524.95
	Emission Intensity (ton/kWh)	0.000378	0.000377	0.000379

Note: 1. The data in 2021 is only the preliminary internal inventory data.

- The types of gases include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride.
- After the external audit performed by a third-party verification body, the Scope 1, total, and emission intensity for 2020 were revised.

Verification Criteria and Data Quality

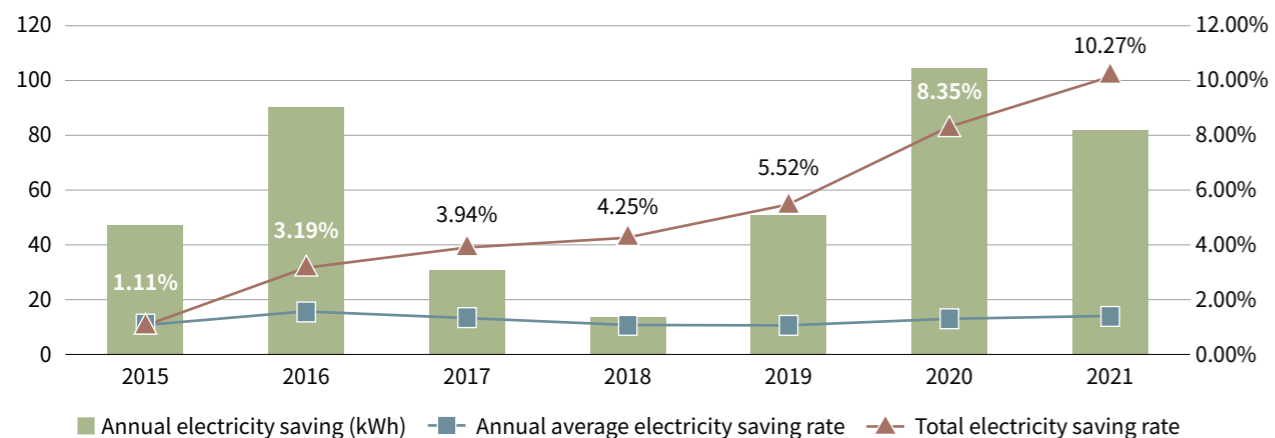
From 2005 to 2014, Guan Tian Plant voluntarily conducted greenhouse gas inventory. Starting from 2014, since Guan Tian Plant was applicable (the first group) to the Management Regulations of Greenhouse Gas Emission Reporting stipulated by the Environmental Protection Administration, Executive Yuan, reporting has been done in accordance with government regulations since 2014.

To ensure the quality and reliability of the greenhouse gas inventory information and reports of Guan Tian Plant, as well as the 3 invested gas-fired power plants, the current greenhouse gas inventory results of these facilities are audited by an external third-party verification body in accordance with ISO 14064-1 and ISO 14064-3.

Energy Consumption within the Organization

To get a hold of the energy consumption information, TCC's headquarters office, Guan Tian Plant and the invested IPPs continue to carry out investigation and analysis on energy consumption, and implement various energy consumption reduction measures. Guan Tian Plant formulates various energy-saving measures, and is committed to energy saving and carbon reduction, hoping to make contributions to the environment. The estimated electricity saving rate in 2021 was 1.92%. From 2015 to 2021, the total electricity saving rate was about 10.27%, and the average annual electricity saving rate was about 1.44%, which met the requirement of the government's energy saving policy, where the average annual electricity saving rate must be greater than 1%.

In response to the draft amendment announced by the Bureau of Energy, Ministry of Economic Affairs on October 30, 2019 (Ching-Shou-Neng-Tzu No. 10805015880), which extended the period of the energy saving target from "2015-2019" to "2015-2024", Guan Tian Plant will continue to make improvement in energy conservation in order to meet regulatory requirements.



The annual electricity consumption of TCC's headquarters office and the energy intensity of Guan Tian Plant as well as the 3 invested power plants are detailed in the table below.

Headquarters Office Energy Consumption (All Non-Renewable Energy Sources)

	2019	2020	2021
Purchased electricity (GWh)	0.8	0.8	0.8

Note: The purchased electricity was calculated based on the electricity bill of Taipower and the share of the public electricity of the building.

Unit: GJ		2019	2020	2021	
Guan Tian Plant	Energy Consumption (Non-Renewable Energy Sources)	Purchased Electricity	28,210	25,298	22,585
		Coal	2,704,659	2,679,747	3,172,743
		Low Sulfur Fuel oil	5,153	5,997	5,121
		Scrap Tire	1,211,661	1,210,631	998,584
		Gasoline	45	54	82
		Diesel	117	61	15
		Liquefied Petroleum Gas (LPG)	8	4	6
	Energy Sold	Electricity	867,517	828,403	816,653
		Steam	909,932	946,604	1,004,213
	Total Energy Consumption Within the Organization		2,172,403	2,146,785	2,378,270
Steam Energy Intensity (GJ/ton)		3.46	3.53	3.74	
Electricity Energy Intensity (MJ/kWh)		10.04	10.24	10.87	

Note: 1. The calculation for the purchased electricity is (in-plant electricity consumption + electricity sold) - power generation of Guan Tian Plant. Therefore, in addition to in-plant electricity consumption, electricity sold will also affect the energy consumption of purchased electricity.
2. The heating value conversion coefficients of various fuels: coal represents actual data, the conversion coefficient of scrap tire is based on value from the US EPA's 2013 Climate Leaders GHG Inventory Protocol (7,685Kcal/kg), and the remaining is based on the coefficients announced by the Bureau of Energy (version 6.0.3).


Unit: GJ		2019	2020	2021	
3 IPPs	Energy Consumption (Non-Renewable Energy Sources)	Purchased Electricity	101,675	107,093	64,886
		Natural Gas	55,262,936	55,973,489	60,435,309
		Gasoline	721	770	684
		Diesel	173	194	137
		Liquefied Petroleum Gas (LPG)	182	174	166
Energy Sold	Electricity	32,471,624	32,722,487	34,894,502	
Total Energy Consumption Within the Organization		22,894,063	23,359,234	25,606,681	
Gross Power Generation Energy Intensity (MJ/kWh)		6.04	6.06	6.09	


Note: The heating value conversion coefficients of various fuels are based on the coefficients announced by the Bureau of Energy (version 6.0.3).


Energy-Saving and Carbon-Reduction Measures and Results


With the mission of environmental sustainability, TCC continues to carry out measures related to energy saving and carbon reduction, including process improvement, power conservation, to enhance business performance and reduce energy consumption.

Guan Tian Cogeneration Plant is based on a cogeneration system, which is an energy integration system that produces electricity, steam, and heat simultaneously. The energy efficiency of the system can generally reach greater than 50%, which is much higher than that of the system based on conventional power generation. The major benefits are as follows:

- 

It is a distributed power supply. In addition to providing a balanced power supply for the region, it can effectively reduce the loss of power transmission and distribution, while providing dual power supply protection for regional users, which is of great help to the stability of the power supply system.
- 

It effectively integrates the electrical and thermal energy demand in the region, reducing the use of small boilers, improving energy efficiency, and minimizing the air pollution caused by small boilers with inadequate air pollution control equipment, serving as an important tool in promoting regional energy integration.
- 

Reducing the risk of power shortage: it can reduce peak loads for the systems of Taipower during peak hours. In addition, the surplus electricity can be sold to the Taipower, helping to improve Taipower systems' peak-hour power supply capacity, thereby reducing the power generation cost of Taipower for operating high-cost units.
- 

It has high energy efficiency, which can effectively save energy and reduce the emission of polluting gases, especially the emission of CO₂, an undesirable greenhouse gas.

Guan Tian Plant has been operating for more than 21 years. Over the years, it has continued to carry out equipment upgrades to improve operating efficiency. It is expected that the degree of improvement in the future will be relatively small; however, Guan Tian Plant will still adhere to the attitude and spirit of continuous improvement, offering strategies and plans as follows:

Strategy	Specific Plans	Description
Increase the Volume of Steam Sold and Expand Regional Energy Integration	<ul style="list-style-type: none"> Continue to visit potential customers in the industrial park and actively develop new customers 	<ul style="list-style-type: none"> Increase the volume of steam sold, which can greatly improve the overall thermal efficiency
Conduct Monitoring and Adjustment to Maintain Unit Efficiency	<ul style="list-style-type: none"> Carry out efficiency review through monthly plant management meeting and technical meeting Through analysis and discussion, adjust combustion conditions to improve unit efficiency 	<ul style="list-style-type: none"> Analyze the unburned coal, and monitor/adjust combustion air volume constantly to maintain unit efficiency Analyze and review the rationality of various data
Save In-plant Electricity	<ul style="list-style-type: none"> Check whether the electricity consumption of various systems in the plant is normal through energy audit system Implement annual overhaul to reduce energy consumption Perform evaluation to appropriately replace outdated equipment, and purchase high-efficiency equipment 	<ul style="list-style-type: none"> 69 kV switch yard power equipment upgrade Deaerator feed water pump (DFWP) Unit-B upgrade Conduct annual overhaul for boilers, with expected decrease of exhaust temperature by 15~20 degrees Boiler feed water pump (BFP) Unit-B replacement Boiler feed water pump (BFP) Unit-A replacement 69 kV switch yard power equipment upgrade (grid busbar potential transformer(PT)) 69 kV switch yard power equipment upgrade (update 1 set of gas circuit breaker (GCB) 750)

In terms of actual plans as well as benefits of energy-saving and carbon reduction, Guan Tian Plant has implemented related projects in 2021, saving about 623,000 kWh of electricity and 115 tons of coal, with an estimated annual electricity saving rate of 1.92% and a carbon reduction of about 549.3 tons of CO₂e. A list of the energy-saving measures is as follows:

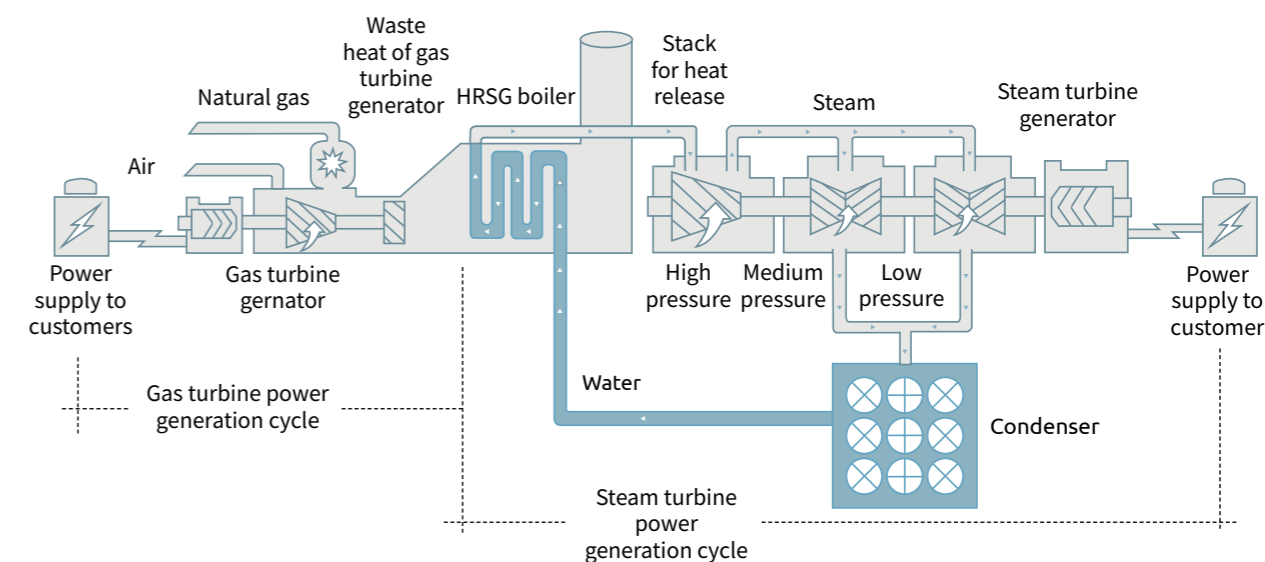
Plant	Energy-Saving/Carbon-Reduction Plan	Energy Type	Energy Saved (kWh)	Carbon Reduction (Tons of CO ₂ e)	Period
Guan Tian Plant	69 kV switch yard power equipment upgrade	Electricity	15,688	7.88	Jan. ~ Oct.
	Deaerator feed water pump (DFWP) Unit-B upgrade	Electricity	9,134	4.59	Jan. ~ Feb.
	Conduct annual overhaul for boilers, with expected decrease of exhaust temperature by 15~20 degrees	Coal	115 (tons)	236.58	Jan. ~ Feb.
	Conduct annual overhaul for boilers, with expected decrease of exhaust temperature by 15~20 degrees	Electricity	58,454	29.34	Jan. ~ Feb.
	Boiler feed water pump (BFP) Unit-B replacement	Electricity	194,435	97.61	Jan. ~ May.

Plant	Energy-Saving/Carbon-Reduction Plan	Energy Type	Energy Saved (kWh)	Carbon Reduction (Tons of CO ₂ e)	Period
	69 kV switch yard power equipment upgrade (grid busbar potential transformer(PT))	Electricity	4,183	2.10	May ~Dec.
	69 kV switch yard power equipment upgrade (update 1 set of gas circuit breaker (GCB) 750)	Electricity	784	0.39	Nov. ~Dec.
Total		Electricity	622,939	549.3	
		Coal	115 (tons)		

Note: 1. The electric energy saving is estimated based on the 2021 Energy-Conservation Measures and Energy-Saving Amount reported to the Bureau of Energy.
2. The carbon reduction from electricity (Scope 2) saving is calculated by using the national electricity emission factor of 0.502 kgCO₂e/kWh in 2020. The types of gases include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride.

In terms of the IPPs invested by TCC, Star Energy Power, Sun Ba Power, and Star Buck Power are all gas-fired combined cycle plants. A combined cycle plant uses gas turbine to generate power, and recovers waste heat from the turbine exhaust to generate steam, driving a steam turbine generator to provide supplementary electricity. Combining the two thermodynamic cycles can improve the overall power generation efficiency.

The power generation efficiency of gas-fired combined cycle plant is over 50%, which is much higher than that of conventional coal-fired power plant (typically less than 40%). Therefore, less fuel energy is required for each kilowatt-hour of electricity generated, resulting in less greenhouse gas emissions and environmental impact. Under the circumstance that most types of renewable energy power generation are relatively unstable, gas-fired combined cycle plant will offer a power supply option that takes into account both greenhouse gas emission reduction and power supply stability.



Star Energy Power, Sun Ba Power, and Star Buck Power continue to carry out process improvement and electricity conservation measures. Several energy-saving projects were conducted in 2021, which saved additional 2.2 GWh of electricity and 10,000 m³ of natural gas, equivalent to a reduction of 1,127 tons of CO₂e. Major energy-saving projects conducted in 2021 are as follows:

Plant	Energy-Saving/Carbon-Reduction plan	Energy Type	Energy Saved (kWh)	Carbon Reduction (Tons of CO ₂ e)	Period
Chang Bin Gas-Fired Power Plant of Star Energy Power	Adjust and reduce the operation of roof and wall exhaust fans in the plant	Electricity	362,226	181.84	Jan.-Dec.
	Early stop of auxiliary boiler steam during startup and replace by process steam (reduce the consumption of natural gas)	Natural gas	11,587 (m ³)	24.08	Jan.-Dec.
	Use LED lights for in-plant lighting to save electricity (Administrative building, control room and street lights*30)	Electricity	44,172	22.17	Jan.-Dec.
	Reduce the operation of the soundproof cover ventilation fan of the closed-circuit cooling system pump	Electricity	39,210	19.68	Jan.-Dec.
	Winter water temperature control for the CCCW cooling circulation system	Electricity	135,762	68.15	Jan.-Dec.
Star Buck Gas-Fired Power Plant of Star Buck Power	Reduce the number of lamps on the light steel joist ceiling (216 lamps with power of 40W/lamp) for office, dormitory, and plant area by half (108 lamps)	Electricity	15,768	7.92	Jan.-Dec.
	Conduct burner maintenance for No. 1 gas turbine generator (GT-1)	Electricity	19,531	9.80	Dec.
	Conduct class A maintenance (Major Inspection (MI)) for steam turbine (ST)	Electricity	222,594	111.74	Jan.-Dec.
	Conduct Hot Gas Path Inspection (HGPI) for No. 2 gas turbine generator (GT-2)	Electricity	183,119	91.93	Oct.-Dec.
Fong Der Gas-Fired Power Plant of Sun Ba Power	After the unit is shut down, the number of CCCWP in operation is changed from two to one to maintain the cooling water for the auxiliary equipment. The second CCCWP resumes operation before the unit starts.	Electricity	120,416	60.45	Jan.-Dec.
	Reduce the number of blade washes for No. 1 gas turbine	Electricity	115,497	57.98	Jan.-Dec.
	Shorten the start-up time of the second CCCWP in the start-up process	Electricity	176,640	88.67	Jan.-Dec.
	Perform major and minor maintenance projects for the high and medium pressure feed pumps of No. 1 unit	Electricity	116,160	58.31	Jan.-Dec.
	Perform power and process motor inspection and maintenance for No. 1 unit	Electricity	557,778	280	Jan.-Dec.
	Conduct energy-saving and improvement project for closed circuit cooling water pump (CCCWP) of air-cooled heat exchanger (ACHE)	Electricity	67,721	34	Jan.-Apr.
	Add hydrogen dryer equipment for steam turbine generator system (STG-20)	Electricity	20,963	10.52	Jan.-Nov.
Total	Electricity	2,197,557	1,127.24		
	Natural gas	11,587 (m³)			

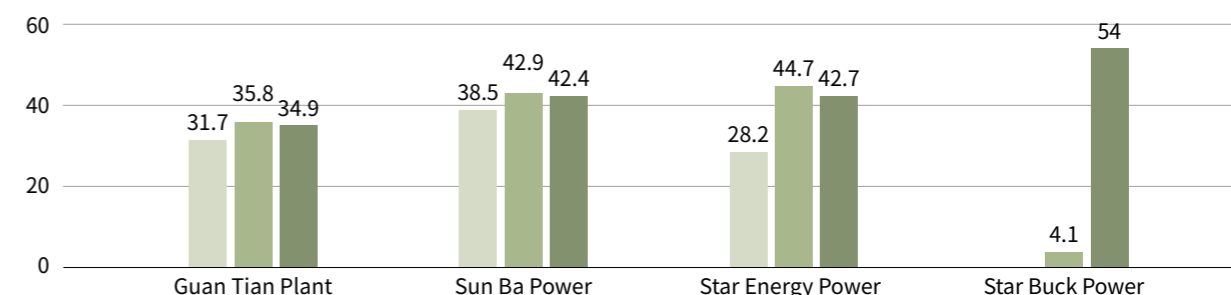
Note: 1. The electric energy saving is estimated based on the 2021 Energy-Conservation Measures and Energy-Saving Amount reported to the Bureau of Energy.
2. The energy saving calculated above is estimated.
3. The carbon reduction from electricity (Scope 2) saving is calculated by using the national electricity emission factor of 0.502 kg CO₂e/kWh in 2020. The types of gases include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride.

Solar Photovoltaic Facilities of Power Plants

Since most of the current renewable energy enterprises choose to sell electricity to Taipower based on the feed-in tariff (FIT), the supply of renewable energy certificates is still low, making it difficult to activate the trading market. Therefore, TCC Group's current strategy is to focus on the development and construction of renewable energy projects to directly promote the use of renewable energy and reduce greenhouse gas emissions. In 2019, TCC Group engaged in the field of renewable energy retailing, and will gradually develop its retailing business to maximize the utilization efficiency of renewable energy.

Currently, Guan Tian Plant has a rooftop PV system with installed capacity of 304 kW. In 2021, it generated 349,000 kWh of electricity, which was sold to Taipower. The business is operated and maintained by Star Energy. In addition, Fong Der Gas-Fired Power Plant of Sun Ba Power has a rooftop PV system with installed capacity of 335 kW. In 2020, it generated a total of about 424,000 kWh of electricity. Chang Bin Gas-Fired Power Plant of Star Energy Power has a ground-mounted PV system with installed capacity of 4 kW, and a rooftop PV system with installed capacity of 305 kW, providing a total annual power generation capacity of about 427,000 kWh. Star Buck Gas-Fired Power Plant of Star Buck Power has a rooftop PV system with installed capacity of 435.84 kW to provide a total annual power generation capacity of 540,000 kWh. All the electricity generated was sold to Taipower with FIT.

Electricity Generated by Solar PV Systems of Power Plants
Owned/Invested by TCC (10,000 kWh)

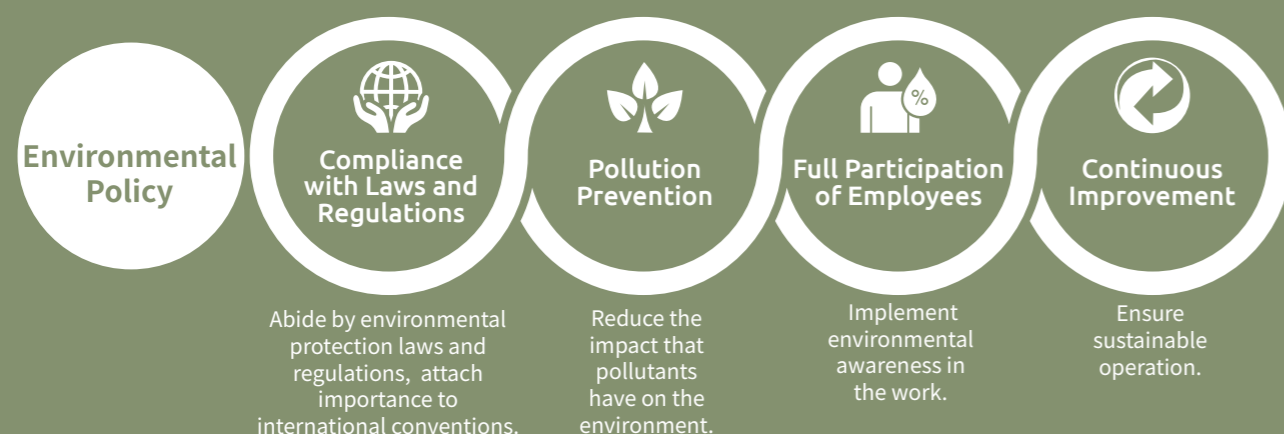


Note: Star Buck Power's rooftop PV system was connected to the grid in 2020; therefore, only the data for 2020-2021 is available.

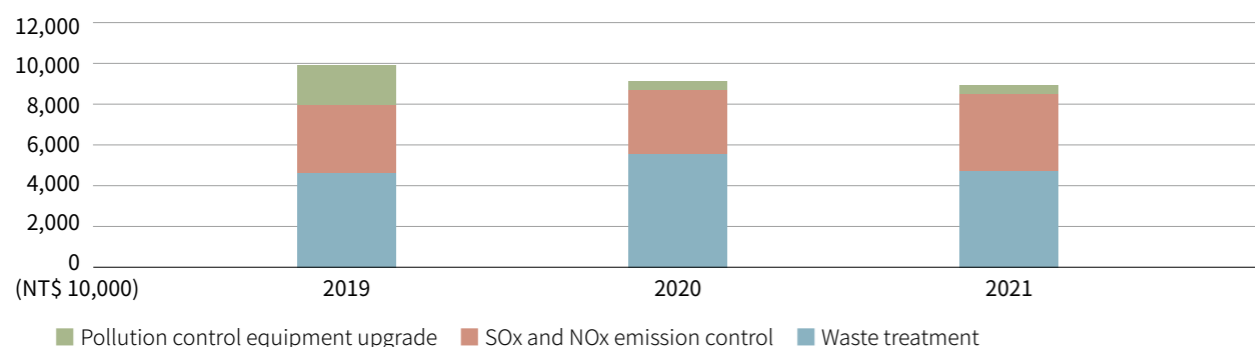
3.2 Circular Economy and Environmental Protection

At the beginning of its establishment, TCC mainly provided cogeneration technology services and assistance in the integration of regional energy resources to effectively improve energy efficiency and reduce environmental impact. In 2000, the self-built Guan Tian Cogeneration Plant provided high-efficiency and low-polluting steam and electricity to users in the Guantian Industrial Park.

To fulfill TCC Group's corporate social responsibility and commitment to environmental sustainability, while improving the efficiency of resource usage in the power plants and reducing waste, Guan Tian Plant obtained ISO 14001 Environmental Management System certification in 2017. Star Energy also obtained ISO 14001 certification in 2018, expanding the application of environmental management system to the field of construction engineering. Through this system, identification of environmental aspect is done throughout the product life cycle, such as production, construction and waste disposal, to find possible environmental problems, make amendments, and reduce environmental impact, fulfilling TCC Group's goals for environmental conservation and sustainable operation.



To fulfill the Company's commitment to environmental protection, Guan Tian Plant invests in pollution control equipment and waste reduction/treatment every year. In the past three years, the total investment in environmental protection was about NT\$ 279 million, with an average annual investment of about NT\$ 90 million, accounting for about 11% of Guan Tian Plant's production cost.



3.2.1 Circular Economy of Waste Resources

Ideas, Goals and Measures of Resource Recycling

To achieve its commitment to environmental sustainability, Guan Tian Plant uses circulating fluidized bed (CFB) boiler that accepts a wide range of auxiliary fuels. The main fuel of Guan Tian Plant is coal; while in consideration of economic efficiency and corporate social responsibility, scrap tires that are cut and have their steel wires and batting removed are used as alternative fuels to effectively improve the utilization of resources, which can further reduce environmental pollution caused by the disposal of scrap tires and prevent the spread of dengue fever.

The unit heating value of scrap tires is higher than that of coal, and the co-firing volume can reach about 30% of the total fuel heat when considering the safe load of the boiler. After Guan Tian Plant's application was approved by the Environmental Protection Bureau of Tainan City Government in 2018, the annual permitted volume of scrap tires for burning has increased 30%, from 41,310 tons/year to 53,703 tons/year. This allows more scrap tires to be cleaned up in response to the policy of the Environmental Protection Administration, as we make every effort to contribute to the society and the environment.

The volume of scrap tires burned in 2021 was 31,034 tons, and the co-firing ratio was 26.1% on a heat input basis. Due to the impact of the COVID-19 pandemic and an increase in number of companies using scrap tires as auxiliary fuel, the purchasing of scrap tires on the market was decreased compared to 2020. In addition, co-firing ratio of scrap tires on a heat input basis in 2019 and 2020 was higher than the value designed by manufacturers (30%), resulting in severe ash deposition. Therefore, co-firing ratio was slightly reduced to maintain the stable operation of the boiler.

The list of major raw materials used by Guan Tian Plant is as follows (all are non-renewable raw materials):

Unit: Tons, except fuel oil (kL)

Plant	Name of Raw Material	2019	2020	2021
Guan Tian Plant	Coal	115,846	114,779	135,895
	Scrap Tire	37,656	37,624	31,034
	Fuel Oil	128	149	127
	Silica Sand	381	427	178
	Limestone	19,600	25,731	23,734

Recycling of Energy and Resources - 100% Recycling of Scrap Tire Ashes

In general, coal ash (including fly ash and bottom ash) that purely comes from the combustion of coal is a general industrial waste that is announced to be reusable and has low treatment costs. It is favored by ready-mix concrete manufacturers, who regard it as a valuable resource. However, the ash produced from the co-firing of scrap tire rubber with coal will exhibit black color due to the carbon black in the rubber and can only be reused as mixing material for low-quality concrete, limiting its utilization efficiency. Furthermore, cost is required for its treatment prior to reuse.

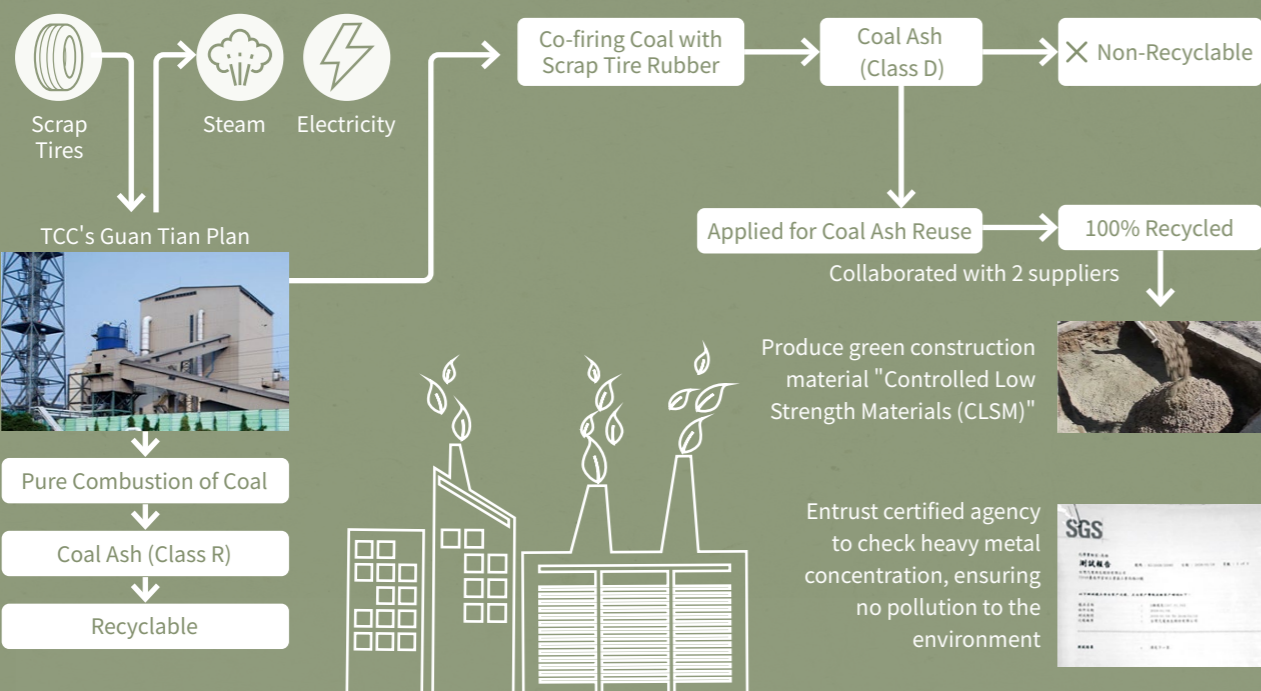
In July 2010, the Industrial Development Bureau determined that the coal ash produced by the boiler of Guan Tian Plant, due to the co-firing with scrap tire rubber, could not be classified as general industrial waste that was announced as reusable with low treatment cost, and must instead be classified as general industrial waste with high treatment cost. Moreover, the handling of the waste should be conducted by a qualified Class B waste treatment facility. Due to the high cost in its treatment, the economic benefit of burning scrap tire rubber was reduced.

Apart from complying with regulations, TCC strives to be an environmentally friendly company, as it aims to achieve the goal of 100% reuse and recycle. To overcome the challenge, Guan Tian Plant collaborates with its suppliers to submit an application for the reuse of coal ash. All coal ash produced from the combustion process is transported to the concrete plant. Coal ash is then mixed with raw materials from cement with a certain ratio to create Controlled Low Strength Materials (CLSM). The main purpose of CLSM is to serve as a structural fill or backfill. Since CLSM is a self-leveling and self-compacting material, it does not require compressing. It is an alternative for replacing soil backfill and is suitable for small or inaccessible places, such as the backfill for large pipeline openings, narrow trenches, and holes under pavement or buildings.

Guan Tian Plant entrusts an agency approved by the Environmental Protection Administration to test the concentration of leaching heavy metals in coal ash every year in accordance with regulations, ensuring that it will not cause environmental pollution. In addition, with no waste being derived from the recycling process, we fulfill our commitment to protect the environment.

Implementation Procedure

100% recycling of scrap tire ashes



Circular Economy and Environmentally Sustainable Production Model - Bottom Ash Recycling System

Guan Tian Plant has been operating for 21 years since its commercial operation in December 2000. The unit equipment and operation technology have been constantly tested and upgraded. On the premise of ensuring stable operation, TCC has implemented circular economy with an efficient and eco-friendly production process.

With the spirit of constant improvement, the bottom ash recycling system was built based on the manufacturer's recommendations in 2017, and equipment installation and trial operation were completed at the end of July in 2018. The system was then officially put into operation, further strengthening and utilizing the environmentally sustainable circular economy model of production.

Guan Tian Plant uses CFB boiler with silica sand as its medium for fluidization in the boiler. Its main function is to effectively control the boiler bed temperature and reduce the high erosion rate of the hearth caused by high impurity bed materials. In recent years, due to the increase in the price of silica sand and the cost of treatment for bottom ash, the cost of raw material procurement and waste treatment has increased. After the evaluation, a bottom ash recycling system has been built to recycle bottom ash for reuse after particle size screening. In addition to reducing the amount of silica sand used and bottom ash, the surface of bottom ash is smoother, which can reduce the boiler erosion cause by the relatively uneven surface of new silica sand. The amount of silica sand used in 2019 was 380.74 tons and 427 tons in 2020. In 2020, the bottom ash conveying system was replaced during an overhaul. In 2021, the amount of silica sand used was dropped to 178 tons, suggesting that the new implementation can effectively reduce the amount of silica sand used.

The quantity of bottom ash from Guan Tian Plant is mainly related to the composition and sulfur content of coal. When there are more impurities in coal, it is necessary to increase the discharge of silica sand to maintain the quality of bed materials as well as the temperature of the hearth. Consequently, more bottom ash will be produced. For the treatment of bottom ash, the treatment volume in 2021 was 3,382 tons. All the bottom ash collected was 100% reused and recycled as Controlled Low Strength Materials (CLSM).



Amount of Coal Ash Produced by Guan Tian Plan in the Past Three Years:

Unit: Tons

	Coal Ash Output	Remark
2021	26,501	All the ash collected was 100% recycled and made into Controlled Low Strength Materials (CLSM).
2020	26,333	
2019	22,978	

Major raw materials of the three invested gas-fired power plant are as follows.

Unit: 1,000 m³

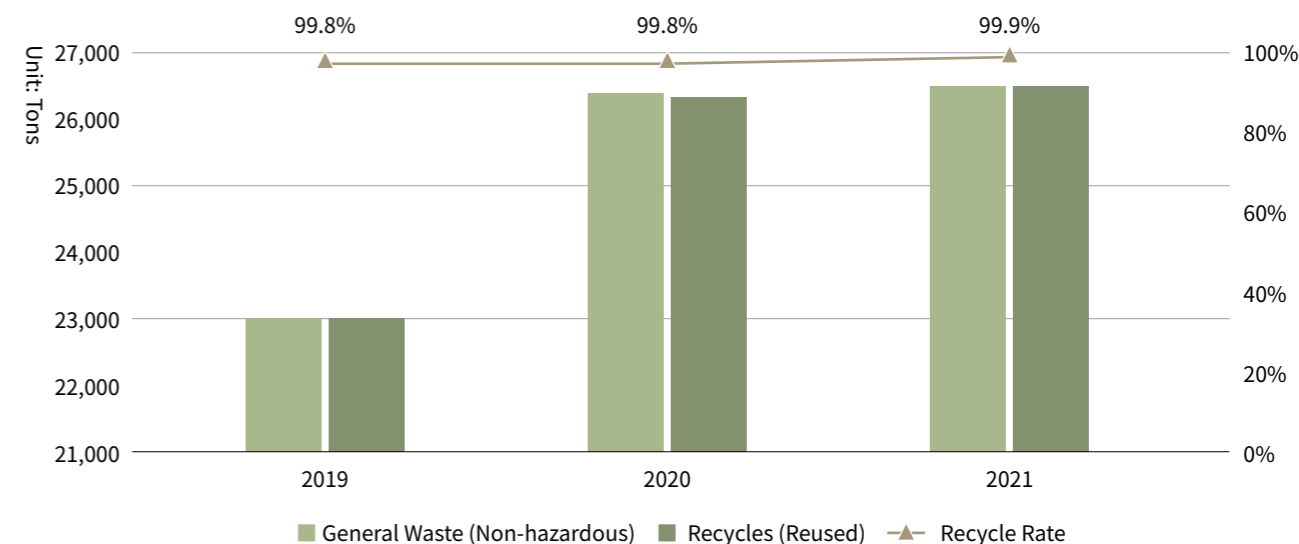
Plant	Name of Raw Material	2019	2020	2021
3 IPPs	Natural gas	1,649,835	1,671,050	1,804,255

Methods of Waste Disposal

The waste produced by Guan Tian Plant is non-hazardous waste, including inorganic sludge, domestic waste, coal ash, wasted thermal insulation materials and wasted refractory materials. Guan Tian Plant recycles any recyclable waste such as coal ash, while the unrecyclable waste is handled by qualified operators in accordance with the relevant regulations of the Waste Disposal Act. The recycling rate has exceeded 99.8%.

The list of waste treatment methods by Guan Tian Plant in 2019-2021 is as follows (all are non-hazardous waste):

	Weight (Tons)		
	2019	2020	2021
Recycling For Reuse	22,977.78	26,332.5	26,501.02
Incineration (Massive Combustion)	12	11.75	3.5
Other (Landfill + Thermal Treatment)	17.42	18.62	19.46
Other (Thermal Treatment)	11.22	31.84	6.9
Total Weight	23,018.42	26,394.71	26,530.88



3.2.2 Water Resource Management

Taiwan's water resources are scarce, but it is also an essential resource for steam turbines in the power generation process. Thus, TCC attaches great importance to the use of water resources, and enhances the efficiency of water usage through effective management, reducing consumption and unnecessary wasting of water resources.

TCC has formulated a water resource management policy in 2022, which is the highest guiding principle for the Company's water resource management.

Raw Water Source

The main source of water for Guan Tian Plant is tap water from the Taiwan Water Corporation, while a portion comes from the Wushantou Reservoir. Guan Tian Plant consumes about 1 million tons of water every year, of which the tap water accounts for about 60~70%, and the water from the Wushantou Reservoir accounts for about 22~30%. The remaining portion of the water comes from the recycled water within the plant, as well as the condensed water after selling steam to customers. The information on the water resources of Star Energy Power, Sun Ba Power and Star Buck Power invested by the Company is also disclosed as follows.

Plant	Water Source	2019	2020	2021	Calculation Method
Guan Tian Plant	Raw Water (Reservoir)	227,224	271,066	305,977	Meter data recorded daily by the Operation Department
	Tap Water	594,364	566,770	546,934	Meter data recorded daily by the Operation Department
	Total Water Withdrawal	821,588	837,836	852,911	
	Water Discharge	63,613	74,795	66,921	Wastewater discharge + Water purchased by customers
	Water Consumption	757,975	763,041	785,990	
	Wastewater From Other Organizations	69,040	95,010	97,616	Meter data recorded daily by the Operation Department
	Process Wastewater Recycled	8,164	8,043	11,725	Meter data recorded daily by the Operation Department
	Other Recycled Water	3,153	2,672	1,128	Water meter (Wastewater recycled)
	Recycled Water	11,317	10,715	12,853	
	Percentage of Recycled Water to Water Use	1.3%	1.14%	1.33%	This percentage does not include internal recycling of boiler water and cooling water

- Note: 1. There is no independent water meter in the headquarters office of TCC, and the water bill is only apportioned by the area. Hence, there is no exact water consumption data for reference.
 2. The water sources of the Company's main operating locations are tap water and/or raw water (reservoir). In the case of Guan Tian Plant, its raw water is taken from Wushantou Reservoir, which is not a biodiversity or national protected area, and the amount of water used is much less than 5% of the actual water supply of the reservoir (about 0.16~0.2%). Hence, there is no significant impact on local water sources.
 3. Guan Tian Plant is not located in a high/extremely-high water stress area.

Plant	Water Source	2019	2020	2021	Calculation Method
3 IPPs	Tap Water	166,808	158,190	146,830	According to water bill or water meter data
	Total Water Withdrawal	166,808	158,190	146,830	
	Water Discharge	24,337	20,040	25,417	
	Water Consumption	142,471	138,150	121,413	
	Process Water Recycled	14,456	14,130	11,592	
	Other Recycled Water	98,982	101,806	93,377	
	Recycled Water	113,438	115,936	104,969	
	Percentage of Recycled Water to Water Use	40.48%	42.29%	41.69%	

Water Resource Utilization Cycle in Cogeneration Plant

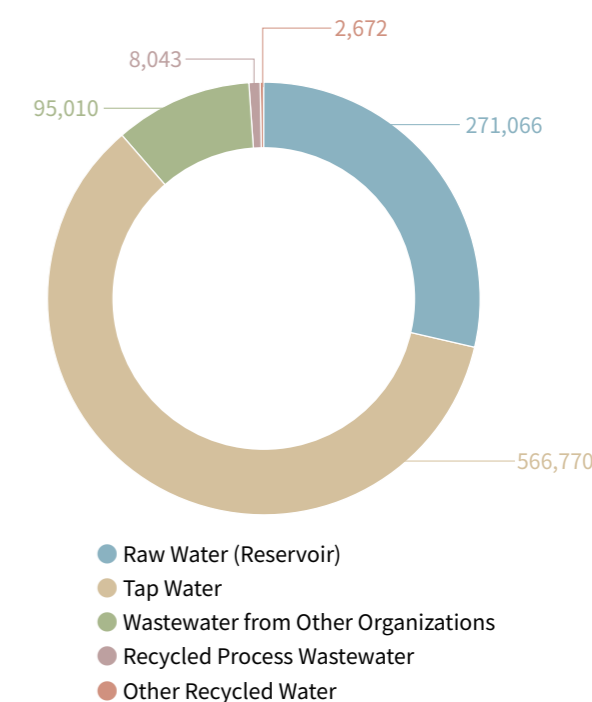
For regular boilers in cogeneration plant, the high-pressure steam created by the boilers will first generate electricity through the power generation process. The remaining steam after the process is then re-heated and divided into high-pressure, medium-pressure, and low-pressure steam according to the in-plant process and the requirements of users. It is then supplied to high-pressure feedwater heaters, low-pressure feedwater heaters, deaerators, heavy oil heaters, and sold to customers in industrial areas for higher boiler efficiency. The steam consumption of equipments in the plant is about 25% of the steam produced by the boiler. All but a small part of the steam can be condensed and recycled.

TCC attaches great importance to the management of water resources, adhering to the principle of no waste, and strengthening the recycling of water resources. Under the circumstance of not selling steam, nearly 99% of the steam in Guan Tian Plant can be fully condensed and recycled without wasting any water resources.

When selling steam to customers for use, depending on the process conditions of the steam customer and the water quality of the steam condensate, the condensed water after the process is recycled and used in the cooling water tower. Since the quality of condensate is better than that of raw water, the water quality of cooling towers can be improved, reducing the usage of raw water by about 60,000 tons each year. In the past two years, the reduction in raw water has even reached more than 90,000 tons. In addition, the continuous discharge of wastewater from boilers is about 8,000 to 10,000 tons. The heat energy is recovered by the heat exchanger and then discharged into the cooling water tower, which can also improve the water quality of the cooling water tower and indirectly reduce wastewater discharge.

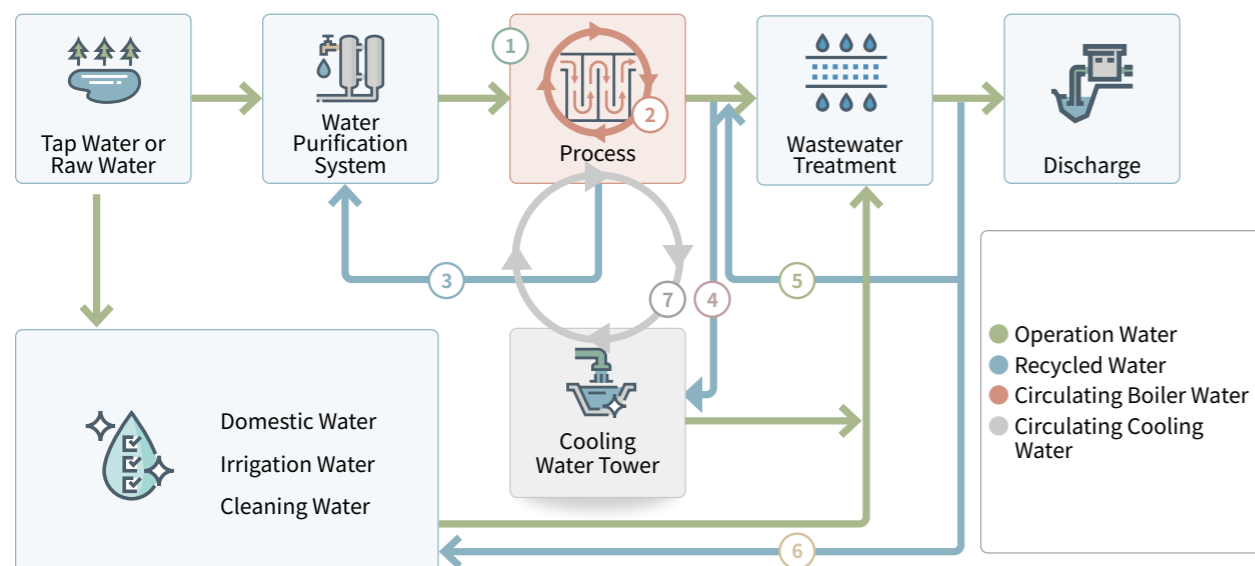
As for the wastewater discharged from the wastewater treatment facility, since Guan Tian Plant is located in the Guantian Industrial Park, according to the regulations, all wastewater generated must be discharged to the Wastewater Treatment Plant in the Guantian Industrial for centralized treatment. Since the production process of Guan Tian Plant is power generation, the wastewater generated can easily meet the Effluent Standards by using simple pretreatment process. Therefore, in 2017, a recycling water pipeline has been added to the discharge water pipeline. The recycled water is used for road cleaning, watering plants, and car washing in the coal yard. In 2021, the amount of recycled water was 1,128 tons, saving the use of tap water. The total amount of water recycled in 2021 was 12,853 tons, accounting for approximately 1.33% of the total annual water consumption (960,000 tons).

In 2021, about 57% of the water in Guan Tian Plant was used as cooling water, 37% was sold as steam, and only about 6% was treated and discharged to the Wastewater Treatment Plant in the Industrial Park, making full use of every single drop of water.



Water-Saving and Water-Recycling Measures

Guan Tian Plant and the invested Star Energy Power, Sun Ba Power, and Star Buck Power all attach great importance to the use of water resources, as each plant continues to invest in water-saving and water-recycling measures. For cogeneration plants or natural gas combined recycle plants, the main water-saving and water-recycling measures are as follows.



01 Saving Process Water
Reduce process water consumption through unit adjustment, such as modifying the flushing/draining water tank discharge piping system of heat recovery boiler, and adding shut-off valves and control systems to reduce cooling water demand and prevent steam from accidentally entering the water tank for heating.

02 Increase Boiler Water Circulation
The pure water in the boiler is continuously circulated and boiled, which is prone to scaling due to high temperature. It is necessary to replace the circulating water through continuous discharge to maintain the water quality in the boiler. Chemicals can also be added to maintain boiler water quality, increase the number of cycles, and remove boiler sludge, helping to improve boiler efficiency and reduce boiler water discharge.

03 Sampling Water Recycling
A boiler sampling water recycling system is added to recover the sampling water of the boiler water and the pure water used for flushing the instruments in the sampling room. The recycled sampling water is used as boiler water after being filtered by the ion exchange resin in the water purification system.

04 Continuous Discharge Water Recycling
Since the water quality of boiler condensate and continuous discharge water is better than that of raw water, they are discharged into the cooling water tower for reuse once their heat energy has been recovered by the heat exchanger. This can improve the water quality of the cooling water tower and reduce the discharge of wastewater.

05 Wastewater Recycling for Flushing Water Cooling
The water source of flush cooling for the auxiliary boiler and the waste heat boiler has changed; the cooling water originally supplied by the raw water tank is replaced by the recycled water from the wastewater system, reducing the consumption of raw water for flush cooling.

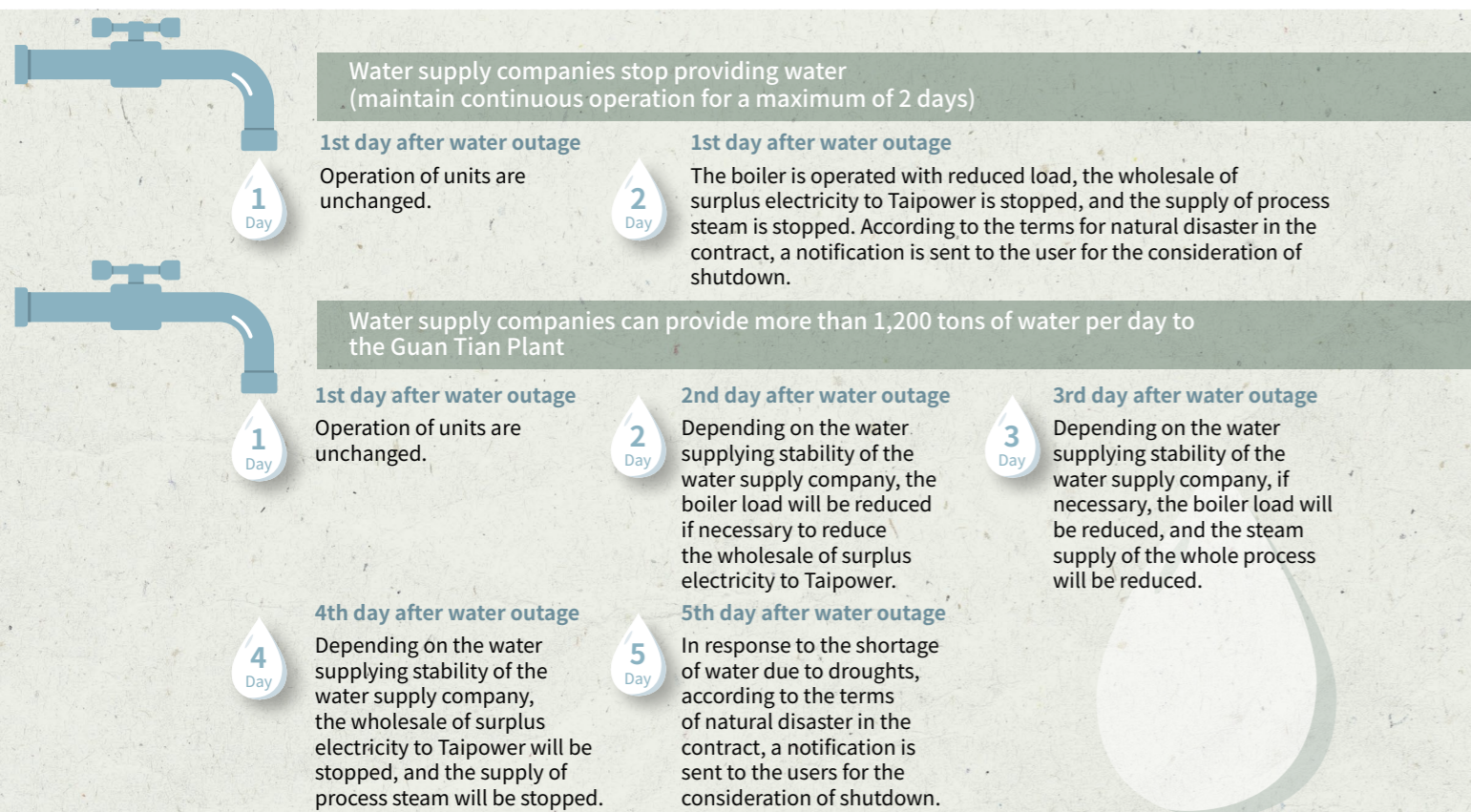
06 Recycle Wastewater After Treatment
Part of the effluent in the wastewater treatment facility is recycled after its treatment, serving as the water for watering plants in the plant area, cleaning coal yard/suppressing dust, etc.

07 Increase Cooling Water Circulation
When the cooling water tower is in operation, the cooling water will reduce due to evaporation and scattering. Moreover, impurities in the water will continue to accumulate, resulting in scaling that affects the operation. Therefore, it is necessary to drain the water frequently to maintain the water quality. Chemicals can be added to adjust the water quality, minimize the scale formation, increase the concentration ratio, and reduce the discharge of cooling water.

Water Risk Management and Measures

Currently, the maximum effective water storage capacity in Guan Tian Plant is about 5,500 tons (all tanks, pools and cooling towers). Guan Tian Plant's maximum water consumption under normal operation and steam supply is about 2,500 tons per day. The water source of Guan Tian Plant is mainly from the Taiwan Water Corporation, partly from the Wushantou Reservoir which is provided by other water supply companies.

Given the maximum water storage capacity and maximum water consumption of Guan Tian Plant, while the water supply companies can provide 1,200 tons of water per day during the water rationing period, the units are still expected to be able to operate normally for about 4 days. If the water supply companies stopped providing raw water, Guan Tian Plant could maintain normal operation for 2 days. When the Taiwan Water Corporation implements water rationing measures for industrial-use water, the responses of Guan Tian Plant are as follows.



In addition to saving and recycling water during the process of power generation, Guan Tian Plant and the three invested IPPs also take various water-saving measures for domestic water. The results of water-saving and water-recycling measures implemented by each plant are as follows.

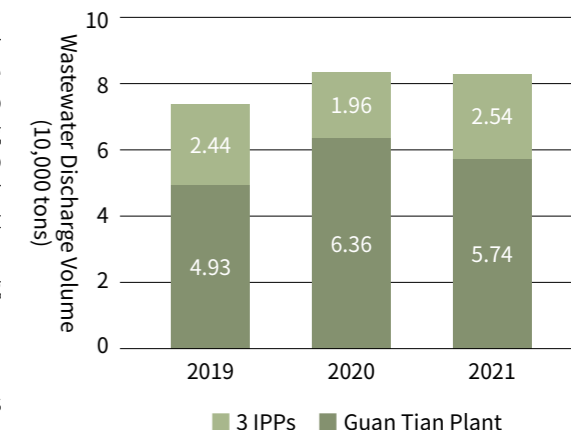
	Guan Tian Plant	Star Energy Power	Sun Ba Power	Star Buck Power
Water Saving	Add chemicals to control water quality + 1,100 tons/day of cooling water reduction + Boiler water discharge reduced by 1%	Unit adjustment/sampling water recycling + Process water saving: 19 tons/day	Modify the boiler flushing and draining piping system + Process cooling water saving: 110 tons/day	Unit adjustment/sampling water recycling + Process water saving: 25~30 tons/day
Recycling	Change for water pollution prevention + Boiler wastewater recycling: 25 tons/day + Effluent recycling: 5 tons/day + Wheel-washing pool wastewater recycling: 3 tons/day	Wastewater treatment facility/hot wastewater flushing cooling water recycling + Wastewater recycling: 90-120 tons/day	Wastewater treatment facility discharge recycling + Wastewater recycling: 100 tons/day	Wastewater treatment facility/hot wastewater flushing cooling water recycling + Wastewater recycling: 80~100 tons/day

Wastewater Treatment

To reduce environmental pollution, Guan Tian Plant handles the wastewater discharge properly to meet the discharge standards. Wastewater is discharged to the Wastewater Treatment Plant of the Guantian Industrial Park for centralized treatment. Since Guan Tian Plant mainly serves as power generation, the quality of its wastewater is good, making it an excellent discharge source for the Wastewater Treatment Plant of the Guantian Industrial Park.

Star Energy Power, Sun Ba Power, and Star Buck Power all have in-plant wastewater treatment facilities. After the wastewater generated from the plant has been treated to meet the standards, most of them are recycled for watering plants, and the remaining is released or discharged to the Wastewater Treatment Plant in the Industrial Park for Management according to the EIA (Environmental Impact Assessment) requirements.

Through a number of water-saving and water-recycling measures, the wastewater discharge of Guan Tian Plant and the three invested gas-fired power plants has been reduced in the past three years. The discharge of wastewater in 2021 and the discharge volume over the years are summarized as follows.



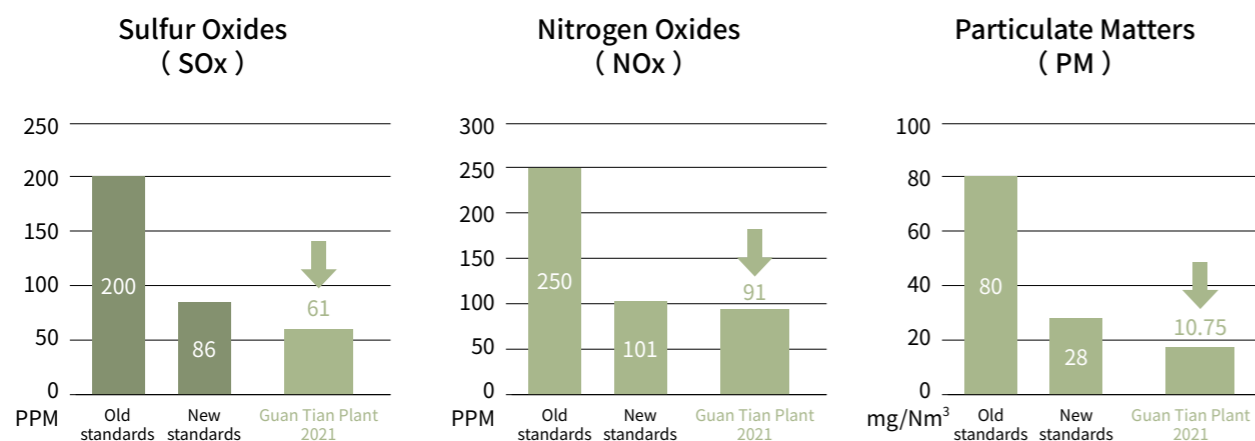
Plant	Wastewater Source	Discharge Destination	Treatment Method	Whether it is Used by Other Organizations	Water Volume Estimation Method	Wastewater Discharge Volume (10,000 Tons)	BOD (mg/L)	COD (mg/L)	SS (mg/L)
Guan Tian Plant	Process Wastewater	Wastewater Treatment Plant of the Guantian Industrial Park	Wastewater Pre-treatment	Wastewater Treatment Plant of the Guantian Industrial Park for Centralized Management	Water Meter	5.74	1.4	42.8	38.3
3 IPPs	Process Wastewater/ Domestic Wastewater	Industrial Park Sewer/ Wastewater Treatment Plant/ Streams	Chemical Coagulation Sedimentation/ Biological Treatment	Wastewater Treatment Plant of the Guantian Industrial Park for Centralized Management /NA	According to Flow Meter/ Water Meter	2.54	3.26	11.04	6.17

3.2.3 Air Pollution Prevention and Control

Guan Tian Plant is designed as a coal-fired cogeneration plant. The main air pollutants are nitrogen oxides (NOx), sulfur oxides (SOx) and particulate matter (PM). Since December 1, 2016, the emission standards of pollutants mentioned above have been tightened, with a maximum reduction of 49% in concentration limit. To meet the emission standards, Guan Tian Plant is committed to equipment improvement. Taking the improvement of particulate matter (PM) emissions as an example, at the beginning of 2016, more than NT\$ 20 million was invested to enhance the efficiency of electrostatic precipitators. In 2018, improvement on plate fouling was conducted for the electrostatic precipitator. In 2019, an additional NT\$ 20 million was invested to carry out the second-stage improvement project of the electrostatic precipitator, enhancing the operation efficiency and stability of the electrostatic precipitator; the opacity rate was greatly reduced to 6.12%.

In 2020 and 2021, in response to the revision of "Management Regulations of Continuous Emission Monitoring System for Stationary Source Air Pollutants", relevant software and hardware updates were carried out, including the update of opacity analyzer and CEMS data acquisition system. The changes in regulatory emission standards and the corresponding measures of Guan Tian Plant are as follows.

Air pollution emission standards for electric power facilities were tightened starting from December 1, 2016
In 2021, the average value for sulfur oxides was 61.32 ppm, 90.57 ppm for nitrogen oxides and 10.75 mg/Nm³ for particulate matters



Coping Measures

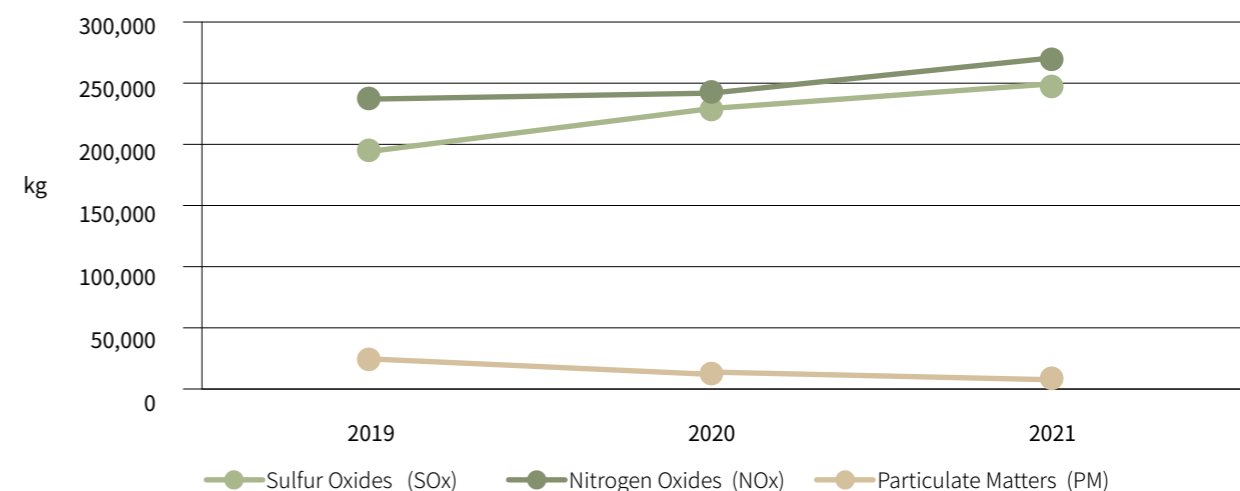
- ▶ Dry desulfurization was adopted, using limestone to remove sulfur oxides (SOx)
- ▶ The original limestone feeding pipeline was increased
- ▶ The auxiliary limestone tanks and feeding pipelines were added to ensure normal feeding
- ▶ Boilers are designed for low temperature combustion, resulting in lower nitrogen oxides (NOx) emissions
- ▶ With the denitration equipment, and the injection of some ammonia, NOx emission can be controlled to meet the standard
- ▶ The second-stage improvement project in 2019 upgraded the pole plates and pole lines, improving the operation efficiency and stability of the electrostatic precipitator
- ▶ In 2020 and 2021, in response to the revision of the "Management Regulations of Continuous Emission Monitoring System for Stationary Source Air Pollutants", relevant software and hardware updates were carried out

Performances

- ▶ Significant reductions in SOx, NOx and particulate matter emissions compared with 2016
- ▶ In 2018, the average value of opacity (PM measurement) dropped to 9.52%, achieving the goal of 10% below the target value
- ▶ In 2019, after the completion of the second-stage improvement project for the electrostatic precipitator, the opacity rate was further reduced to 6.12%

Unit: kg

Guan Tian Plant	2019	2020	2021	Calculation Method and Coefficient Source
Nitrogen Oxides (NOx)	237,120	241,595	265,993	Based on the formula for air pollution fee and the declared amount
Sulfur Oxides (SOx)	198,300	230,305	250,029	
Particulate Matters (PM)	24,479	12,016	9,466	Since 2018, the air pollution fee for particulate matter has been levied; therefore, it was calculated based on the formula for air pollution fee and the declared amount
Total	459,899	483,916	525,488	



Unit: kg

3 IPPs	2019	2020	2021	Calculation Method and Coefficient Source
Nitrogen Oxides (NOx)	1,335,750	1,333,793	1,289,981	Based on the formula for air pollution fee and the declared amount
Sulfur Oxides (SOx)	19,285	7,671	31,245	
Particulate Matters (PM)	58,507	54,648	39,112	Since 2018, the air pollution fee for particulate matter has been levied; therefore, it was calculated based on the formula for air pollution fee and the declared amount
Total	1,413,542	1,396,112	1,360,338	



Talent Cultivation, Friendly Workplace

- 4.1 Employee Structure
- 4.2 Talent Development
- 4.3 Healthy Workplace with Zero Work Injuries
- 4.4 Employee Welfare

Chapter Highlights

- ◆ The Guan Tian Plant has achieved zero work injuries for more than 800,000 hours since its establishment
- ◆ The Guan Tian Plant received the National Occupational Safety and Health Award
- ◆ The average training hours of TCC: 24 hours/person for employees, 26 hours/person for middle and senior management

4.1 Employee Structure

4.1.1 Human Resources Policy

Four Aspects and Policies of Human Resources

Attach Importance to Employee Rights

- ◆ Shaping an integrity management-oriented corporate culture
- ◆ Providing a working environment in which employees can fully develop their talents
- ◆ Providing employees with the right to have unpaid parental leave for raising child
- ◆ Ensuring gender equality at work
- ◆ Prohibiting gender discrimination during recruitment, appointment, performance evaluation and promotion, education and training, benefits, compensation for the same work or value, etc.
- ◆ Committed to comply with international human rights conventions, including the "United Nations Universal Declaration of Human Rights", the "United Nations Guiding Principles on Business and Human Rights", the "International Covenant on Civil and Political Rights", and the "International Covenant on Economic, Social and Cultural Rights"

Abide by the Laws and Regulations






- ◆ Hiring people with disabilities in compliance with relevant labor laws and regulations
- ◆ Establishing a "Codes of Ethical Conduct", which states that employees of the Company shall not engage in any form of discrimination and exclusion based on social status or identity such as gender, race, religious belief, party affiliation, sexual orientation, rank and age
- ◆ Formulating the "Personal Data Protection and Management Regulations"
- ◆ Protecting the collection, processing and utilization of employees' personal data, avoiding infringement of personality rights, and using personal data appropriately
- ◆ Formulating the "Regulations for Sexual Harassment Prevention, Reporting and Punishment"
- ◆ Providing employees and job applicants with a work and service environment that is free from sexual harassment, while taking appropriate preventive, corrective, disciplinary, handling measures as well as grievance procedures

Fair Treatment, Equal Opportunity

- ◆ The employment policy is based on the principle of fairness and justice
- ◆ No differential treatment of employees in terms of appointment, compensation and benefits, performance evaluation, promotion and training opportunities due to factors such as race, nationality, skin color, age, gender, gender orientation, religious belief, political stance, disability, pregnancy or marital status
- ◆ Formulating the "Human Resources Management Regulations", the "Employee Compensation Regulations", the "Work Assessment Implementation Guidelines", the "Promotion and Selection Regulations", the "Regulations for Human Resources Arbitration Committee" and the "Regulations for Sexual Harassment Prevention, Reporting and Punishment" to strengthen human resources management

Diverse Channels, Harmonious Communication

- ◆ Committed to create and maintain harmonious labor relations
- ◆ Establishing smooth communication channels, and protecting the human rights as well as the labor rights of employees.
- ◆ Calling a labor-management meeting quarterly to discuss issues related to labor-management relations, labor conditions, and labor welfare
- ◆ In 2019, according to the Act for Implementation of J.Y. Interpretation No. 748:
 1. The implication of the Act was announced in the labor-management meeting and all employees were informed that same-sex marriage is entitled to the same benefits provided by the Company.
 2. Making announcements on the prohibition of sexual harassment and in the Company's philosophy of not discriminating based on sexual orientation, promoting a harmonious labor-management relationship and striving for the growth of the Company together

	Establish an Employee Portal in the Company's intranet for announcing the Group's information occasionally
	Hold labor-management meeting and Employee Welfare Committee meeting regularly
	Encourage employees to make suggestions to the Company, serving as reference for the management
	Conduct questionnaire survey on employees' satisfaction regarding human resources, administration, and information technology services
	Provide hotline and e-mail for reporting on integrity management and human rights violation



Human Rights Policy and Specific Management Plan

TCC has formulated various management systems in accordance with relevant labor laws and regulations, and is committed to comply with international human rights conventions, including the "United Nations Universal Declaration of Human Rights", the "United Nations Guiding Principles on Business and Human Rights", the "International Covenant on Civil and Political Rights", and the "International Covenant on Economic, Social and Cultural Rights" to protect the rights and interests of employees.

TCC incorporates the human rights policy into the Company's various management systems, and actively takes concrete actions to demonstrate our determination in respecting and protecting human rights.

The Company's human rights-related concerns, goals and actions, risk mitigation measures, performance evaluation, and education and training:



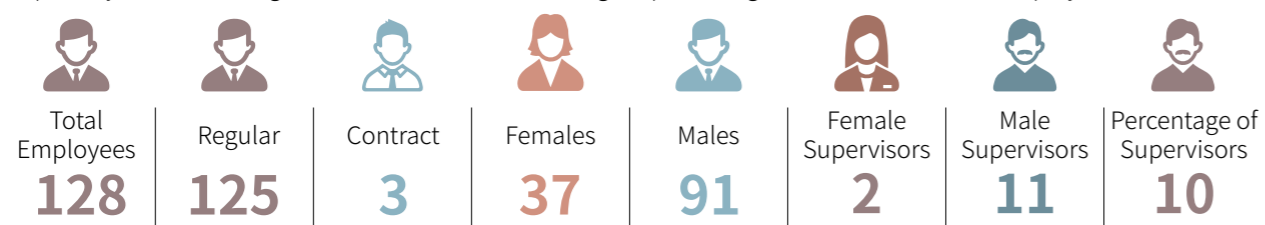
Reporting channels :  Reporting hotline:02-8798-2000 #515  Reporting email: hr@cogen.com.tw

Note: In 2020, there were two labor dispute cases that were not handled through the Company's reporting channel (employment confirmation and bonus calculation disputes), which are still under court hearing. Since they are regarded as special cases, they do not affect the overall harmonious relationship between the employees and the management.

4.1.2 Employee Composition

Organizational Profile

As of the end of 2021, TCC had a total of 128 employees, with 125 regular and 3 contract employees. There were 37 female and 91 male employees. Among the supervisors of various departments and offices, there were 2 female and 11 male supervisors, which added up a total of 13, accounting for about 10% of all employees. The Company belongs to the electric power business investment and development, as well as power generation industry. Its technology-oriented characteristic led to a slight difference in the percentage of male and female employees, especially Guan Tian Cogeneration Plant, which had higher percentage of male than female employees.



Employee Structure – Number of Employees by Employment Contract and Type

TCC	Employment Contract			Employment Type		
	Regular	Contract	Total	Full time	Part time	Total
Male	89	2	91	91	0	91
Female	36	1	37	37	0	37
Total	125	3	128	128	0	128

Star Energy	Employment Contract			Employment Type		
	Regular	Contract	Total	Full time	Part time	Total
Male	84	53	137	137	0	137
Female	23	14	37	37	0	37
Total	107	67	174	174	0	174

Note: The Chairman of Star Energy is also the President of TCC; in this case, the number is counted for both companies.

The average age of TCC's employees is about 45 years old, and the average working experience is 12 years. Employees over 30 years old account for 90% of all employees, and those with college degree or above account for 94% of all employees. Most employees have college degrees in their expertise, hold various certificates, and have many years of experience in the electricity and engineering industry. We uphold the spirit of "Integrity, Attentiveness, Diligence, Professionalism, and Enthusiasm", continue to innovate and make progress to provide efficient, enthusiastic and professional power services.

Employee Structure – Number of Employees by Age, Position, Education for Different Genders

TCC	Age				
	Under 30 Years Old	31-40 Years Old	41-50 Years Old	Above 51 Years Old	Total
Male	9	19	33	30	91
Female	4	10	14	9	37
Total	13	29	47	39	128

Star Energy	Age				
	Under 30 Years Old	31-40 Years Old	41-50 Years Old	Above 51 Years Old	Total
Male	17	46	40	34	137
Female	10	18	7	2	37
Total	27	64	47	36	174

TCC	Position			Star Energy	Position		
	Supervisor	Non-Supervisor	Total		Supervisor	Non-Supervisor	Total
Male	11	80	91	Male	8	129	137
Female	2	35	37	Female	0	37	37
Total	13	115	128	Total	8	166	174

TCC	Education				
	High School or Below	University/ Junior College	Master	PhD	Total
Male	7	59	23	2	91
Female	1	30	6	0	37
Total	8	89	29	2	128
Star Energy	Education				
	High school or Below	University/ Junior College	Master	PhD	Total
Male	5	97	34	1	137
Female	3	29	5	0	37
Total	8	126	39	1	174

New and Resigned Employees

There are two sources of talent recruitment in TCC. One is from internal source, which acquire talents through internal promotions, transfers and job announcements. The other source of talent recruitment is through external channels, including employee referral, human resources advertisements (including the Internet) and public as well as private employment service agencies (including human resources agency). During the recruitment of external personnel, priority is given to local workers. The selection, appointment, and development of employees are based on their capability, knowledge, experience, ethics, and work attitude. In 2021, there were 17 new employees.

New Employees - TCC	Age				Total
	Under 30 Years Old	31-40 Years Old	41-50 Years Old	Above 51 Years Old	
New Male Employee	3	6	2	3	14
New Female Employee	1	1	1	0	3
Rate (Male)	2.34%	4.69%	1.56%	2.34%	10.94%
Rate (Female)	0.78%	0.78%	0.78%	0%	2.34%

New Employees - Star Energy	Age				Total
	Under 30 Years Old	31-40 Years Old	41-50 Years Old	Above 51 Years Old	
Male	5	11	8	8	32
Female	2	3	0	0	5
Rate (Male)	2.87%	6.32%	4.6%	4.6%	18.39%
Rate (Female)	1.15%	1.72%	0%	0%	2.87%

Note: The percentage of new employees aged 41-50 is relatively high, since some projects require people with abundant on-site experiences and related capabilities, to promote on-site work and manage contractors.

TCC has a wide range of diverse welfare policies and a comfortable, friendly working environment to properly take care of employees' needs. The labor-management relationship is amicable, with high employee retention rate. In 2021, a total of 14 employees resigned (including retirement and transfer to other companies within the Group), with a turnover rate of 10.9%.

Resigned Employees - TCC	Age				Total
	Under 30 Years Old	31-40 Years Old	41-50 Years Old	Above 51 Years Old	
Male	1	0	3	6	10
Female	0	1	2	1	4
Turnover Rate (Male)	0.78%	0%	2.34%	4.69%	7.81%
Turnover Rate (Female)	0%	0.78%	1.56%	0.78%	3.13%
Total Number of Employees Resigned					14
Total Employee Turnover Rate					10.94%

Resigned Employees - Star Energy	Age				Total
	Under 30 years old	31-40 years old	41-50 years old	Above 51 years old	
Male	2	5	10	9	26
Female	4	2	3	0	9
Turnover Rate (Male)	1.15%	2.87%	5.75%	5.17%	14.94%
Turnover Rate (Female)	2.30%	1.15%	1.72%	0.00%	5.17%
Total Number of Employees Resigned					35
Total Employee Turnover Rate					20.11%

Note: The number of resigned employees between age of 41-50 is relatively high because they are mainly project workers. This is due to the completion of some projects in 2021, and the poor adaptability of new employees in terms of projects (most of new employees are between 41-50 years old).

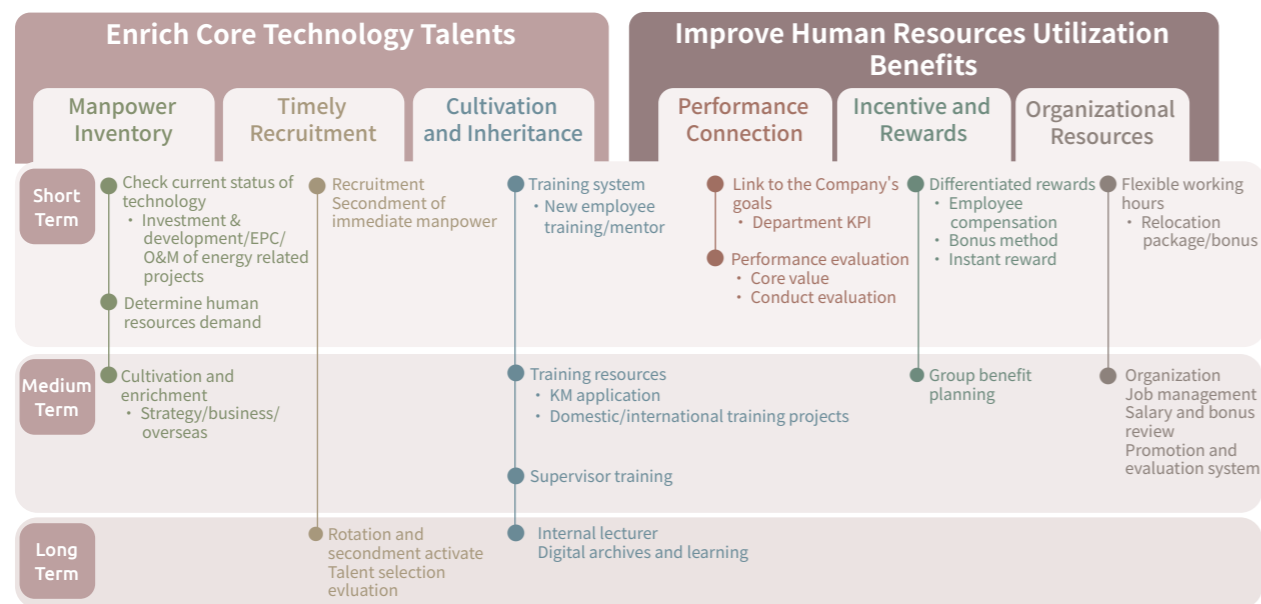
Note: The turnover rates of TCC (including retirement and transfer to other companies of the Group) for 2019, 2020 and 2021 were 10.5%, 8.8%, and 10.94%, respectively.

4.2 Talent Development

Human Resource Planning

Employees are the most important asset of TCC. Since 2016, through the connection with the Company's future business strategy, it has systematically promoted the human resources strengthening strategy and a series of training courses. The human resources strengthening plan includes organizing internal business seminars, inventorying employees, building training system, linking business strategy and performance management, to strengthen the formulation of human resources strategies as well as short-, medium- and long-term plans as shown in the following diagram. To improve the competitiveness of employees and achieve business goals, we will formulate training plans for senior managers' management skills and the management personnel cultivation in the future.

Strengthen Human Resources Strategy



Highlights of Human Resource Enhancement in 2021

Implementing Human Resources Strengthening Practices and Core Employee Training Program

To cope with future business expansion and improve the English skills of core employees, the core employee training program (the Three-year Plan for Improving English Skills) was implemented in 2020, and continued in 2021. The Company has provided learning resources to encourage employees to apply for the TOEIC test, improving their English skills. In addition, starting from 2020, the middle and senior management training program (supervisors of director level or above) was launched. Supervisors were arranged to participate in various management skill trainings to strengthen the Company's human resources. In 2021, due to the COVID-19 pandemic, supervisors were arranged to participate in digital learning together with physical courses, and the training target was extended to middle management (supervisors of chief level).

Moreover, in order to enhance capabilities required by the employees to achieve their work goals, while considering the impact of the COVID-19 pandemic, the Company has continued to collaborate with online learning platform and set the learning goals for each employee, increasing their professional competencies. Due to the outbreak of the pandemic in mid-2021, personnel entering and leaving offices were controlled for epidemic prevention. In order to prevent disease clusters from happening due to attending training courses, an e-learning plan was implemented. Not only that courses are diversified and easy to access, the e-learning plan also protects the health of our employees. As a result, the Company will continue to promote e-learning plans in the future.

Improving the Recruitment, Elimination & Mentoring Mechanisms for the Next Three Years

In response to future business outlook, the demand for professional talents in a number of large-scale projects from invested companies, and the increase in the percentage of renewable energy in the future, the Company is actively developing a diverse range of recruitment channels to counter the increasing demand of talents, including the collaboration with the Metal Industries Research & Development Centre to cultivate wind power talents and the participation in the internship programs with National Chin-Yi University of Technology, Oriental Institute of Technology, National Formosa University, and Chang Jung Christian University, cultivating new elites for the renewable energy industry.

To enhance its overall competitiveness, the Company has implemented the "Refinement of Elimination and Mentoring Mechanism", and proposed improvement plan for employees whose performance evaluation scores did not meet the standards in accordance with the provisions of the "Employee Performance Evaluation Regulations". The improvement results are checked regularly.

Optimizing the Functions of the Human Resources Information Management System

We continue to optimize human resources-related operating systems. In 2018, the human resources system was updated. In 2019, the employee attendance and the salary function of the system was optimized. In 2020, the education and training data of the human resources system as well as the checking and updating of employees' basic information were completed, which will benefit the Company's future planning in talent cultivation and job change.

Raising the Awareness of Corporate Information Security and Personal Data Protection

To improve employees' awareness to email viruses and online fraud the "Information Security Education and Training Plan" has been formulated annually to organize information security education and training courses since 2018. Moreover, professional information technology companies have been contracted to conduct phishing tests. In 2021, two email social engineering drills were completed, and employees who had clicked on the phishing test emails had to attend the course "Basics to Social Engineering and Information Security". The course included personal data security protection, mobile device operation security, personal data protection concept and the latest hacking methods, improving employees' sensitivity to information security.

數聯資安 Threats of Intellectualization

- IoT Threat**
 - Abundant information
 - Close connection between virtual reality and reality
 - Complex environment
 - Centralized framework
- AI Threat**
 - Automation tools
 - Deepfake attack
- 5G Threat**
 - 5G device
 - 5G line

數聯資安 Mobile Device Information Security Risk

- Vulnerable to attack
- Vulnerable to theft or loss
- Vulnerable to download malware
- Inadequate access control

Human Resources Training Structure

The training hours completed by supervisors and employees participating in various courses in 2021 are as follows:

TCC	Male			Female			
	Training Hours (hr)	Total Hours	Total Number of People	Average Training Hours/Person	Total Hours	Total Number of People	Average Training Hours/Person
Supervisor		232.5	12	19.38	63.5	2	31.75
Non-Supervisor		2,142.68	81	26.45	1,253.41	37	33.88
Total		2,375.18	93	25.54	1,316.91	39	33.77

Star Energy	Male			Female			
	Training Hours (hr)	Total Hours	Total Number of People	Average Training Hours/Person	Total Hours	Total Number of People	Average Training Hours/Person
Supervisor	38		11	3.45	0	0	0
Non-Supervisor	2,224.5		65	34.22	200	22	9.09
Total	2,262.5		76	29.77	200	22	9.09

Note: The Chairman of Star Energy is also the President of TCC; in this case, the number is counted for both companies.

Types of Competency Training Program and Results

Types of Training (TCC)	Total Number of People			Total Hours
	Male	Female	Total	
Management Skill Training for Middle and Senior Management	12	2	14	239
Technical and Engineering Training	15	3	18	192
Professional Competency Training	15	17	32	215
General Education Training	60	38	98	474
Information Security Training	13	14	27	73
Management Skill Training for Supervisors	27	11	38	704
Online Learning	54	27	81	1,641.09
New Employee Orientation Training	4	1	5	6
License Re-Training	3	1	4	148

Types of Training (Star Energy)	Total Number of People			Total Hours
	Male	Female	Total	
Management Skill Training for Middle and Senior Management	8	0	8	26
Professional Competency Training	14	5	19	461.5
General Education Training	14	17	31	84
Information Security Training	18	3	21	42
Supervisor Training	9	3	12	51
License Re-Training	43	7	50	1,798

Note: The Chairman of Star Energy is also the President of TCC; in this case, the number is counted for both companies.

Cultivation and Sharing - Knowledge Management (KM) Platform

Since 2017, TCC Group has started the first-phase introduction of the knowledge management (KM) platform, which was first applied to TCC's Guan Tian Plant, Chang Bin Gas-Fired Power Plant of Star Energy Power, Fong Der Gas-Fired Power Plant of Sun Ba Power and Star Buck Gas-Fired Power Plant of Star Power Buck. The second phase of the KM platform was conducted in 2018, which included the Taipei Office and Star Energy.

As of the end of 2021, the KM platform has been logged in for more than 50,000 times, 120,000 views for all documents, with over 10,000 documents uploaded. Through the knowledge management platform, we could share, store, exchange, and discuss the professional knowledge of cogeneration, invested power plants, electricity and renewable energy engineering technologies, as well as the experience on power plant operation among different units in the Group.

In August 2021, Dr. Yeong-Long Chen, an external expert, was invited once again to share his opinions on the use of the knowledge management platform and the extended applications, hoping that the employees of the Group would have some creative ideas and sparks about the KM platform. Due to the pandemic, the seminar was conducted online. After the seminar, the presentation materials were uploaded to the KM platform, serving as the reference for employees who did not attend the event, or for future new employees, fulfilling the platform's objective of knowledge. Furthermore, a knowledge management promotion symposium was held at the end of 2021. In addition to summarizing the promotion work done in 2021, employees from various units discussed about the current system, and provided suggestions for promotional activities in 2020, improving the utilization of the system and increasing its efficiency.

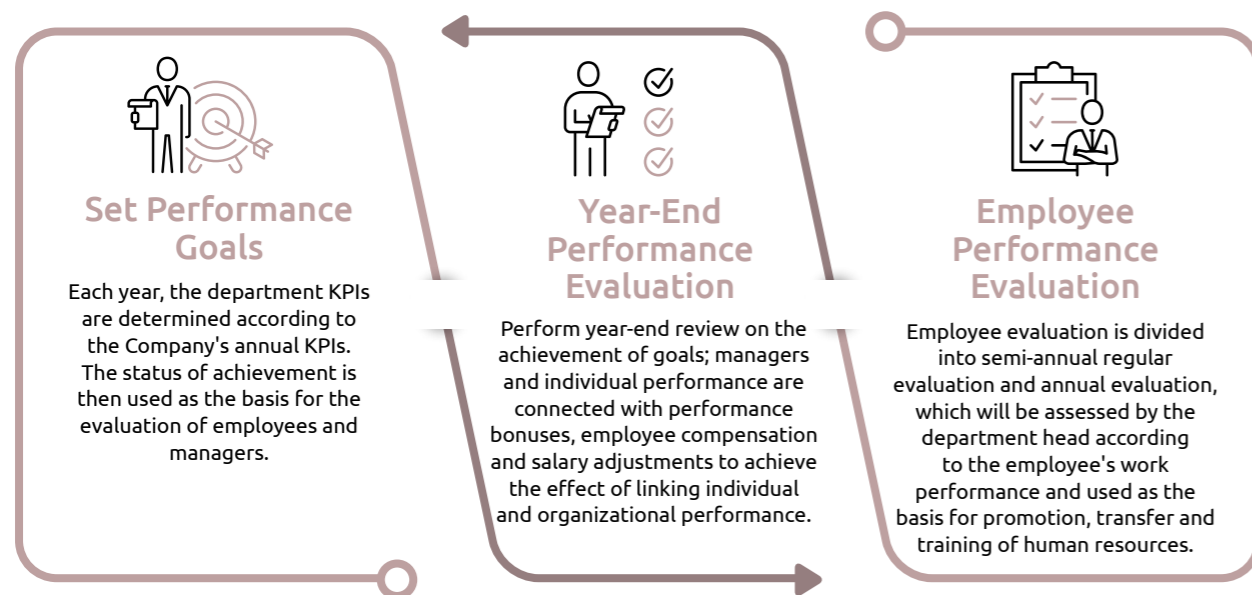


Performance Evaluation

The performance evaluation of employees is divided into regular evaluation and annual evaluation. In regular evaluation, each supervisor will conduct evaluation on employees' performances once every six months. Those who have major merits and deficiencies should be recorded, and an appraisal interview may be conducted when needed, serving as an important basis for the annual evaluation.

Managers are evaluated based on the achievement of the department's annual key performance indicators based on the company's annual goals, and how many of those indicators have been achieved in that year. Employees are evaluated based on the individual's personal performance during the year. Personal performance will be connected with performance bonus, employee compensation and salary adjustment, achieving the goal of linking personal performance with organizational performance. Employees whose overall annual performance scores are 70 points or lower will not be granted performance bonuses and employee compensation, and will not be eligible for salary adjustment. In addition to salary adjustment, personal performance evaluation is also the basis for job promotion, transfer and training. In the future, employee performance will still be evaluated based on the departmental performance linked with the Company's annual goals, as well as an individual's personal performance. Moreover, we will continue to increase the weight of departmental performance, so that it is more closely correlated with the Company's goals. We will also continue to refine the review and improvement mechanism for underperformers, to assist them by improving their work competitiveness, allowing the employees and the Company to grow together and achieve the goal of sustainable development.

Employee Performance Evaluation Results in 2021



TCC	Male			Female		
	Number of People Receiving Performance Evaluation	Total Number of People	Percentage of People Receiving Performance Evaluation	Number of People Receiving Performance Evaluation	Total Number of People	Percentage of People Receiving Performance Evaluation
Supervisor	10	11	90.91%	2	2	100%
Non-supervisor	79	80	98.75%	38	35	108.57%
Total	89	91	97.80%	40	37	108.11%

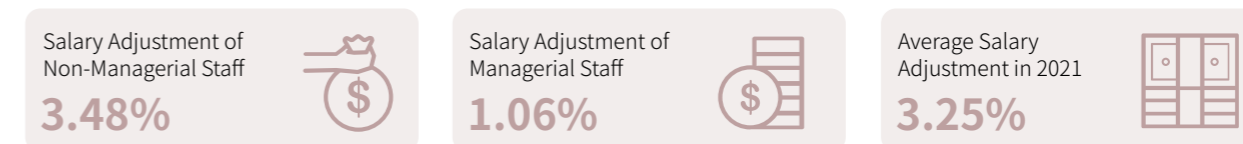
Note: This table includes periodic contract employees. The number of people receiving performance evaluation includes those who have resigned on December 31, 2021, but were still eligible for evaluation and bonuses. The number of people not receiving performance evaluation includes those who were still on the job on December 31, 2021, but did not require or were not eligible for evaluation. Therefore, the number of people who were subject to performance evaluation may be more than the number of employees who were still on the job at the end of the year.

Star Energy	Male			Female		
	Number of People Receiving Performance Evaluation	Total Number of People	Percentage of People Receiving Performance Evaluation	Number of People Receiving Performance Evaluation	Total Number of People	Percentage of People Receiving Performance Evaluation
Supervisor	8	8	100%	0	0	-
Non-supervisor	123	129	95.35%	36	37	97.30%
Total	131	137	95.62%	36	37	97.30%

Note: 1. This table includes periodic contract employees. The number of people receiving evaluation includes those who have resigned on December 31, 2021, but were still eligible for evaluation and bonuses. The number of people not receiving performance evaluation includes those who were still on the job on December 31, 2021, but did not require or were not eligible for evaluation.
2. Some periodic contract employees (such as employees of power plant O&M projects) were not eligible for evaluation; therefore, they were not included in the total number of people receiving the evaluation.

Average Employee Salary Adjustment in 2021

The raise of salary for the Company's employees is mainly based on the promotion of position or ranking, supplemented by regular salary adjustment. The former motivates employees to create greater value and accepts more responsibilities by providing them with a substantial increase in salary, while the latter is reviewed and carried out year by year, depending on the Company's profitability and changes in factors such as salaries in the labor market and overall economic indicators. The Company regularly adjusts the salary based on the difference in employees' performances. A better range of adjustment is given out to motivate outstanding, entry-level employees. Salary adjustment was conducted in 2021, with an annual salary adjustment of about 3.25%.



Note: Managerial staff in this table include president, vice presidents, and manager of Finance Department of TCC.

Average and Median Salaries of Non-Supervisory Employees for 2021

TCC	Non-supervisory Employees		
	2019	2020	2021
Total Salary of Non-supervisory Full-Time Employees (A) (NT\$ 1,000)	136,522	133,434	141,890
Number of Non-supervisory Full-Time Employees (B)	113	113	119
"Average salary" of Non-supervisory Full-Time Employees (A/B) (NT\$ 1,000)	1,208	1,181	1,192
"Median salary" of Non-supervisory Full-Time Employees (NT\$ 1,000)	1,033	1,003	1,029

4.3 Healthy Workplace with Zero Work Injuries

Employees are the most important asset of an enterprise. To care for the physical and mental health of employees, TCC provides free health examination at a frequency and scope that is better than those required by the Labor Standards Act. Moreover, personal health consultation and guidance are provided by health examination-specialized institutions. For their conveniences, employees are free to choose from a total of 10 medical institutes in Northern, Central and Southern Taiwan, whichever are closer to where they are, accompanied with several different examination procedures. Besides, employees are also allowed to choose their own medical institute for maximum flexibility. Affected by the COVID-19 pandemic in 2021, to avoid the risk of disease cluster during the health examination, the benefit and compensation for employees' health examination can be retained until 2022.

In addition to the regular health examinations that are better than those required by laws and regulations, the safety and health-related measures provided by the TCC's Headquarters Office are as follows:

TCC's Headquarters Office - Equipment and Environmental Safety Inspection

- ▶ Every 2 years, a professional public safety company is entrusted to carry out public safety inspections, and reports shall be made in accordance with regulations.
- ▶ A fire safety inspection is conducted once a year, and one related drill is scheduled.
- ▶ Building carpet cleaning as well as building disinfection is organized twice a year. The frequency of cleaning and disinfection will increase if necessary.
- ▶ Fire equipment self-inspection is carried out quarterly and declared through the verification of a fire safety engineer.
- ▶ Carry out cleaning and garbage collection (recycling) daily for each floor of the office as well as the public areas.
- ▶ Improve the office environment from time to time based on the needs, such as adding toner filters.
- ▶ Air purifiers are installed in each area to protect the health of employees.

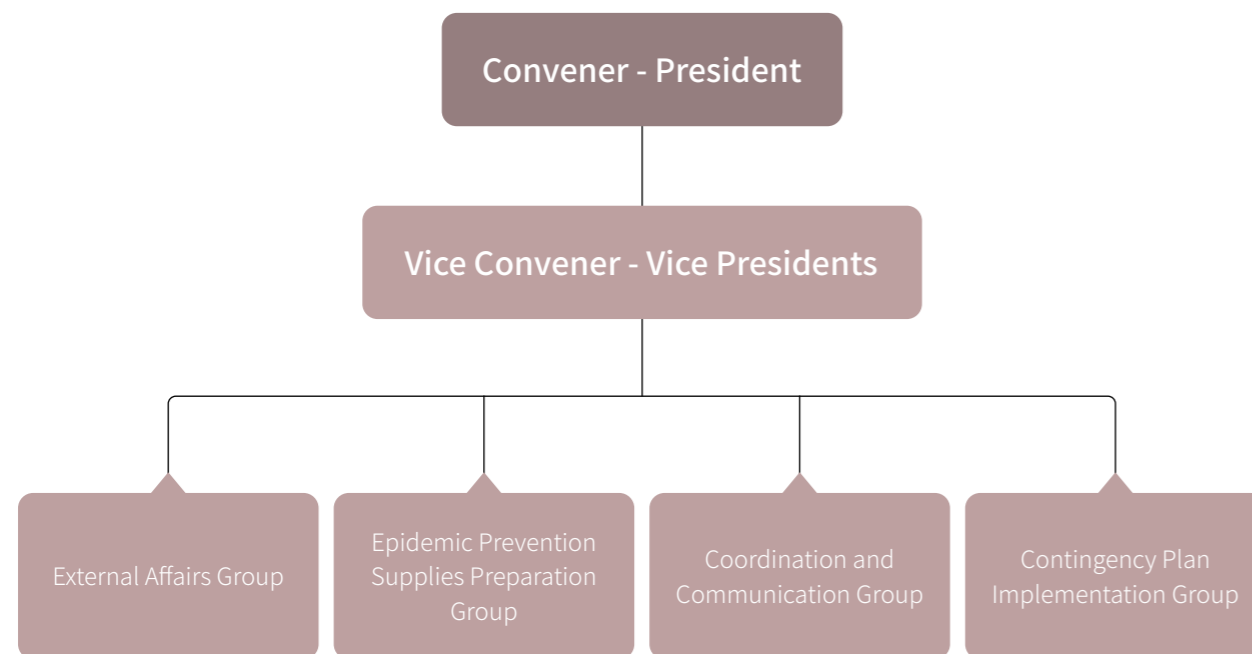
TCC's Headquarters Office - Health Consultation and Health Promotion Activities

- ▶ A health management center is set up on the first floor of the building. Nursing staffs as well as on-site physicians are arranged to provide consultation services for employees.
- ▶ Activities such as healthy living sessions are organized in the building on an occasional basis for employees to sign up.

COVID-19 Pandemic Prevention and Contingency Plan

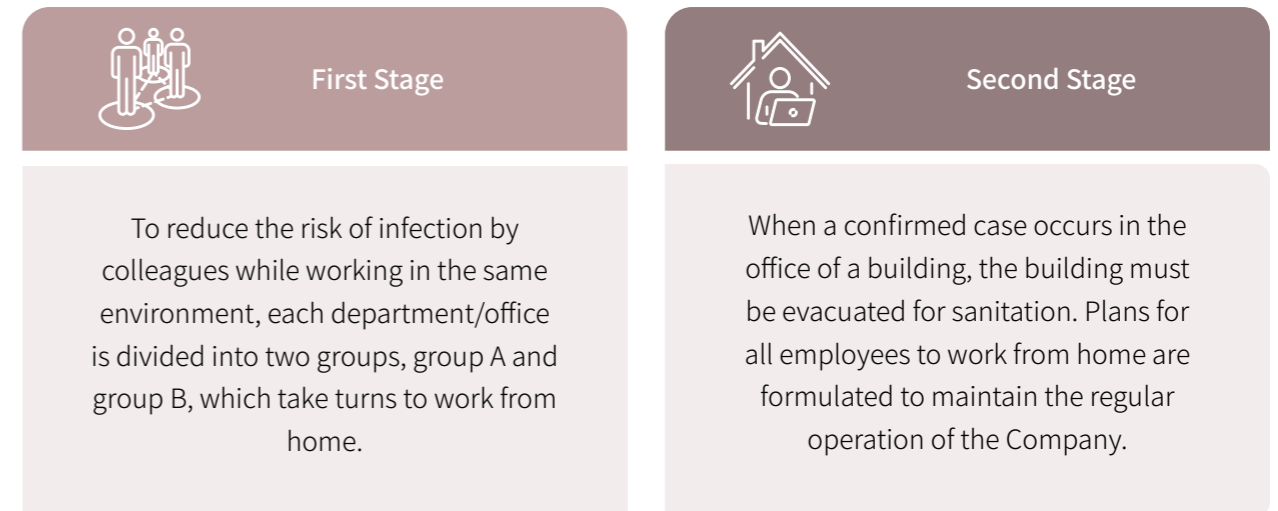
After the outbreak of the COVID-19 pandemic in 2020, the Company's senior management held the COVID-19 pandemic prevention meeting, discussed the contingency plan item by item and instructed the immediate implementation of various epidemic prevention measures. The Company also formulated the "COVID-19 Pandemic Prevention and Contingency Plan" to protect the physical and mental health of the Company's employees, and ensure that business plans can be carried out smoothly.

COVID-19 Prevention and Response Team



- Epidemic Notification Mechanism: employees or their family members who have contracted COVID-19, notified of home isolation or quarantine shall report to the department supervisor and the Administration Department.
- Epidemic Prevention Measures: implement personnel entry and exit control, environmental sanitation management, personal protection measures, and use communication devices (telephone or video calls) for business activities as much as possible.
- Strengthen Epidemic Prevention Campaign: according to the development of the pandemic, we strengthen the dissemination of emergency response, epidemic prevention measures, and make immediate announcements.

Emergency Response Measures



In addition, the Company has completed the preparations for fee collection, payment and payroll operations through online banking, in order to protect the health of employees and ensure the regular operation of the Company.

Occupational Safety and Health Committee of Guan Tian Plant

According to regulations, if the number of employees in an electricity enterprise is more than 100, an occupational safety and health committee should be established. Although the number of employees in Guan Tian Plant is only 45, to achieve the goal and raise the standards of safety and health management, Guan Tian Plant has established a Safety and Health Committee, which is convened once every three months. The Safety and Health Committee of Guan Tian Plant has a total of 8 members. In addition to the Plant Manager who serves as the chairman of the Committee, with the occupational safety and health affair manager and management personnel each occupies a spot, there are 5 labor representatives (accounting for 62.5%), each with a professional background in environmental engineering, operation, maintenance, or administration. The responsibilities of the Committee are mainly to discuss issues related to the prevention of occupational injuries and occupational safety and health plan. The related topics discussed and promoted by the Committee in 2021 include: conducting safety and health on-the-job training for various types of work licenses, completing the renewal of ISO45001 CNS45001:2018 Occupational Safety and Health Management System, etc.

Completing the Implementation and Certification for ISO45001 CNS45001:2018 Occupational Safety and Health Management System

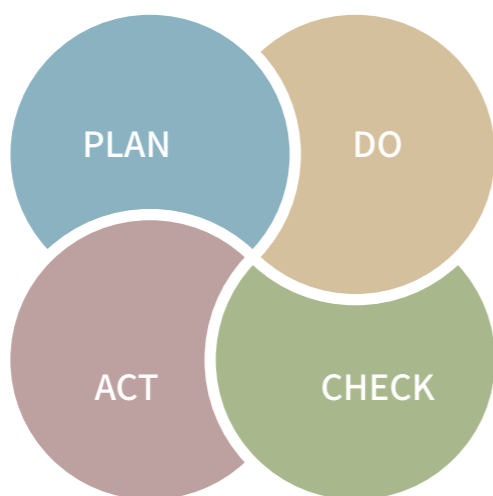
Guan Tian Plant attaches great importance to the occupational safety and health of workers. In addition to the establishment of ISO 9001 Quality Management System and ISO 14001:2015 Environmental Management System, in order to effectively manage workplace safety and health, and implement the policy of "Respect for Life, Work Safety First, and Care for Health and the Environment", ISO45001 and CNS45001:2018 Occupational Safety and Health Management System were further established in 2019, creating high-quality, environmentally friendly and safe products with complete quality, environment, as well as occupational safety and health management. In 2021, training courses related to hazard risk assessment were held from June to July, internal auditor training courses was held in September 2021, and surveillance audit was completed in October 2021.

The occupational safety and health management system of Guan Tian Plant covers not only the employees of the Plant, but also contractors, individual or self-employed workers, dispatch workers, suppliers, customers, or other business partners. Furthermore, Guan Tian Plant uses the hazard identification risk assessment method to identify occupational hazards with serious occupational injury risks; based on the description and procedure of each operation, possible causes/activities and types of hazards, we identify the severity, occurrence and operation frequency to calculate the risk value, and to identify the risk level for hierarchical control. Finally, risk control is then used to eliminate other occupational hazards and minimize the risk.

Implementation of ISO45001 Occupational Safety and Health Management System

Chapters 4 Chapter 6
Organizational Background and Planning

- ◆ Examine the preliminary review structure, collect issues, confirm the supplementary documents and formulate plans.
- ◆ Establish a more complete occupational safety management system and share experience with members of the safety and health family.
- ◆ Uphold and fulfill the goal of zero work injuries for Guan Tian Plant.



Chapter 7 Chapter 8
Support and Operation

- ◆ Identify compliance with regulations on a quarterly basis.
- ◆ Conduct education and training by a professional consulting company, and perform hazard risk identification for various operations of the plant.
- ◆ Combine with ISO 14001 for internal and external communication, meeting the needs and expectations of stakeholders.

Chapter 9
Performance Evaluation

- ◆ A management review meeting is held annually to confirm the applicability and effectiveness of the management system.
- ◆ Regularly implement internal audits to ensure the effective implementation and continuity of the system.
- ◆ Check the achievement rate of each program based on Procedure for Identification of EHS Objectives, Targets, and Programs.

Chapter 10
Improvement

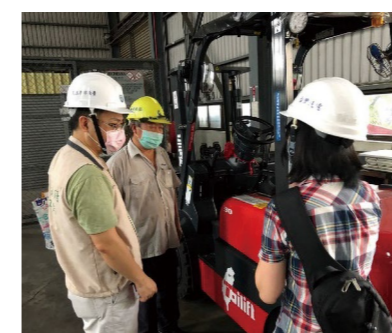
- ◆ Perform control and correction according to Procedures for Corrective and Preventive Action.
- ◆ Entrust consulting company to provide guidance and certificate renewal services for improvement.
- ◆ Maintain and preserve documented information as the evidence of continuous improvement.

Regarding the construction safety of contractors in Guan Tian Plant, the "Operation Management Guidelines for Contractors Entering Guan Tian Plant", the "Confined Space (Oxygen Deficiency) Operation Guidelines for Guan Tian Plant" and the "Fire Operation Guidelines for Guan Tian Plant" were established. To ensure the safety of all personnel working in the Guan Tian Plant, an occupational safety and health meeting between the joint operational coordinating organization and contractors is held prior to the annual overhaul; hazard notification education and training for contractors performing annual overhaul will be conducted before entering the plant. Furthermore, contractors and relevant units are required to hold a pre-operation industrial safety meeting, and apply for fire operation approval. For works in confined spaces, in addition to advanced application, the concentration of oxygen, hydrogen sulfide and other harmful gases on site must be constantly measured before and during the operation, and ventilation and respiratory protection must be properly implemented as well.



In cooperation with the Labor Affairs Bureau of Tainan City Government, a Cogeneration Safety and Health Family was established in January 2019. With participation of companies in the Guantian Industrial Park, TCC acts as a leader in occupational safety, and works with members of the Safety and Health Family to create a working environment with zero occupational injuries. Through education and training, along with the on-site counseling by consultants from the Labor Affairs Bureau and occupational safety personnel from Guan Tian Plant, advice is given to improve the working environment of companies within the Safety and Health Family. In 2021, two sessions of education and training were arranged, and 17 occupational safety inspections were carried out to assist in improving the plants of 24 Safety and Health Family members. For two consecutive years, the Company has received the Outstanding Award in Safety and Health Family performance rating. It has also been awarded the Appreciation Certificate by the Occupational Safety and Health Administration, Ministry of Labor because of its role as the core enterprise in the "Cogeneration Safety and Health Family", actively assisting the Safety and Health Family to carry out its operations, assisting other members in improving their safety and health capabilities, and conducting industrial safety-related public welfare activities enthusiastically.

Moreover, the Company also participated in the Tainan City Confined Space Operation Safety Alliance in 2021, achieved excellent performance in occupational safety and health and accident reduction, and was awarded the Outstanding Achievement Medal.



TCC has set the goal of having zero occupational accidents as an annual key indicator and has implemented it thoroughly. Guan Tian Plant has had no work-related injuries since its construction in 1998. The online record of occupational accidents was officially launched in November 2016. As of December 2021, there have been 801,604 consecutive hours of zero work-related injuries, continuing to strive for the milestone of 1 million hours of zero work-related injuries.

Excellent Unit in Occupational Safety and Health

Guan Tian Plant has been committed to promoting occupational safety and health work with excellent results all year round. By establishing the "Occupational Accident-Free Incentive Mechanism", employees are encouraged to improve occupational safety in the workplace. In addition to being recognized as Occupational Safety and Health Excellent Unit for three consecutive years (from 2018 to 2020), the Plant also received the OH&S Five-Star Award in 2020. In 2021, it participated in the "National Occupational Safety and Health Award" and received the Small-Medium Enterprise Special Award. Chairman Huang received the award on behalf of the Company. Furthermore, the Guan Tian Plant has accumulated 800,000 hours of zero work injuries, and was also given the Occupational Safety Model Award by the Tainan City Government.



Environmental Safety and Health Management

TCC attaches great importance to the safety and health of employees' working environment. In addition to compliance with occupational safety and health standards, the Company also formulates the "Industrial Safety Management Operation Regulations", the "Health Examination Management Operation Regulations", and the "Dangerous Equipment and Machinery Regular Inspection Management Operation Regulations", and implements them accordingly to protect the safety and health of employees.

Relevant measures of TCC's Guan Tian Plant are as follows:

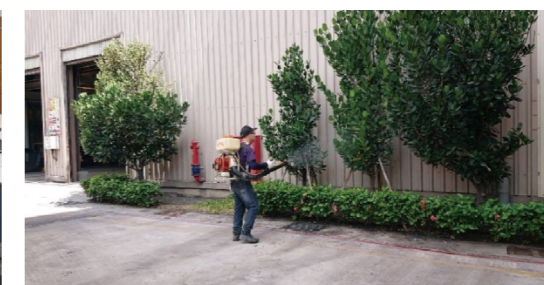
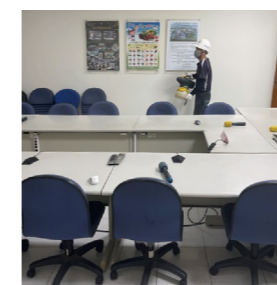
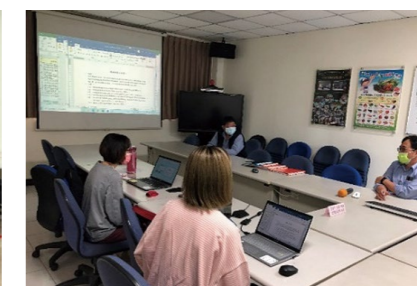
TCC's Guan Tian Plant – Equipment and Environmental Safety Inspection

- ▶ Every year, professional institutions are entrusted to inspect and report buildings public safety.
- ▶ Entrust professional institutions to carry out operation environment monitoring semiannually, including: measurement of sulfuric acid tanks, dust measurement, noise dose measurement, and general noise measurement.
- ▶ Fire and disaster simulation drills are conducted twice a year.
- ▶ Carry out monthly self-inspection of security and monitor operation for public hazardous substances, and report to the local fire department.
- ▶ Continuously review and improve the on-site environment to ensure workers' safety.



TCC's Guan Tian Plant - Health Examination and Management Plan

- ▶ Provide health care information from medical institutions, contract medical personnel to provide on-site services, and formulate annual health service plans, as well as the plan for the setting and management of first-aid kits.
- ▶ Tainan City 2021 Leisure Walking Activities for Workers - "Occupational Accident Prevention, Safe Walk in Anping" and "Achieving Industrial Safety to Ensure Safe and Sound"
- ▶ Workplace Epidemic Prevention - Prevent COVID-19 infection and effectively exterminate indoor/outdoor mosquitoes and pathogens; prevent cross-infection, maintain the hygiene of indoor environment, and conduct cleaning and disinfection for the entire plant area.
- ▶ According to the contingency plan of the COVID-19 Pandemic for the Guan Tian Plant, employees are required to measure body temperature and sanitize hands with cleansing alcohol every day before going to work; visitors are asked to fill out an epidemic prevention survey form.



"HSE Management Office" and "Environmental Protection and Occupational Safety and Health Committee" of Star Energy

To achieve the goal of occupational safety and health management, and enhance safety and health management, Star Energy, a subsidiary of TCC, established the "HSE Management Office" and the "Environmental Protection and Occupational Safety and Health Committee", which are responsible for environmental protection and occupational safety and health, as required by laws and regulations.

The "Environmental Protection and Occupational Safety and Health Committee" has a total of 16 members. The Chairman of Star Energy serves as the Chairman of the Committee. Members include the President, Vice President, managers of various departments, occupational safety and health affair manager, as well as the worker representatives. To ensure the smooth operation and meticulous work of the Committee, experts from Taipower's Department of Industrial Safety and Health and Department of Environmental Protection are invited as external advisors. The advisors have professional background in occupational safety and health, environmental protection, construction, electrical engineering and renewable energy, strengthening the Company's operations in environmental protection, safety and health management, and provide recommendations for improvement on safety, health and environmental protection. The Committee discusses issues related to the prevention of occupational injuries for workers, occupational diseases, various environmental protection, safety and health proposals, and reviews plans for occupational safety and health. Committee meeting is held every 3 months. As of the end of 2021, a total of 14 Committee meetings had been held, allowing the occupational safety performance of employees to improve significantly in 2021.



ISO 45001:2018 Occupational Health and Safety Management System

Star Energy's main business is the design and construction of electric power-related projects. The workers involved during the construction stage include employees of the company, owners, contractors and sub-contractors. Therefore, ensuring occupational safety and health in the workplace is the top priority of Star Energy. In order to implement the policy of "respecting life, industrial safety first, caring for health and environmental protection", Star Energy obtained OHSAS 18001 Occupational Health and Safety Management System certification in 2017, and passed the audit for ISO 45001:2018 certification renewal in June 2020, ensuring effective management of workplace safety and health.

Star Energy has also launched a series of courses for occupational safety and health education in 2021, including Occupational Safety and Health Personnel training, on-the-job training for Level B Occupational Safety and Health Personnel, Class B Dedicated Air Pollution Control Specialist training, as well as the Global Wind Organization (GWO) and disaster prevention drills. The number of attendance for the occupational safety and health as well as environmental protection related training courses has reached 1,255, with a total training time of 2,767 hours, implementing the spirit of full participation and continuous improvement in occupational safety and health.



Occupational Safety and Health and Environmental Protection Related Training Courses Offered by Star Energy in 2021

Name of Training	No. of Attendance	Total Training Hours
Level B Occupational Safety and Health Personnel Training	3	390
Level B Occupational Safety and Health Personnel On-the-Job Training	11	132
Class A Business Manager On-the-Job Training	12	72
Safety and Health Education and Training for Class-1 Manager of Occupational Safety and Health Affairs in the Construction Industry	1	42
Class A Dedicated Air Pollution Control Specialist	1	64
Class B Dedicated Air Pollution Control Specialist Certificate	1	64
Class A Waste Disposal Technician	1	86
Class B Waste Disposal Technician	1	86
Class B Dedicated Wastewater and Sewage Treatment Specialist	1	86
Basic Safety Training and Basic Technical Training of Global Wind Organization (GWO)	3	144
Disaster Prevention Drill	156	312
ISO 45001 Occupational Safety and Health Management System Lead Auditor Conversion Training	1	16
ISO 45001 Occupational Safety and Health Management System Lead Auditor Training	1	40
ISO 45001 Occupational Safety and Health Management System Internal Audit Training	1	14
Certificate of Completion of Safety and Health Education and Training for Template Bracing Work Supervisor	6	108
Certificate of Completion of Safety and Health Education and Training for Roofing Operation Supervisor	1	18
Certificate of Completion of Safety and Health Education and Training for Hypoxia Operation Supervisor	1	18
First Aider On-the-Job Training	11	33
Ørsted Safety Awareness Education and Training	29	29
Environmental Protection	3	3
Safety and Health Education and Training	3	3
Hoisting Operation Education and Training	15	15
Hoisting Rescue Drill	43	43
Confined Space Education and Training	30	30
Induction Prevention Drill	55	55

Spill Drill	17	17
Heat Hazard Drill	23	23
Flood Control in Photovoltaic Area, PV-BOX Electrical Fire, Module Falling Disaster Prevention drill	16	16
CPR+AED Hands-on Training	1	1
Cognitive Education and Training for Non-Destructive Test	1	1
Safety Promotional Activity	414	414
Organization and Rectification Promotional Activity	1	1
Domestic Waste Classification Implantation	121	121
Summer Vector Mosquito Control Implantation	55	55
Work Area Environmental Protection and Rectification Promotional Training	215	215
Total	1,255	2,767

Introduction and Implementation of Star Energy's Zero Occupational Accident Management

After contracting the EPC project from a foreign developer (Ørsted, Denmark), due to the implementation of foreign safety, health and environment standards required by the project, it was found that although foreign companies have high industrial safety standards, their requirements are beneficial to the sustainable development of the Company. Therefore, through the hazard identification (HAZID) during the project design stage, the implementation of on-site toolbox meeting during the construction stage, the hazard notification, the Rehearsal of Concept (ROC) Drill, the Risk Assessment and Method Statement (RAMS) and safety incentives, measures and methods were introduced to various stages of the project, strengthening its safety performance. Star Energy has reached 5 million hours of zero work injuries in September 2021. Star Energy not only presents commemorative shirts and smart watches as rewards, but it also encourages the employees to keep up the good work, and adds near-miss reporting and rewarding guidelines. Rewards are given to employees who submit near-miss reports and make constructive reviews and improvements. Moreover, previous near-miss cause and experiences were shared with project teams, reminding colleagues that if a near miss has occurred without causing personal injury, its reoccurrence should be avoided, so as to improve industrial safety performance.



In addition, Star Energy has outsourced a professional occupational nursing team since September 2020 to provide on-site health services for the Company's employees. Through the four major workplace programs (ergonomic hazards prevention, abnormal workload-triggered disease prevention, unlawful infringement prevention in the performance of duties, and maternity protection), a full range of workplace care is implemented. For large projects that are conducted by more than 100 people, Star Energy also employs a professional nursing team to take care of the physical and mental health of employees on a regular basis. The headquarters office of Star Energy in Taipei has benefits that are better than those required by the regulations. It signs a contract with a professional nursing team to comprehensively manage the occupational nursing business, ensuring zero industrial safety accidents.

Statistics on Occupational Accidents and Absence Rate

Employees		TCC's Taipei Office	Guan Tian Plant	Star Energy
Total Working Hours	Male	88,056	85,008	256,936
	Female	67,960	5,912	90,275
	Total	156,016	90,920	347,211
Work-Related Fatality Rate	Male	0	0	0
	Female	0	0	0
	Total	0	0	0
High-Consequence Work-Related Injury Rate	Male	0	0	0
	Female	0	0	0
	Total	0	0	0
Total Recordable Incident Rate (TRIR)	Male	0	0	0
	Female	0	0	0
	Total	0	0	0
Lost Day Rate (LDR)	Male	0	0	0
	Female	0	0	0
	Total	0	0	0
Absence Rate (AR)	Male	0.37%	0.032%	0.80%
	Female	0.76%	0%	1.19%
Number of Near-Miss Incidents	Male	0	0	2
	Female	0	0	0
	Total	0	0	2
Near Miss Frequency Rate (NMFR)	Male	0	0%	0.000008
	Female	0	0%	0
	Total	0	0%	0.000006

Other Workers (Contractors/Suppliers)		TCC's Taipei Office	Guan Tian Plant	Star Energy
Total Working Hours	Male	-	52,397	1,097,623
	Female	-	9,801	135,661
	Total	-	62,198	1,233,284
Work-Related Fatality Rate	Male	-	0	0
	Female	-	0	0
	Total	-	0	0

High-Consequence Work-Related Injury rate	Male	-	0	0
	Female	-	0	0
	Total	-	0	0
Total Recordable Incident Rate (TRIR)	Male	-	0	0
	Female	-	0	0
	Total	-	0	0
Lost Day Rate (LDR)	Male	-	0	0
	Female	-	0	0
	Total	-	0	0
Number of Near-Miss Incidents	Male	-	0	20
	Female	-	0	1
	Total	-	0	21
Near Miss Frequency Rate (NMFR)	Male	-	0%	0.000018
	Female	-	0%	0.000007
	Total	-	0%	0.000017

- Note:1. Work-related fatality rate = the number of fatalities as a result of work-related injury/total working hours x 200,000
 2. High-consequence work-related injury rate = number of high-consequence work-related injuries (excluding fatalities)/total working hours x 200,000
 3. Total Recordable Incident Rate (TRIR) = number of recordable work-related injuries/total working hours x 200,000
 4. Absence rate (AR) = number of work injury leave, sick leave, menstruation leave days/total working days
 5. Lost day rate (LDR) = Lost days due to work-related injury/total working hours x 200,000
 6. Near miss frequency rate (NMFR) = number of near-miss incidents/total working hours x 200,000
 7. In 2021, the total working hours of other workers in TCC's Taipei Office was zero.
 8. In 2021, Guan Tian Plant had 1 accident and Star Energy had 6 accidents due to commuting, which were not included in the calculation of the work injury rate in the above table.



4.4 Employee Welfare

TCC believes that talents are the Company's most valuable asset. For more than 20 years, the Company has continuously established reasonable working conditions and provided employee benefits that keep pace with the times, hoping that employees are happy to join TCC and can feel the warm and harmonious working atmosphere. In addition to providing year-end bonuses and performance bonuses for achieving the set goals, the Company also has offered a profit-sharing employee remuneration system and established a welfare system that meets the needs of employees and their families. Furthermore, through the year-end dinner party, various social club activities and occasional family events, the bonding between employees and team cohesiveness are strengthened.

Employees of the Company can enjoy free health examinations. Since 2020, the quota for regular employees has increased from NT\$ 5,000 to NT\$ 8,000 per person, while the quota for the management team including managers and directors has increased from NT\$ 12,000 to NT\$ 20,000 per person. In 2020, a total of 75 employees received free health examinations. Affected by the COVID-19 pandemic in 2021, to avoid the risk of disease cluster during the health examination, the benefit and compensation for employees' health examination can be retained until 2022. In addition, all employees can enjoy free group insurance, which provides multiple insurances including accident, medical treatment, cancer, and life insurances. Moreover, family members can also participate in health examinations and group insurance at their own expenses, establishing dual protection for employees and their families.

TCC has also established an Employee Welfare Committee, which is managed by the employees to hold relevant activities from time to time.

Employee Benefits and Care

Item	Content	Item	Content
Grant and Subsidy	Maternity Subsidy Marriage Grant Funeral Grant	Insurance/Health Examination	Free Group Insurance for Employees Group Insurance for Family Members with Discount Free Health Examination
Activity Subsidy	Club Activities Domestic Travel Subsidy International Travel Subsidy	Bonus/Cash Gift	Year-End Bonus Performance Bonus Birthday and Three-Festival Cash Gifts
Educational Subsidy	Study Grant Book Allowance	Condolences/Relief	Work Injury Consolation Emergency Assistance Grant

TCC

	Benefits Provided	No. of People Eligible for the Benefit	Percentage Coverage
1	Group Insurance (Life, Medical, Disability Insurance)	128	100%
2	Retirement/Severance Pay System	128	100%
3	Three Chinese Festival Grants Paying	128	100%
4	Birthday Cash Gift	128	100%
5	Study Grant	128	100%
6	Travel Subsidy	128	100%
7	Marriage Grant	128	100%
8	Maternity Subsidy	128	100%

Star Energy

	Benefits Provided	No. of People Eligible for the Benefit	Percentage Coverage
1	Group Insurance (Life, Medical, Disability Insurance)	174	100%
2	Retirement/Severance Pay System	174	100%
3	Three Chinese Festival Grants Paying	174	100%
4	Birthday Cash Gift	174	100%
5	Study Grant	174	100%
6	Travel Subsidy	174	100%
7	Marriage Grant	174	100%
8	Maternity Subsidy	174	100%

	Benefits Provided	No. of People Eligible for the Benefit	Percentage Coverage		Benefits Provided	No. of People Eligible for the Benefit	Percentage Coverage
9	General Injury Consolation	128	100%	9	General Injury Consolation	174	100%
10	Work Injury Consolation	128	100%	10	Work Injury Consolation	174	100%
11	Disaster Assistance Grant	128	100%	11	Disaster Assistance Grant	174	100%
12	Funeral Grant	128	100%	12	Funeral Grant	174	100%



Shifenwei Mt. and Erkonggui Mt. tour in Xizhi



Hsinchu Eighteen Peaks Mountain trail, crab watching, and Mautu Discovery Forest Hiking Activities



Work-Family Balance

Our welfare system includes menstruation leave, tocolysis leave, pregnancy checkup leave, maternity leave, paternity leave for male employees, family care leave and unpaid parental leave. We also encourage those at the end of their parental leave to apply for reinstatement. In 2021, only 1 employee of TCC applied for unpaid parental leave.

Item	Male	Female	Total
Total number of TCC's employees eligible for unpaid parental leave in 2021	85	36	121
A: Total number of employees applied for parental leave in 2021	0	1	1
B: Number of employees applied for reinstatement in 2021	0	1	1
C: Actual number of employees reinstated in 2021	0	1	1
D: Number of employees who should be reinstated in 2021, but applied for extension	0	0	0
E: Number of employees who have continued to work for one year after reinstatement from parental leave in 2020	0	0	0
F: Number of employees who have been reinstated from parental leave in 2020	0	0	0
Reinstatement rate (%) = C / (B-D)	-	100%	100%
Retention rate (%) = E / F	-	-	-

Note: After the employees have served for half a year, they can apply for unpaid parental leave before their children turn three years old. Therefore, this table only lists the number of employees who have served for more than half of a year until 2021/12/31.

Item	Male	Female	Total
Total number of Star Energy's employees eligible for unpaid parental leave in 2021	137	37	174
A: Total number of employees applied for parental leave in 2021	0	1	0
B: Number of employees applied for reinstatement in 2021	0	0	0
C: Actual number of employees reinstated in 2021	0	0	0
D: Number of employees who should be reinstated in 2021, but applied for extension	0	0	0
E: Number of employees who have continued to work for one year after reinstatement from parental leave in 2020	0	0	0
F: Number of employees who have been reinstated from parental leave in 2020	0	0	0
Reinstatement rate (%) = C / (B-D)	-	-	-
Retention rate (%) = E / F	-	-	-

Note: After the employees have served for half a year, they can apply for unpaid parental leave before their child turns three years old. Therefore, this table only lists the number of employees who have served for more than half of a year until 2021/12/31.

Flexible Retirement System

In terms of the retirement system, in addition to those who meet the qualifications specified in Article 53 of the Labor Standards Act, employees of the Company can apply for retirement if "they have worked in the Company for more than ten years and the sum of their work experience (in years) and age has exceeded 70". Such flexible retirement system is beneficial to employees' career planning.

Retirement System	Work Experience & Age	Applicable	Allocation System
Retirement conditions according to Article 53 of the Labour Standards Act	Worked for more than 15 years, at least 55 years old	✓	Applicable to the old pension system under the Labor Standards Act: 1 6.5% of the employee's total salary is allocated to the retirement fund every month, and deposited into a special bank account in the name of the Company's Worker Retirement Reserve Supervision Committee. 2 Entrust an external professional actuarial company to review the pension reserve account every year to ensure that it is sufficient to meet the fund requirements for pension payments. For details, please refer to the previous year's financial report of the Company.
	Worked for more than 25 years	✓	
	Worked for more than 10 years, at least 60 years old	✓	
TCC has formulated flexible retirement conditions that are better than those stipulated by the Labor Standards Act	Worked for more than 10 years and the sum of work experience (in years) and age has exceeded 70	✓	Applicable to the new pension system under the Labor Standards Act: The Company contributes 6% of the employee's total salary to the individual's pension account established by the Bureau of Labor Insurance on a monthly basis according to the labor pension level, and withholds an amount based on the employee's voluntary contribution rate and deposits it to the individual's pension account.

Volunteer Leave System

To encourage employees to continuously participate in social welfare activities, the Company provides 3 days (a total of 24 hours) of paid volunteer leave each year. If employees of TCC and Star Energy participate in a volunteer activity organized by the Company on "non-working days", they will be given a corresponding number of hours of volunteer leave based on the duration of the activity. For volunteer activities held on "working days", the part of the working time will be count as volunteer leave on that day, and employees will be paid when they take the volunteer leave. The annual calculation base of volunteer leave is from January 1 to December 31 each year, and volunteer leave must be used within 3 months from the month the activity day happens.

CHAPTER
05



Social Care, Giving Back to Local Community

- 5.1 Education Investment for New Generation
- 5.2 Social Care and Participation
- 5.3 Giving Back to Local Communities

Chapter Highlights

- ◆ Community investment has exceeded NT\$ 2.3 million

5.1 Education Investment for New Generation

In response to the government's energy policy as well as the promotion of the localization of the renewable energy industry, and owing to the lack of domestic technologies and talents, TCC has continued to pay attention to the development of education in the energy industry in order to cultivate domestic talents in related fields. In addition to the offering of scholarships, TCC also provides course lecturers and professional scholarship reviewers, contributing to the cultivation of talents in the electric power industry. It also seeks collaboration in internship programs with universities and participates in talent recruitment orientations, providing diverse job opportunities.

Talent Development Alliance and Power School Scholarship

With the increasing trend of energy saving, carbon reduction, and green energy at home and abroad, the electric power industry has ushered in new business opportunities. In response to the promotion of energy transition, energy diversification and independence in Taiwan, the Industrial Technology Research Institute is committed to push ahead with the power grid management technology and maintain the stability of electric power systems. Furthermore, it integrated various institutions and professional talents to boost domestic energy demand and talent employment, combining industries, universities and research institutions to form a "Talent Development Alliance" at the beginning of 2019, recruiting outstanding professionals of electric power from all areas and cultivating power grid talents.

To meet the needs of domestic electric power talents, the Talent Development Alliance has established a "Power School" to provide digital and physical professional training courses. So far, about 1,000 hours of training courses have been held, with a total number of attendance reaching 5,000. In addition, the "Talent Development Alliance Scholarship" has been established, and there have been many applications from students with outstanding performances in related fields. Each year, scholarships with a total amount of NT\$ 1 million are provided to encourage outstanding talents to conduct researches in power grid and related field, and to attract more students and in-service professionals to join in, thereby boosting the development of Taiwan's electric power industry.



TCC has long been concerned about the cultivation of professionals in the energy field. Since joining the "Talent Development Alliance" in 2019, it has continued to sponsor a scholarship of NT\$ 100,000 per year, and sent experts in related fields from the Company to participate in the scholarship review committee and select winning projects in every semester. TCC assists domestic electric power industry in upgrading its technologies, promotes the industry-university-institute exchange, and increases the opportunities for recruiting electric power professionals.

Moreover, TCC has sponsored the "Liu Shu-sheng Memorial Award" of the Taiwan Power and Energy Engineering Association for two consecutive years. The Award recognizes outstanding electric power talents under the age of 35 who have worked in the domestic electric power-related industry within 3 years, thereby promoting the growth of the industry and encouraging more young people to engage in jobs that are related to electric power and energy engineering.



Talent Cultivation and University Internship Program

In response to the government's plan to increase the percentage of renewable energy in 2025, the energy policy of promoting the localization of the renewable energy industry, followed by the current shortage of domestic talents in technology and related fields, it is imperative to cultivate domestic talents in related fields. Since TCC Group has abundant experience in the development, EPC and O&M of renewable energy, it has collaborated with the Metal Industries Research & Development Centre since the second half of 2020 to jointly promote the renewable energy internship program and talent cultivation in various universities.

The Bureau of Energy, Ministry of Economic Affairs has entrusted the Metal Industries Research & Development Centre to plan the "Wind Power Talent Cultivation Program", which includes the program for people in the workforce (the Industry Elite Program) and the university internship program (summer internship, semester internship). The Industry Elite Program held 7 sessions of activities in 2021. As a partner of the Program, TCC has sent renewable energy experts from the Group to participate in the "Wind Power Industry Expert Forum" and the "Operation and Maintenance Course Expert Forum" at the training center, sharing their experience on the wind power industry and relevant O&M cases with the students.

Regarding the promotion of the university internship program, there are currently seven universities participating in the program. Since the fourth quarter of 2020, TCC and Star Energy have successively visited National Formosa University, Chang Jung Christian University and National Chin-Yi University of Technology, and have received enthusiastic responses and supports from professors and students.

In order to encourage more young people to engage in jobs that are related to electric power and energy engineering, Star Energy not only visited Oriental Institute of Technology to discuss about the collaboration on off-campus internship program, but also participated in the spring recruitment orientation held at National Taiwan University of Science and Technology. In addition, the supervisor of Star Energy was interviewed by the Job Generation Program of the Taipei Youth Salon to share the hands-on work experience of an "offshore wind power O&M technician", providing students with the opportunity to have a better understanding of the industry.



Industrial Elite Program

Interviewed by the Job Generation Program

Spring recruitment orientation held at Taiwan Tech

TCC has always adhered to the idea of "taken from the society, giving back to the society", and continuously participates in social welfare to fulfill its corporate social responsibility. In addition to the establishment of a volunteer team, the Company also provides 3 days of paid volunteer leave per year to encourage employees to participate in the Company's volunteer activities. Furthermore, the social participation plan for 2021 has been formulated, with public welfare & care, cultural & educational collaboration, sports promotion, and environmental sustainability as the four main focuses. However, due to the impact of the pandemic in 2021, many scheduled social participation activities were cancelled or suspended. TCC is still actively looking for other alternatives to maintain balanced participation in all activities as well as the integration and allocation of resources.

2021 CNYE Santa Gift Project

Every year on Lunar New Year's Eve, there are hospitalized children who are unable to leave the hospital due to their illnesses. The concept of the project is based on Santa Claus. On Lunar New Year's Eve, a pop-up party will be held in the ward, gifts will be given to the hospitalized children, and letters of appreciation will be presented to medical staff. In 2021, donation of supplies to placement and education institutes for children and youth was also conducted. In addition to wrapping the gifts, and writing letters of appreciation to medical staff, the Company's volunteers also purchased supplies and sent them to children and youth placement institutes, conveying love and care through the activities.



5.2 Social Care and Participation

TCC has been operating power plants for a long time based on the idea of stable power supply and coexistence with the society for common good. In addition to reduce the impact that operational activities have on the environment, it also continuously engages in local activities, implements community development, and actively participates in the caring of disadvantaged groups, as well as the promotion of cultural and educational activities to fulfill corporate social responsibility.

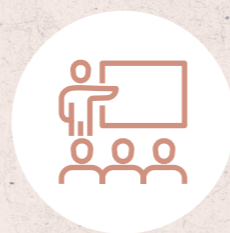
The social participation highlights of TCC Group (including TCC, Guan Tian Plant, Star Energy and 3 invested independent power plants) for 2021 are summarized as follows:



Sponsored more than
20 sessions of local activities



Participated in more than
7 sessions of charitable and volunteering activities



Sponsored more than
5 sessions of academic conferences

Vegan Activity for the Earth Day

Starting from May 2020, the Company has held the vegan activity once a month, calling on employees to reduce carbon emissions by eating vegan diet. By making small changes in our daily practices, we can contribute to the protection of the earth. Furthermore, we have expanded the scope of the vegan activity and Earth Day on April 22, 2021, reminding our employees that reducing greenhouse gas emissions and slowing down global warming are the responsibilities of every global citizen.



Donation to Help the Victims of the Taroko Express Crash

Taroko No. 408 of the Taiwan Railway was crashed on April 2, 2021, causing heavy casualties. To assist accident relief work, support the victims and their families, and fulfill corporate social responsibilities, TCC Group donated NT\$ 1 million to the designated donation account provided by the Ministry of Health and Welfare, and encouraged employees to donate at their free will, caring for the society and giving back to the society.

5.3 Giving Back to Local Communities

TCC's headquarter, Guan Tian Cogeneration Plant, and the three invested independent power plants are located in Taipei, Tainan, and Changhua, respectively. The power plants have been in operation for more than ten years and have always established good relationships with the local communities as well as the neighboring townships, as we actively participating in and sponsoring community activities. Star Energy has undertaken a number of renewable energy EPC projects in the Changhua area in recent years. It also actively participates in local activities, offering assistance to local construction and development, and giving back to the society with practical actions.

Guan Tian Plant

Caring for local development, Guan Tian Plant actively participates in local development and neighbor-friendly activities. With the commitment to give back to the community and fulfill its social responsibility, Guan Tian Plant continues to sponsor the environmental maintenance of the Erzhen Park since its establishment in Erzhen, Guantian District in 2019, providing a clean space for activities, and creating a more comfortable living environment for the local residents.



Chang Bin Gas-Fired Power Plant of Star Energy Power

Chang Bin Gas-fired Power Plant upholds the belief of maintaining friendly relationships with the local and neighboring communities, and enthusiastically participates in various local festivals and cultural themed activities. In 2021, Chang Bin Gas-fired Power Plant participated in and sponsored various local cultural and related activities in the neighboring townships (Xianxi Township, Shengang Township and Lugang Township), including Lantern Festival Party, Cultural Observation and Visit of the Elderly Association, Winter Fun with Mullet, Kite Festival, Dinner Party to Care for the Disadvantaged, and New Year's Day Flag-Raising and Walking, caring for local culture and development while fulfilling corporate social responsibility.



Xianxi Township – Lantern Festival Party & Energy-saving and carbon-reduction campaign



Xianxi Township – Cultural Observation and Visit of the Elderly Association



Lugang Township - Winter Fun with Mullet activity



Lugang Township - Kite Festival



Shengang Township - Dinner Party to Care for the Disadvantaged



Shengang Township - New Year's Day Flag-Raising and Walking activity & Energy-saving and carbon-reduction campaign

Fong Der Gas-Fired Power Plant of Sun Ba Power

From the beginning of its establishment, Fong Der Gas-fired Power Plant has always adhered to the principle of maintaining good and harmonious relationships with local communities and neighboring towns. In 2021, in addition to active participation in local public welfare activities, in recent years, it has also organized activities such as sending lunches to those in need, helping disadvantaged families and adopting green spaces. Recently, it has also donated trees to Tainan Municipal Shanshang Elementary School, planting a total of 60 Taiwan cherry trees to improve environmental greening. As for maintaining a good relationship with the local and neighboring communities, it actively participates in related community activities, such as providing supplies to those in need during the winter, caring for the elderly who lives alone, and participating in events organized by the Community Development Association, including the Lantern Festival and the Mid-Autumn Festival. It is hoped that through the diverse exchanges, a good partnership can be built with the community to achieve a win-win situation of blending into the community and giving back to the society.



Star Buck Gas-Fired Power Plant of Star Buck Power

To promote educational and cultural development, Star Buck Gas-fired Power Plant has been visited by National Chiao Tung University, National Chung-Shan Institute of Science & Technology, Cheng Loong Corporation and schools over the years. The power generation industry is an important part of the infrastructure for people's livelihood. We welcome domestic social organizations and educational institutions that are interested in the electric power industry to visit the Power Plant and learn about the process of development of the electric power industry over the years.

In 2021, Star Buck Gas-fired Power Plant participated in activities such as the New Year's Day and Lantern Festival Dinner Party held by townships, online graduation ceremony of local kindergarten, and activities that support power development and energy conservation. It has also cooperated with the government's energy conservation policy to sponsor related activities, making an effort to care for community development and assisting locals with the inheritance of festive culture.



Online graduation ceremony of Xianxi Township kindergarten in 2021



Lantern festival activities organized by the Xianxi Community Development Association in 2021

Star Energy

In order to fulfill its corporate social responsibility, Star Energy has been participating actively in community care activities in Changhua by building an activity center in 2021, serving as a consultant for the Parent Council of SinBao Elementary School, sponsoring the year-end activities for the local community, and providing daily necessities needed by local residents. The project director was appointed as a consultant by the Fangyuan Branch of the Friends of the Police Association in Changhua County to jointly maintain local security. Furthermore, in addition to participation in the Quilt Donation Community Caring Activity during the New Year, Star Energy has also sponsored the environmental cleaning activity for the Datan Village, and supported the family tours as well as the energy development tours to boost local energy education and promotion.



Illustration of the SinBao Village activity center

Certificate of appointment of consultant for the Parent Council of SinBao Elementary School

APPENDIX



GRI Standards Content Index
SASB Index
Independent Assurance
Opinion Statement

appendix

S U S T A I N A B I L I T Y
R E P O R T

GRI Standards Content Index

Disclosure Number GRI Standards	Title of Disclosure	Corresponding Section of Disclosure	Page Number	Remark
GRI 102 : General Disclosures 2016				
102-1	Name of organization	About this Report	001	
102-2	Activities, brands, products and services	1.1.1 About TCC Group	045	
102-3	Location of headquarters	1.1.1 About TCC Group	045	
102-4	Location of operations	1.1.1 About TCC Group	045	
102-5	Ownership and legal form	1.1.1 About TCC Group	045	
102-6	Markets served	1.1.1 About TCC Group	045	
102-7	Scale of organization	1.1.1 About TCC Group	045	
102-8	Information on employees and other workers	4.1.2 Employee Composition	114	
102-9	Supply chain	2.4.1 Good Supply Chain Partnership	080	
102-10	Significant changes to the organization and its supply chain	1.1.1 About TCC Group 2.4.1 Good Supply Chain Partnership	045 080	No major changes in 2021
102-11	Precautionary principle or approach	1.3 Risk Management	059	
102-12	External initiatives	1.2.3 External Collaboration	057	
102-13	Membership of associations	1.2.3 External Collaboration	057	
102-14	Statement from senior decision-maker	Message From the Chairman	004	
102-15	Key impacts, risks, and opportunities	1.3 Risk Management	059	
102-16	Values, principles, standards, and norms of behavior	1.2.2 Regulation Compliance and Integrity Management	054	
102-17	Mechanisms for advice and concerns about ethics	1.2.2 Regulation Compliance and Integrity Management	054	
102-18	Governance structure	1.2.1 Corporate Governance	050	
102-22	Composition of the highest governance body and its committees	1.2.1 Corporate Governance	050	
102-40	List of stakeholder groups	Communication with Stakeholders	017	
102-41	Collective bargaining agreements	The Company does not have a labor union; therefore, a labor-management meeting is held every quarter to fully communicate with employees	-	
102-42	Identifying and selecting stakeholders	Communication with Stakeholders	017	

Disclosure Number GRI Standards	Title of Disclosure	Corresponding Section of Disclosure	Page Number	Remark
102-43	Approach to stakeholder engagement	Communication with Stakeholders	017	
102-44	Key topics and concerns raised	Communication with Stakeholders	017	
102-45	Entities included in the consolidated financial statements	1.1.1 About TCC Group	045	
102-46	Defining report content and topic boundaries	Analysis of Material Topics	022	
102-47	List of material topics	Analysis of Material Topics	022	
102-48	Restatements of information	About this Report	001	If there is a change in the scope of data calculation and measurement method, it will be explained in this section
102-49	Changes in reporting	About this Report	001	No major changes to material topics and topic boundaries
102-50	Reporting period	About this Report	001	
102-51	Date of most recent report	About this Report	001	
102-52	Reporting cycle	About this Report	001	
102-53	Contact point for questions regarding the report	About this Report	001	
102-54	Claims of reporting in accordance with the GRI Standards	About this Report	001	
102-55	GRI content index	GRI Standards Content Index	147	
102-56	External assurance	Independent Assurance Opinion Statement	155	
GRI 103: Management Approach 2016				
103-1	Explanation of the material topics and its boundary	Material Topics Management Approach	028	
103-2	The management approach and its components	Material Topics Management Approach	028	
103-3	Evaluation of the management approach	Material Topics Management Approach	028	
Topic-specific Disclosure				
GRI 201: Economic Performance 2016				
201-1	Direct economic value generated and distributed	1.1.2 Economic Performance	048	
201-2	Financial implications and other risks and opportunities due to climate change	3.1.1 Response Strategy and Environmental Management	089	

Disclosure Number GRI Standards	Title of Disclosure	Corresponding Section of Disclosure	Page Number	Remark
201-3	Defined benefit plan obligations and other retirement plans	4.4 Employee Welfare	134	
GRI 204: Procurement Practices 2016				
204-1	Proportion of spending on local suppliers	2.4.1 Good Supply Chain Partnership	080	
GRI 205: Anti-corruption 2016				
205-3	Confirmed incidents of corruption and actions taken	1.2.2 Regulation Compliance and Integrity Management	054	No such incident in 2021
GRI 206: 反競爭行為 2016				
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	1.2.2 Regulation Compliance and Integrity Management	054	
GRI 301: Materials 2016				
301-1	Materials used by weight or volume	3.2.1 Circular Economy of Waste Resources	100	
GRI 302: Energy 2016				
302-1	Energy consumption within the organization	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092	
302-3	Energy intensity	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092	
302-4	Reduction of energy consumption	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092	
302-5	Reductions in energy requirements of products and services	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092	
GRI 303: Water and Effluents 2018				
303-1	Interactions with water as a shared resource	3.2.2 Water Resource Management	104	No water sources that are significantly affected by water withdrawal
303-2	Management of water discharge-related impacts	3.2.2 Water Resource Management	104	
303-3	Water withdrawal	3.2.2 Water Resource Management	104	
303-4	Water discharge	3.2.2 Water Resource Management	104	

Disclosure Number GRI Standards	Title of Disclosure	Corresponding Section of Disclosure	Page Number	Remark
303-5	Water consumption	3.2.2 Water Resource Management	104	
GRI 304: Biodiversity 2016				
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	3.1 Climate Change and Energy Management	089	The main operating bases of TCC are located in commercial and industrial areas, and its operations are handled in accordance with government regulations, and the operating bases are not near environmental protection areas or areas with high biodiversity value
GRI 305: Emissions 2016				
305-1	Direct (Scope 1) GHG emissions	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092	
305-2	Energy indirect (Scope 2) GHG emissions	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092	
305-4	GHG emissions intensity	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092	
305-5	Reduction of GHG emissions	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092	
305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	3.2.3 Air Pollution Prevention and Control	110	
GRI 306: Waste 2020				
306-1	Waste generation and significant waste-related impacts	3.2.1 Circular Economy of Waste Resources	100	
306-2	Management of significant waste-related impacts	3.2.1 Circular Economy of Waste Resources	100	
306-3	Waste generated	3.2.1 Circular Economy of Waste Resources	100	
306-4	Waste diverted from disposal	3.2.1 Circular Economy of Waste Resources	100	
GRI 307: Environmental Compliance 2016				
307-1	Non-compliance with environmental laws and regulations	1.2.2 Regulation Compliance and Integrity Management	054	

Disclosure Number GRI Standards	Title of Disclosure	Corresponding Section of Disclosure	Page Number	Remark
GRI 401: Employment 2016				
401-1	New employee hires and employee turnover	4.1.2 Employee Composition	114	
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	4.4 Employee Welfare	134	
401-3	Parental leave	4.4 Employee Welfare	134	
GRI 403: Occupational Health and Safety 2018				
403-1	Occupational health and safety management system	4.3 Healthy Workplace with Zero Work Injuries	123	
403-2	Hazard identification, risk assessment, and incident investigation	4.3 Healthy Workplace with Zero Work Injuries	123	
403-3	Occupational health services	4.3 Healthy Workplace with Zero Work Injuries	123	
403-4	Worker participation, consultation, and communication on occupational health and safety	4.3 Healthy Workplace with Zero Work Injuries	123	
403-5	Worker training on occupational health and safety	4.3 Healthy Workplace with Zero Work Injuries	123	
403-6	Promotion of worker health	4.3 Healthy Workplace with Zero Work Injuries	123	
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	4.3 Healthy Workplace with Zero Work Injuries	123	
403-8	Workers covered by an occupational health and safety management system	4.3 Healthy Workplace with Zero Work Injuries	123	
403-9	Work-related injuries	4.3 Healthy Workplace with Zero Work Injuries	123	
403-10	Work-related ill health	4.3 Healthy Workplace with Zero Work Injuries	123	
GRI 404: Training and Education 2016				
404-1	Average hours of training per year per employee	4.2 Talent Development	117	
404-2	Programs for upgrading employee skills and transition assistance programs	4.2 Talent Development	117	

Disclosure Number GRI Standards	Title of Disclosure	Corresponding Section of Disclosure	Page Number	Remark
404-3	Percentage of employees receiving regular performance and career development reviews	4.2 Talent Development	117	
GRI 406: Non-discrimination 2016				
406-1	Incidents of discrimination and corrective actions taken	4.1.1 Human Resources Policy	113	No such incident in 2021
GRI 408: Child Labor 2016				
408-1	Operations and suppliers at significant risk for incidents of child labor	4.1.1 Human Resources Policy	113	No operating bases and suppliers with significant risks in 2021
GRI 409: Forced or Compulsory Labor 2016				
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	4.1.1 Human Resources Policy	113	No operating bases and suppliers with significant risks in 2021
GRI 411: Rights of Indigenous Peoples 2016				
411-1	Incidents of violations involving rights of indigenous peoples	4.1.1 Human Resources Policy	113	
GRI 416: Customer Health and Safety 2016				
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	1.2.2 Regulation Compliance and Integrity Management	054	No such incident in 2021
GRI 417: Marketing and Labeling 2016				
417-2	Incidents of non-compliance concerning product and service information and labeling	1.2.2 Regulation Compliance and Integrity Management	054	No such incident in 2021
GRI 418: Customer Privacy 2016				
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	1.2.2 Regulation Compliance and Integrity Management	054	No such incident in 2021
GRI 419: Socioeconomic Compliance 2016				
419-1	Non-compliance with laws and regulations in the social and economic area	1.2.2 Regulation Compliance and Integrity Management	054	No such incident in 2021
Others (Refer to GRI G4 Supplementary Indicators for the Electric Utility Sector)				
EU-10	Planned capacity against projected electricity demand over the long term, broken down by energy source and regulatory regime (Megawatt)	2.3.1 Stable Power Supply	074	
EU-11	Average generation efficiency of thermal plants by energy source and by regulatory regime	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092	
EU-28	Power outage frequency	2.3.1 Stable Power Supply	074	
EU-29	Average power outage duration	2.3.1 Stable Power Supply	074	

SASB Index

Topic	Code	Report Content	Corresponding Section	Page Number
Greenhouse Gas Emissions & Energy Resource Planning	IF-EU-110a.1	The greenhouse gas Scope 1 emissions of Guan Tian Plant in 2021 was 378,796 tons of CO ₂ e. Currently, there is no emissions-limiting regulations, and emissions-reporting regulations in Taiwan.	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092
	IF-EU-110a.2	Guan Tian Plant is a cogeneration plant. Its greenhouse gas Scope 1 and Scope 2 emissions in 2021 was 381,947.8 tons of CO ₂ e.	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092
Air Quality	IF-EU-110a.3	Guan Tian Plant conducts GHG inventory verified by an independent third-party every year to keep track of GHG emissions and develop the GHG emission reduction strategy, including equipment upgrades, unit efficiency improvement, and reduction in fossil fuel use.	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092
	IF-EU-110a.4	Since Taiwan's renewable energy is connected to the grid and mixed with other power sources, it is impossible to independently distinguish renewable energy users.	N/A	
Air Quality	IF-EU-120a.1	(1) NOX : 266 tons, (2) SOX : 250 tons, and (3) PM : 9.47 tons The Group does not emit NOx, SOx, PM, mercury and lead in densely populated areas.	3.2.3 Air Pollution Prevention and Control	110
Water Management	IF-EU-140a.1	In 2021, TCC's Guan Tian Plant withdrew 950,527m ³ of water, consumed 785,990m ³ of water, and discharged 66,921m ³ of water. The Plant is not located in a high/extremely-high water stress area.	3.2.2 Water Resource Management	104
	IF-EU-140a.2	Guan Tian Plant properly handled the discharged wastewater, and all the discharged wastewater met the relevant standards.	3.2.2 Water Resource Management	104
	IF-EU-140a.3	Please refer to Water Risk Management and Measures for details.	3.2.2 Water Resource Management	104
Coal Ash Management	IF-EU-150a.1	The total coal ash produced in 2021 was 26,501 tons, and the recycling rate was 100%.	3.2.1 Circular Economy of Waste Resources	100
	IF-EU-150a.2	Coal ash was not used as a reservoir. 100% coal ash and bottom ash were recycled to make controlled low strength materials (CLSM).	3.2.1 Circular Economy of Waste Resources	100
Energy Affordability	IF-EU-240a.1	TCC's retail electric rate is based on Time-of-Use (TOU) rates and Feed-in Tariffs (FIT) rates.	N/A	
	IF-EU-240a.2	TCC does not supply power to residential users.	N/A	
	IF-EU-240a.3	TCC does not supply power to residential users.	N/A	
	IF-EU-240a.4	Changes in fuel prices, the trend of tightening regulations, the impact of the pandemic and the changes in renewable energy market affect the affordability of electricity for users.	2.1 A New Direction for Energy Transition	067

Topic	Code	Report Content	Corresponding Section	Page Number							
Workforce Health & Safety	IF-EU-320a.1	(1) Total Recordable Incident Rate (TRIR): 0, (2) Occupational injury death rate: 0, (3) Near miss frequency rate (NMFR): 0	4.3 Healthy Workplace with Zero Work Injuries	123							
End Use Efficiency & Demand	IF-EU-420a.1	Not applicable (LRAM is a profit calculation mechanism used by the U.S. electric utility sector)	N/A								
	IF-EU-420a.2	No smart grid available	N/A								
	IF-EU-420a.3	In 2021, a total of 623,000 kWh of electricity was saved.	3.1.2 Energy-saving and Carbon-reduction Actions and Results	092							
Nuclear Safety & Emergency Management	IF-EU-540a.1	TCC does not own or operate nuclear power plant.	N/A								
	IF-EU-540a.2	TCC does not own or operate nuclear power plant.	N/A								
Grid Resiliency	IF-EU-550a.1	Not applicable. Taiwan has not set CIP measures such as NERC in the U.S.; however, TCC has taken measures against information security and physical risks.	1.3 Risk Management	059							
	IF-EU-550a.2	<table border="1"> <thead> <tr> <th></th> <th>SAIDI</th> <th>SAIFI</th> <th>CAIDI</th> </tr> </thead> <tbody> <tr> <td>Guan Tian Plant</td> <td>6.75</td> <td>0.75</td> <td>9</td> </tr> </tbody> </table>		SAIDI	SAIFI	CAIDI	Guan Tian Plant	6.75	0.75	9	2.3.1 Stable Power Supply
	SAIDI	SAIFI	CAIDI								
Guan Tian Plant	6.75	0.75	9								
Activity Metrics	IF-EU-000.A	Total number of users (including the data of Guan Tian Plant and TCC Green Energy): (1) Residential electricity: N/A (2) Commercial electricity: 3 users (3) Industrial electricity: 6 users	N/A								
	IF-EU-000.B	Power supply for users (including the data of Guan Tian Plant and TCC Green Energy): (1) Residential: N/A (2) Commercial: 6.6 GWh (3) Industrial: 227.9 GWh (4) Others: 106.6 GWh	N/A								
	IF-EU-000.C	Not applicable	N/A								
	IF-EU-000.D	The total power generation of the Guan Tian Plant was 256 GWh.	2.3.1 Stable Power Supply	074							
	IF-EU-000.E	The purchased electricity of TCC is 7.11GWh. Not applicable; The main businesses of TCC are power generation and investing in power plants. It does not conduct the re-selling of electricity from wholesale.	3.1.2 Energy-Saving and Carbon-Reduction Actions and Results	092							

Independent Assurance Opinion Statement



安永聯合會計師事務所

11012 台北市基隆路一段333號9樓
9F, No. 333, Sec. 1, Keelung Road
Taipei City, Taiwan, R.O.C.
Tel: 886 2 2757 8888
Fax: 886 2 2757 6050
www.ey.com/tw

會計師獨立確信報告

台灣汽電共生股份有限公司 公鑒

一、確信範圍

本事務所接受台灣汽電共生股份有限公司(以下簡稱台汽電)之委任，對 2021 年度永續報告書中所選定之永續績效資訊進行有限確信並出具報告。

有關台汽電所選定之標的資訊及其適用基準，詳附件一。

管理階層責任

台汽電管理階層應依據適當之基準編製 2021 年度永續報告書，包括參考全球永續性報告協會(Global Reporting Initiatives, GRI)所發布之 GRI 準則(GRI Standards)，並應設計、執行及維護與報告編製相關之內部控制，以蒐集並揭露報告書內容。

本事務所責任

本事務所係依照財團法人中華民國會計研究發展基金會所發布之確信準則公報第一號「非屬歷史性財務資訊查核或核閱之確信案件」之要求規劃並執行有限確信工作。

二、確信工作

有限確信案件中執行情序之性質及時間與適用於合理確信案件不同，其範圍亦較小，所取得之確信程度明顯低於合理確信案件。為取得有限確信，本事務所於決定確信程序之性質及範圍時曾考量台汽電內部控制之有效性，但目的並非對台汽電內部控制之有效性表示意見。

為作成有限確信之結論，本事務所已執行下列工作：

- 與台汽電之管理階層及員工進行訪談，以瞭解台汽電履行企業社會責任之整體情況，以及報導流程；
- 透過訪談、檢查相關文件，以瞭解台汽電之主要利害關係人及利害關係人之期望與需求、雙方具體之溝通管道，以及台汽電如何回應該等期望與需求；

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- 針對報告中所選定之永續績效資訊進行分析性程序；蒐集並評估其他支持證據資料及所取得之管理階層聲明；如必要時，則抽選樣本進行測試；
- 閱讀台汽電之永續報告書，確認其與本事務所取得關於企業社會責任整體履行情況之瞭解一致。

三、先天限制

因永續報告中所包含之非財務資訊受到衡量不確定性之影響，選擇不同的衡量方式，可能導致績效衡量上之重大差異，且由於確信工作係採抽樣方式進行，且任何內部控制均受有先天限制，故未必能查出所有業已存在之重大不實表達，無論是導因於舞弊或錯誤。

四、品質管制與獨立性

本事務所遵循審計準則公報第四十六號會計師事務所之品質管制之規範，建立並維護完備之品質管制制度，包含遵循職業道德規範、專業準則及所適用法令相關之書面政策及程序。本所亦遵循會計師職業道德規範中有關獨立性及其他道德規範之規定，該規範之基本原則為正直、公正客觀、專業能力及盡專業上應有之注意、保密及專業態度。

五、結論

依據本事務所執行之程序及所獲取之證據，未發現台汽電所選定之永續績效資訊有未依照適用基準編製而須作重大修正之情事。

安永聯合會計師事務所

會計師：張志銘



民國一一年六月十日

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附件一：

編號	章節	內文標題	標的資訊	適用基準																																								
1	第一章	法規遵循與誠信經營	台汽電秉持正直與誠信經營，恪遵法令規範，對於違規事件已積極加強改善措施，並落實宣導與管理。2021 年未發生任何違規裁罰事件。	是否違反環境法律或法規之資訊																																								
2	第三章	節能減碳行動與成效	<p>總部辦公室以範疇二之間接溫室氣體排放進行自行評估，如下表。</p> <table border="1"> <thead> <tr> <th colspan="5">台汽電營業據點主要為總部辦公室及台南宜興汽電共生廠，總部辦公室以範疇二之間接溫室氣體排放進行自行評估，如下表。</th> </tr> <tr> <th colspan="5">二氧化碳當量(公噸 CO₂e)¹</th> </tr> <tr> <th>區域</th> <th>範疇類別</th> <th>2019 年²</th> <th>2020 年²</th> <th>2021 年²</th> </tr> </thead> <tbody> <tr> <td>台北辦公室</td> <td>範疇二³</td> <td>402³</td> <td>390³</td> <td>422³</td> </tr> </tbody> </table> <p>註：1. 2019 年為 0.509 公噸 CO₂e，2020 年為 0.502 公噸 CO₂e，2021 年全國電力總發電廠未公告，故以 2020 年係數推估。 2. 上述範疇二計算所包括的氣體種類包括：二氧化碳、甲烷、氧化亞氮、氫氟碳化物、全氟碳化物、六氟化硫、正氟化氬。 3. 修正 2020 年比較基線數據為 390，修正原因為自前一年度全國電力總發電廠未公告年度已公告之數據。</p> <p>台汽電官田廠 2021 年間接(範疇二)溫室氣體排放資料如下表。</p> <table border="1"> <thead> <tr> <th colspan="5">二氧化碳當量(公噸 CO₂e)¹</th> </tr> <tr> <th>廠</th> <th>範疇類別</th> <th>2019 年²</th> <th>2020 年²</th> <th>2021 年²</th> </tr> </thead> <tbody> <tr> <td>廠</td> <td>範疇二³</td> <td>373,001.3</td> <td>369,209.4</td> <td>378,796.0</td> </tr> <tr> <td>官</td> <td>範疇二³</td> <td>4,177.9</td> <td>3,574.4</td> <td>3,151.8</td> </tr> </tbody> </table>	台汽電營業據點主要為總部辦公室及台南宜興汽電共生廠，總部辦公室以範疇二之間接溫室氣體排放進行自行評估，如下表。					二氧化碳當量(公噸 CO ₂ e) ¹					區域	範疇類別	2019 年 ²	2020 年 ²	2021 年 ²	台北辦公室	範疇二 ³	402 ³	390 ³	422 ³	二氧化碳當量(公噸 CO ₂ e) ¹					廠	範疇類別	2019 年 ²	2020 年 ²	2021 年 ²	廠	範疇二 ³	373,001.3	369,209.4	378,796.0	官	範疇二 ³	4,177.9	3,574.4	3,151.8	<p>二氧化碳當量為 2021 年總部辦公室外購電力度數乘上經濟部能源局公告之電力係數。因 2021 年度之電力係數尚未公告，故以 2020 年電力係數為計算依據。</p> <p>二氧化碳當量為 2021 年官田廠外購電力度數乘上經濟部能源局公告之電力係數。因 2021 年度之電力係數尚未公告，故以 2020 年度為計算依據。</p>
台汽電營業據點主要為總部辦公室及台南宜興汽電共生廠，總部辦公室以範疇二之間接溫室氣體排放進行自行評估，如下表。																																												
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3	第三章	空氣污染防治	<p>台汽電官田廠 2021 年空汙排放。</p> <p>2021 年硫氧化物平均值 61.32ppm，氮氧化物 90.57ppm，粒狀物 10.75mg/NM³¹</p> <table border="1"> <thead> <tr> <th colspan="5">台汽電官田廠 2021 年空汙排放</th> </tr> <tr> <th>官田廠²</th> <th>2019 年²</th> <th>2020 年²</th> <th>2021 年²</th> <th>估算方法與係數來源³</th> </tr> </thead> <tbody> <tr> <td>氮氧化物(NOx)</td> <td>237,120²</td> <td>241,595²</td> <td>265,993²</td> <td rowspan="3">依空汙費計算公式與申報量</td> </tr> <tr> <td>硫氧化物(SOx)</td> <td>198,300²</td> <td>230,305²</td> <td>250,029²</td> </tr> <tr> <td>懸浮微粒(PM)</td> <td>24,479²</td> <td>12,016²</td> <td>9,466²</td> </tr> <tr> <td>總計²</td> <td>459,899²</td> <td>483,916²</td> <td>525,488²</td> <td>2018 年起因開始徵收粒狀物空汙費，故依空汙費計算公式與申報量計算。</td> </tr> </tbody> </table>	台汽電官田廠 2021 年空汙排放					官田廠 ²	2019 年 ²	2020 年 ²	2021 年 ²	估算方法與係數來源 ³	氮氧化物(NOx)	237,120 ²	241,595 ²	265,993 ²	依空汙費計算公式與申報量	硫氧化物(SOx)	198,300 ²	230,305 ²	250,029 ²	懸浮微粒(PM)	24,479 ²	12,016 ²	9,466 ²	總計 ²	459,899 ²	483,916 ²	525,488 ²	2018 年起因開始徵收粒狀物空汙費，故依空汙費計算公式與申報量計算。	<p>2021 年台汽電官田廠系統每小時連續自動監測之排放濃度之平均值。</p> <p>2021 年度台汽電官田廠系統每小時連續自動監測之排放量(公斤)總額及環保署空汙費申報數據。</p>												
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4	第四章	員工組成	<p>台汽電 2021 年新進員工共計 17 位，子公司星能股份有限公司(以下簡稱星能股) 2021 年新進員工共計 37 位。</p> <table border="1"> <thead> <tr> <th rowspan="2">台汽電</th> <th colspan="4">年齡</th> <th rowspan="2">總計</th> </tr> <tr> <th>30 歲以下</th> <th>31-40 歲</th> <th>41-50 歲</th> <th>51 歲以上</th> </tr> </thead> <tbody> <tr> <td>新進男性員工</td> <td>3</td> <td>6</td> <td>2</td> <td>3</td> <td>14</td> </tr> <tr> <td>新進女性員工</td> <td>1</td> <td>1</td> <td>1</td> <td>0</td> <td>3</td> </tr> <tr> <td>新進男性員工占比</td> <td>2.34%</td> <td>4.69%</td> <td>1.56%</td> <td>2.34%</td> <td>10.94%</td> </tr> <tr> <td>新進女性員工占比</td> <td>0.78%</td> <td>0.78%</td> <td>0.78%</td> <td>0%</td> <td>2.34%</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">星能股</th> <th colspan="4">年齡</th> <th rowspan="2">總計</th> </tr> <tr> <th>30 歲以下</th> <th>31-40 歲</th> <th>41-50 歲</th> <th>51 歲以上</th> </tr> </thead> <tbody> <tr> <td>新進男性員工</td> <td>5</td> <td>11</td> <td>8</td> <td>8</td> <td>32</td> </tr> <tr> <td>新進女性員工</td> <td>2</td> <td>3</td> <td>0</td> <td>0</td> <td>5</td> </tr> <tr> <td>新進男性員工占比</td> <td>2.87%</td> <td>6.32%</td> <td>4.6%</td> <td>4.6%</td> <td>18.35%</td> </tr> <tr> <td>新進女性員工占比</td> <td>1.15%</td> <td>1.72%</td> <td>0%</td> <td>0%</td> <td>2.87%</td> </tr> </tbody> </table>	台汽電	年齡				總計	30 歲以下	31-40 歲	41-50 歲	51 歲以上	新進男性員工	3	6	2	3	14	新進女性員工	1	1	1	0	3	新進男性員工占比	2.34%	4.69%	1.56%	2.34%	10.94%	新進女性員工占比	0.78%	0.78%	0.78%	0%	2.34%	星能股	年齡				總計	30 歲以下	31-40 歲	41-50 歲	51 歲以上	新進男性員工	5	11	8	8	32	新進女性員工	2	3	0	0	5	新進男性員工占比	2.87%	6.32%	4.6%	4.6%	18.35%	新進女性員工占比	1.15%	1.72%	0%	0%	2.87%	<p>2021 年台汽電男性及女性依年齡層之新進人數除以報導期間結束時總員工人數之比率。</p> <p>2021 年星能股男性及女性依年齡層之新進人數除以報導期間結束時總員工人數之比率。</p>																								
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6	第四章	零工傷的健康職場	<p>台汽電官田廠 2021 年職業災害與缺勤率統計：</p> <p>職業災害與缺勤率統計</p> <table border="1"> <thead> <tr> <th rowspan="2">員工</th> <th colspan="2">官田廠</th> </tr> <tr> <th>男</th> <th>女</th> </tr> </thead> <tbody> <tr> <td>工作總時數</td> <td>85,008</td> <td>5,912</td> </tr> <tr> <td></td> <td>合計</td> <td>90,920</td> </tr> <tr> <td>職業傷害死亡比率</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>合計</td> <td>0</td> </tr> <tr> <td>嚴重職業傷害比率</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>合計</td> <td>0</td> </tr> <tr> <td>可記錄之職業傷害比率</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>合計</td> <td>0</td> </tr> <tr> <td>損工日數率(LDR)</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>合計</td> <td>0</td> </tr> <tr> <td>缺勤率(AR)</td> <td>0.032%</td> <td>0%</td> </tr> <tr> <td></td> <td>合計</td> <td>0%</td> </tr> <tr> <td>虛驚事故量</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>合計</td> <td>0</td> </tr> <tr> <td>虛驚事故率(NMFR)</td> <td>0%</td> <td>0%</td> </tr> <tr> <td></td> <td>合計</td> <td>0%</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">其他工作者 (承包商/供應商)</th> <th colspan="2">官田廠</th> </tr> <tr> <th>男</th> <th>女</th> </tr> </thead> <tbody> <tr> <td>工作總時數</td> <td>52,307</td> <td>9,801</td> </tr> <tr> <td></td> <td>合計</td> <td>62,198</td> </tr> <tr> <td>職業傷害死亡比率</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>合計</td> <td>0</td> </tr> <tr> <td>嚴重職業傷害比率</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>合計</td> <td>0</td> </tr> <tr> <td>可記錄之職業傷害比率</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>合計</td> <td>0</td> </tr> <tr> <td>損工日數率(LDR)</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>合計</td> <td>0</td> </tr> <tr> <td>虛驚事故量</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>合計</td> <td>0</td> </tr> <tr> <td>虛驚事故率(NMFR)</td> <td>0%</td> <td>0%</td> </tr> <tr> <td></td> <td>合計</td> <td>0%</td> </tr> </tbody> </table>	員工	官田廠		男	女	工作總時數	85,008	5,912		合計	90,920	職業傷害死亡比率	0	0		合計	0	嚴重職業傷害比率	0	0		合計	0	可記錄之職業傷害比率	0	0		合計	0	損工日數率(LDR)	0	0		合計	0	缺勤率(AR)	0.032%	0%		合計	0%	虛驚事故量	0	0		合計	0	虛驚事故率(NMFR)	0%	0%		合計	0%	其他工作者 (承包商/供應商)	官田廠		男	女	工作總時數	52,307	9,801		合計	62,198	職業傷害死亡比率	0	0		合計	0	嚴重職業傷害比率	0	0		合計	0	可記錄之職業傷害比率	0	0		合計	0	損工日數率(LDR)	0	0		合計	0	虛驚事故量	0	0		合計	0	虛驚事故率(NMFR)	0%	0%		合計	0%	<p>職業傷害死亡比率為職業傷害所造成之死亡人數除以總工時乘以 200,000；</p> <p>嚴重職業傷害比率為嚴重的職業傷害數(排除死亡人數)除以總工時乘以 200,000；</p> <p>可記錄之職業傷害比率為可記錄之職業傷害數除以總工時乘以 200,000；</p> <p>損工日數率(LDR)為工傷損失天數除以總工時乘以 200,000；</p> <p>缺勤率(AR)為工傷假、病假、生理假天數除以工作總天數；</p> <p>虛驚事故率(NMFR)為虛驚事故事件數除以總工時乘以 200,000。</p>
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註：1. 職業傷害所造成之死亡比率=職業傷害所造成之死亡人數/總工時x200,000
 2. 嚴重的職業傷害比率=嚴重的職業傷害數(排除死亡人數)/總工時x200,000
 3. 可記錄之職業傷害比率=可記錄之職業傷害數/總工時x200,000
 4. 缺勤率(AR)=工傷假、病假、生理假天數/工作總天數
 5. 損工日數率(LDR)=工傷損失天數/總工時x200,000
 6. 虛驚事故率(NMFR)=虛驚事故事件數/總工時x200,000
 7. 台汽電官田廠 2021 年其他工作者之工作總時數為 0。
 8. 2021 年官田廠通車交通事故 1 件，星能股通車交通事故 0 件，不列入上表工傷率及損工日數率計算。



Taiwan Cogeneration Corporation

6F, No. 392, Ruiguang Road, Neihu, Taipei 114, Taiwan (R.O.C.)
TEL: 02-8798-2000
Official Website: www.cogen.com.tw

