



# 2021 Nan Ya PCB Co., Ltd.

Task Force on Climate-Related Financial  
Disclosure Report

TCFD Date of publication: May 2022



**PREAMBLE**

PREAMBLE 4

**CHAPTER I**

GOVERNANCE  
1.1 COMPANY INTRODUCTION 5  
1.2 ORGANIZATION AND RESPONSIBILITIES 5  
1.3 BOUNDARY OF ORGANIZATION 5

**CHAPTER IV**

INDICATORS AND TARGETS  
4.1 ABSOLUTE TARGETS AND EMISSION INDICATORS FOR CARBON REDUCTION 12  
4.2 SCOPE 3 EMISSION INDICATOR 14  
4.3 OTHER METRICS 15

**CHAPTER II**

STRATEGY  
2.1 SHORT-TERM STRATEGIES (0-3 YEARS) 6  
2.2 MEDIUM AND LONG-TERM STRATEGIES (WITHIN 3-10 YEARS) 7

**CHAPTER V**

REPORT MANAGEMENT 16

**CHAPTER III**

MANAGEMENT OF CLIMATE CHANGE RISKS AND OPPORTUNITIES  
3.1 RISK AND OPPORTUNITY IDENTIFICATION PROCESS 8  
3.2 RISK AND OPPORTUNITY ASSESSMENT 9  
3.3 TABLE OF THE IMPACT OF RISKS AND OPPORTUNITIES ON THE COMPANY 10  
3.4 CLIMATE RISK SCENARIO ANALYSIS 11

**CHAPTER VI**

TCFD REPORT INDEX 17



## Preamble

Global warming caused by GHG emission has brought significant risks to the growth of the global economy in recent years and will affect a greater number of businesses in the future. However, it may be difficult for investors to learn which companies are susceptible to risks of climate change, which companies are adequately prepared, and which ones are taking response actions. As a result, the Financial Stability Board (FSB) established a task force called Task Force on Climate-related Financial Disclosures (TCFD).

The TCFD report was completed in June 2017 after consulting with a wide range of business and financial leaders over an 18-month period. The report provides a clear picture of how to address the risks and opportunities associated with climate change, and gives companies and investors a comprehensive assessment framework that can also be reflected in financial reporting.

NAN YA PCB Co., Ltd (hereinafter referred to as the Company) is committed to responding to the international trend of climate change and will follow the TCFD's recommendation to disclose the risks and opportunities arising from climate change and to demonstrate the responsibilities and strategies that the Company should have in order to allocate its capital in a more reasonable and efficient manner to achieve the goal of transiting into a low carbon economy.

## 1.1 Company introduction

The Company started its operation in 1985. It was initially under the PCB Division of NAN YA PLASTICS and then became NAN YA PCB Co. Ltd. in 1997. The Company is engaged in the R&D, manufacturing and sales of printed circuit boards and IC substrates.

We are committed to meeting our customers' requirements on product quality through continuous process improvement and R&D, and to reducing production costs and improving efficiency through vertical integration within the Company. On the other hand, the Company has always believed that the only way to have a meaningful existence is to generate reasonable profits while making good contributions to society; therefore, we are committed to fulfilling our corporate citizenship by improving our performance in environmental protection, social responsibility and corporate governance while operating the business.

## 1.2 Organization and responsibilities

The Board of Directors is the highest governing body to make decisions and supervise the Company in response to climate changes. The Chairman of the Board is the leader and is responsible for overseeing issues and matters related to climate change. In addition, to strengthen the Board's responsibility for supervising the ESG issues related to climate changes, the Company has established a Sustainable Development Committee under the Board of Directors in 2022 to be responsible for reviewing sustainable development policies, strategies, and management approaches and supervising the implementation of sustainable development initiatives.

The Company has set up an "ESG Promotion Team", chaired by the Chairman of the Board and the President of the Company is the Deputy Convener, under which supervisors are appointed to coordinate and promote the Company's sustainability programs and report to the Board of Directors on ESG related issues, in order to provide important guidance for the Company to formulate its sustainability policy.

The Company has set up separate task forces for promoting environmental protection, social responsibility, and corporate governance. The environmental protection task force is responsible for collecting and evaluating information related to climate change, formulating plans to respond to climate change, and implementing climate-related initiatives such as energy conservation and emission reduction, and reviewing and improving them on a regular basis.

## 1.3 Boundary of organization

Headquarters: 3F., No. 201-36, Dunhua N. Rd., Songshan Dist., Taipei City

Jinxing Plant: No. 338, Sec. 1, Nankan Rd., Luzhu Dist., Taoyuan City

Shulin Plant: No. 57, Weiwang St., Shulin Dist., New Taipei City

The Company is aware of its responsibility in environmental and climate protection challenges, and is actively promoting pollution prevention, energy saving, emission reduction and other environmental protection initiatives in response to climate change, and ensuring its sustainability and social responsibility by investigating the underlying causes and making continuous improvements.

Climate change is considered an important issue in the Company's business strategy and is one of the challenges we must address or the opportunities we must strive for. In response to the global trend of climate change and the Sustainable Development Goals (SDGs) 13 of the United Nations, the Company adopted the global temperature target of 2°C as the assumption and Taiwan's INDC as the scenario to analyze the impact on the Company's operations and to formulate short-, medium-, and long-term strategies to reduce the impact on the environment and to achieve sustainability in society.

## 2.1 Short-term strategies (0-3 years)

- ① The Company improves energy efficiency, promotes energy saving and water conservation programs, introduces AI applications, and implements clean production processes to reduce the need for energy and water. The implementation status for 2021 is described below:
  - In 2021, we completed 42 improvement projects related to energy saving to save electricity by 12,458 kWh/day and reduce carbon emissions by 4,251 tons/year. For example, we have replaced 4 sets of 800-900 HP freezers, replaced the roots blower with a magnetic levitation blower in the wastewater plant, and upgraded the diesel forklift to an electric forklift.
  - We completed 27 water-saving improvement projects in 2021 to save 325 tons of water per day by improving equipment, process operation, or water recycling to save water and improve water efficiency.
  - The Company has implemented energy-saving improvements by simplifying and optimizing the manufacturing process to reduce electricity consumption, including eliminating the press-drying process for products with thickness over 600 um, reviewing the elimination of antioxidants in the roughing process to reduce the circulation line and stopping the pumping operation, and replacing the image transfer with internal secondary electroplating production; the process can be cut down by four stations.
  - We replaced conventional lighting fixtures with LED lights or other energy-efficient fixtures to save electricity and reduce GHG emissions.
- ② We have been actively purchasing products with the "Energy Saving, Water Saving, Environmental Protection, Carbon Reduction and Green Building Materials" labels in line with the government's green procurement policies. We have reported our procurement results to the government every year and have been receiving recognition from the environmental protection authorities. We participated in the voluntary GHG reduction project in the industry, and the results of our energy-saving measures have been reviewed by the Pure Green Foundation, a commissioning body of the Industrial Development Bureau, thus demonstrating the effective implementation of our sustainable development strategy. In addition, starting from 2022, the Company will compile quarterly statistics on green procurement products and the corresponding material numbers in the Company, and will indicate and control the requisition and procurement priorities in order to minimize the resources consumption, reduce the environmental pollution, and the impact on the earth.
- ③ In order to fulfill the corporate social responsibility and respond to government policies, the Company has reviewed the measures to directly subsidize employees to purchase new (replacement) electric motorcycles in 2022 at the amount equivalent to the amount subsidized by the government, and to cooperate with domestic electric motorcycle manufacturers to jointly implement carbon emission initiative. The amount of subsidy for the new purchase of electric motorcycles is \$10,000 and the amount of subsidy for the replacement of electric motorcycles is \$16,000.
- ④ To increase all employees' awareness of carbon reduction and include it in the business decision-making, the Company will implement an internal carbon pricing mechanism in 2022 with reference to the draft of the Climate Change Response Act in terms of carbon fees and charges for excessive carbon emissions. The related carbon cost is included in the internal income statement as the basis for the implementation of carbon risk management. In addition to continuing to formulate greenhouse gas emission reduction measures, the relevant information is a crucial indicator for performance evaluation, products and operations, and investment evaluation to maintain the Company's competitiveness.

## 2.2 Medium and long-term strategies (within 3-10 years)

- 1 Low-carbon energy transition: Plan and install renewable power generating equipment, and purchase or introduce wind power or solar energy and other green energy. The plan for 2021 is described below:
  - The solar power system is scheduled to be installed on the roof of the second Shulin plant in Shulin District. The installation is expected to be completed in February 2023, with a total capacity of 334 KW for the plants in Taiwan. The cost is NT\$23,075,000. The estimated power generation is 322,572 kWh/year, with a carbon reduction of 230.64 tons of CO<sub>2</sub>e.
  - We expect to introduce green power in 2024, with an estimated purchase of 16.74 million kWh/year, resulting in green power expenses of NT\$100,230,000/year.
- 2 Green product applications: In response to global warming and to reduce environmental impact, we have developed circuit boards/substrates that can meet the needs of the electric vehicle market, 5G, and the Internet of Things.
- 3 Create a green supply chain: Include environmental system implementation in the supplier assessment, so that suppliers can understand the Company's commitment and goals to protect the environment. The supplier assessment also takes into account the GHG emission performance, which is one of the key factors. The Company conducts regular supplier assessments with senior executives from key suppliers. In addition to requiring new suppliers to be certified with ISO 9001 quality management system and ISO 14001 environmental management system, the Company evaluates whether a new supplier is suitable to join the supply chain through a comprehensive evaluation based on technical capability (T), quality (Q), service (R), delivery time (D), price (C), and environment (E). In addition, the Company has assessed its current suppliers on a semi-annual basis and requested them to pay attention to environmental and social governance (ESG, Environment, Social, and Governance indicators account for 10% of the overall rating); the Company has actively requested its suppliers to obtain RBA (Responsible Business Alliance) certification, ISO 45001 occupational safety and health system certification, and AEO (Authorized Economic Operator) certification. Each year, we evaluate about 20 suppliers and provide consultation to each supplier so that they can meet the requirements related to social and environmental responsibilities. The Company will choose the suppliers that are assessed having outstanding performance to be our long-term partners. The results of the assessment will be used as a reference when selecting the suppliers in the procurement department. Currently, all of the major suppliers we have assessed are meeting the requirements of the environmental governance.





# Chapter III Management of Climate Change Risks and Opportunities

## 3.1 Risk and opportunity identification process

The EHS department is in charge of collecting risk and opportunity information every six months together with the relevant units (Operations Analysis Group/Management Group/Sales Division/Utility Division) to consider transition risks (policy and legal/market/technology/reputation) and physical risks (chronic and acute).

Furthermore, for events that may occur, we will describe the risks, including the financial impact level, the impact time (short, medium and long), the affected parties in the value chain, and the possibility of risk. When we create an opportunity scenario, we consider resource efficiency, energy, products and services, markets, and adaptability, and we make an opportunity description for events that may occur, including the financial impact level, impact time (short, medium, and long).

The affected parties in the value chain, the possibility of opportunities.

After assessing the risks and opportunities associated with climate change, they are monitored in the ISO 14001 environmental management system along with other environmental issues. The Company also addresses potential events with significant risks and makes countermeasures in advance, such as risk shifting or risk avoidance and solutions to prevent the risks from occurring and to lower the financial impact to reduce the potential loss from the risk.

## 3.2 Risk and Opportunity Assessment

A matrix is used to determine significant risks and opportunities based on the financial impact level and the risk and opportunity possibilities, and the indicators are rated on a scale of 5 to 1.(as shown below).



Financial Impact Level	Amount	Risk and Opportunity Possibilities				
		Almost positive (Score 5)	Most likely (Score 4)	Possible (Score 3)	Unlikely (Score 2)	Almost impossible (Score 1)
		Must occurred	May occur several times in a given period of time (e.g., 10 years)	May occur more than one time in a given period (e.g., 10 years)	Never occurred in a given period of time (e.g., 10 years)	Never occurred
High(Score 5)	Over 20 million	1, 2, 5	—	4	—	3
Medium-high (Score 4)	Over 5 million ~ less than 20 million	6	—	—	—	—
Medium (Score 3)	Over 1 million ~ less than 5 million	—	—	—	—	—
Medium-low (Score 2)	Over 0.5 million ~ less than 1 million	—	—	—	—	—
Low (Score 1)	less than 0.5 million	—	—	—	—	—

The results of the above risk and opportunity matrix were classified as follows:

- ① Score 15 to 25: High risk/Opportunity (Red)
- ② Score 6 to 14: Moderate risk/opportunity (Blue)
- ③ Score 1 to 5: Low risk/opportunity (Green)

### 3.3 Table of the impact of risks and opportunities on the Company

Serial Number	Current risk or opportunity analysis (Potential impact on Company)	Issue category	Risk/ Opportunity Level	Countermeasure
1. Carbon tax	The "National Climate Change Action Guideline" and the "Greenhouse Gas Reduction Management Act" specify Taiwan's long-term greenhouse gas reduction targets and establish a total greenhouse gas emission control and allocation method for manufacturing departments. After the control is imposed, we may have to purchase emission amounts, and energy bills will rise, causing our production costs to go up. In addition, the draft amendment to the "Greenhouse Gas Reduction Management Act" in 2022 and the EU from 2026 will impose a carbon tax and a carbon border tax respectively, which will result in an increase in expenditure and costs. Assuming that the carbon cost cannot be passed on, product prices will be less competitive, resulting in a significant financial impact.	Transition risk/Policy and law	Significant risks	The Company is able to shorten the manufacturing process and improve the yield by using AI technology to reduce the amount of raw materials used, including reducing the baking process and improving the yield, improving the yield of the solder ball mounting process, and improving the yield of the solder paste process. In addition, the energy and water saving solutions in the plant are divided into three categories, including "energy reduction in process", "energy management", and "public equipment efficiency improvement". We monitor and manage the energy and water consumption in each plant on a monthly basis, and formulate climate change countermeasures to mitigate the risks arising from climate change.
2. Renewable Energy Development Act - Green Energy Setup	The amendment to the "Renewable Energy Development Act" in Taiwan was officially passed in April 2019. Since the contracted capacity of 47,117 KW of electricity consumed by the Company is larger than the 5,000 KW required by law, it is necessary to install 10% of the contracted capacity (or 8% within three years) of renewable energy power generation facilities, storage facilities, or purchase renewable energy certificates within five years. Otherwise, the Company must pay a monetary substitution.	Transition risk/Policy and law	Significant risks	In order to comply with regulations, the Company plans to install renewable energy systems and conducts a preliminary assessment to determine the location and type of renewable energy facilities. 340KW solar power systems will be installed in the Shulin plant after the assessment. The Company has started to assess the various renewable energy providers to purchase the electricity, and will make adjustments to the green power market accordingly in 2024. It is expected that 16.74 million kWh will be purchased by 2024.
3. Change in precipitation pattern - Floods	Using the base year from 1986 to 2005 to predict the climate condition in the plant from 2016 to 2035. As for RCP4.5 and RCP8.5, the maximum consecutive days of precipitation are 9.5-9.7 and 1,807mm. The RCP8.5 scenario predicts the number of typhoons in Taiwan will decrease by 15%; the rate of strong typhoons will increase by 100%, and the typhoon precipitation will increase by 20%. We consider the impact of strong winds or typhoons caused by abnormal weather conditions, where the plant needs to be safely stopped to avoid damage to the manufacturing process; the impact caused by heavy rainfall/flooding, where the plant is flooded due to heavy rainfall/flooding, and the shutdown will result in the loss of turnover.	Physical risk/ Acute	Low Risk	<ol style="list-style-type: none"> <li>The Company regularly monitors and manages the energy and water consumption in each plant on a monthly basis, and formulates climate change countermeasures to mitigate the risks arising from climate change.</li> <li>The plant is equipped with flood control pumps, which are regularly inspected, repaired and maintained to reduce the chance of flooding caused by heavy rains.</li> </ol>
4. Change in precipitation pattern - Drought	Using the base year from 1986 to 2005 to predict the climate condition in the plant from 2016 to 2035. There will be two months of water shortage or drought every year. The Company considers the loss of turnover due to the shutdown will result in the loss of turnover.	Physical risk/ Chronic	Significant risks	The Company has planned to purchase recycled water from the Taoyuan North District Water Resources Recycling Center. By 2024, it is estimated that 2,860,000 M3 of water will be reduced each year through the Company's water purification and recycling system, which can effectively supply water to the manufacturing process.
5. Electric Vehicle Market	The 26 <sup>th</sup> United Nations Climate Change Conference (COP26) has set the target of achieving net zero carbon emission by 2050. Many countries around the world have set a timetable to implement fuel bans from 2020 to 2040 in response to net zero carbon emissions. In the next 20 years, consumers in these countries will have no choice but to buy electric vehicles or hydrogen fuel cell vehicles, which will drive the rapid development in the EV market. The Company is actively involved in the R&D of EV-related products, such as circuit boards/substrates for EV peripheral products. The Company expects that the circuit board/substrate board will increase the revenue from the demand in the electric vehicle market.	Opportunity/ Products and Services	Major Opportunity	The Company has focused on the development of high-density and large-size substrates to meet the needs of the electric vehicle market for wireless transmission and vehicle networking applications. We are also developing high end precision alignment technology for high end communication substrates, as well as high speed I/O count and 90µm solder ball pitch technology. As for the future product technology challenges, in addition to developing short, medium and long term R&D projects for key processes to ensure our technology will continue to lead in the future, new material development such as high reliability substrates and inks, low surface roughness and high dimensional stability substrates, low-loss transmission build-up films and others will be introduced to meet the future demand for high-speed communication products.

Serial Number	Current risk or opportunity analysis (Potential impact on Company)	Issue category	Risk/ Opportunity Level	Countermeasure
6. Improve the efficiency of resource utilization	In pursuit of sustainable development, we carry out risk management, corporate social responsibility, and climate change adaptation initiatives through the ESG Promotion Team. In response to climate change, we make every effort to recycle and reuse water resources, energy, and waste to strive toward the goals of energy conservation, emission reduction, resource integration, and zero waste. In recent years, we have continued to enhance resource efficiency and reduce our operating costs, while reducing greenhouse gas emissions due to the possibility of reusing process waste or water in the plants, to achieve the Company's sustainable development goals.	Opportunity/ Resource efficiency	Major Opportunity	The wastewater treatment facility design of the Company is based on the characteristics of each type of wastewater, the stability and convenience of treatment and maintenance. We plan perfect wastewater treatment process and facilities, and take careful planning for wastewater plumbing at the source of the process, in order to effectively treat wastewater and make it available for recycling and purification at the back end. We have introduced 8 copper sulfate recovery machines in October 2021, which can recover the tank stripping solvent and reduce the waste liquid discharged by 187 tons/month through repeated use. We expect to introduce 4 more production lines by the end of October 2022, which is expected to increase the effectiveness of waste liquid reduction by about 94 tons/month, with a total reduction of 281 tons/month.

### 3.4 Climate Risk Scenario Analysis

As per the TCFD's recommendations, the Company adopts the worst-case scenarios for the transition and the physical risks and includes the analysis results in the strategic resilience assessment.

The transition risk refers to the IEA WEO 450 Scenario (2016) and the Nationally Determined Contribution (NDC) target set by each manufacturing site. In Taiwan's Intended Nationally Determined Contribution (INDC) report, the greenhouse gas emissions are set to be reduced by 50% by 2030 based on the business-as-usual (BAU) scenario. In this scenario, the power generation structure in 2025 will be 20% for renewable energy, 30% for coals, and 50% for gases. After the above scenarios are imported, the impact on the Company is analyzed in terms of market, technology, reputation, finance, and operations in the future.

As for the physical risk, we refer to the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP) and the National Science and Technology Center for Disaster Reduction to estimate sea level rise, areas below the tide line, flood levels below the 2050 level, temperature rise, maximum continuous rainfall days and total rainfall for RCP2.6, RCP4.5 and RCP8.5. The projections of sea level rise, below the tide line, below 2050 flood level, temperature rise, maximum continuous rainfall days, and total rainfall between 2020 and 2040 based on RCP2.6, RCP4.5, and RCP8.5 Scenarios.

Plant	Taoyuan Plant
Scenario Analysis	The extreme climate risk assessment is mainly conducted using RCP 8.5 scenarios, with some of the RCP 2.6 and RCP 4.5 scenarios.
Sea-level rise (RCP 8.5)	No impact
Below-tidal-line area (risk of flooding) (RCP 8.5)	No impact
Area below the 2050 flood line (RCP 8.5)	No impact
Rise in temperature (RCP 8.5)	1.63
Average drought length (RCP2.6)	2 months
Precipitation change rate (RCP 8.5)	5%-10%
Maximum number of consecutive days of precipitation (RCP 4.5-8.5)	9.5 days - 9.7 days
Total precipitation (RCP 4.5-8.5)	1,807mm



# Chapter IV Indicators and targets

## 4.1 Absolute targets and emission indicators for carbon reduction

The Company conducts GHG emissions inventory and completes the GHG emissions verification through the British Standards Institute every year to ensure the accuracy of GHG emissions.

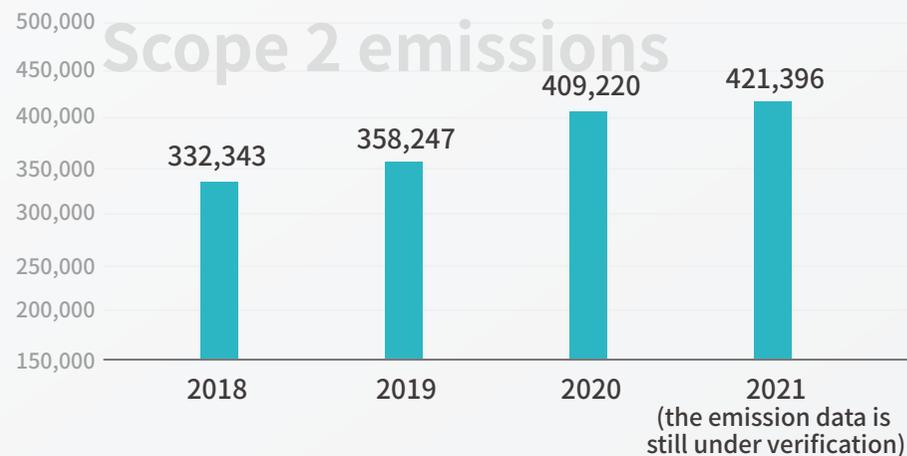
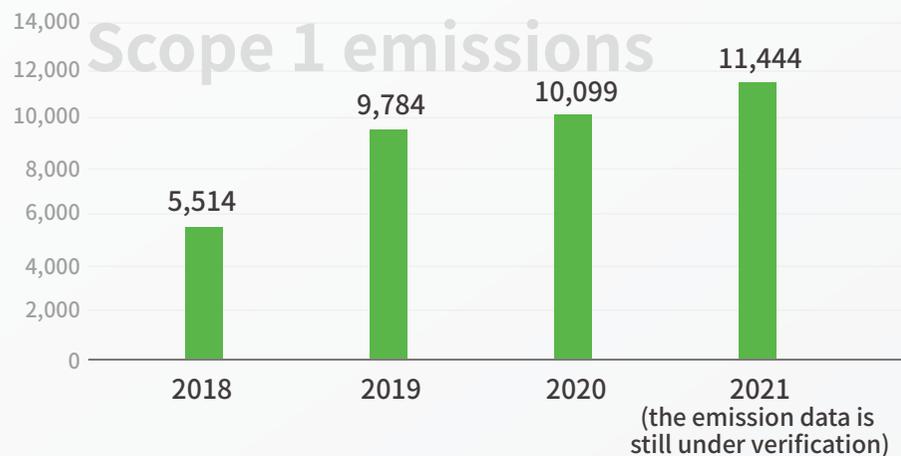
The Company has adopted the Science Based Target (SBT) with the base year set at 2020, the starting year at 2021 and the target year at 2030. As a result, it is estimated to reduce carbon emissions by 25% in 10 years.

▼ Table 4.1 Description of emissions and annual target emissions

Year	2020 (base year)	2021 (Not yet verified)	2030 (Target year)
Carbon emission volume (Ton-CO <sub>2</sub> e)	419,319	432,840	-
Compared to the base year (%)	-	-	-25%

The Company's GHG inventory volume for 2021: The Company proposes to disclose its internal inventory data prior to the publication of the TCFD report in May 2022 because the external verification of the power plant coefficients has not yet been verified and cannot be completed. The Company's production in 2021 increased by 10% compared to 2020 due to the increase in business operations. We continue to promote greenhouse gas reduction, so our carbon emissions in 2021 increased only slightly by 3.2% compared to 2020.

▼ Table 4.2 Information on Scope 1 and 2 Emissions



Note 1: Scope 1 is the direct GHG emissions.

Note 2: Scope 2 is the indirect GHG emissions.

Note 3: The SGS and BSI inventory verification data are used for 2018-2020; for 2021, the emission data is still under verification. Therefore, the data from internal audits (Formosa Plastics Corporation database) is used.

Note 4: The GWP in the IPCC's Fourth Assessment Report (2007) will be used to calculate emissions according to the EPA's regulations after 2016 (inclusive).

## 4.2 Scope 3 Emission Indicator

The Company conducts an annual inventory of the relevance and emission data of Scope 3 and such data has been verified by a third party. The results of the 2020 inventory are still being evaluated for the reduction strategy, and options and targets related to Scope 3 have not yet been set.

▼ Table 4.3 Information on Scope 3 emission indicator

Scope 3 emission sources	Relevance	emissions (ton of CO <sub>2</sub> e)	Scope
Products and services purchased	Relevant and counted	45,104.177	60% of the purchase amount for raw materials
Capital Goods	Relevant and counted	54,885.838	Land, house and building, machine and equipment, transportation equipment, electrical (electronic) and computer equipment, boilers, public equipment, general office equipment and miscellaneous are included in the calculation.
Fuel and energy-related activities (not included in Scope 1 or 2)	Relevant and counted	56,422.350	Includes all fuel and energy activities, such as coal, pyrolysis low sulfur fuel oil, and natural gas
Upstream transport and distribution	Relevant and counted	675.784	60% of the purchase amount for raw materials
Business waste output	Relevant and counted	1,424.737	The scope of this inventory covers 100% of the emissions from the disposal of business waste.
Business trips	Relevant and counted	52.157	Emissions from air travel
Employee commuting	Relevant and counted	679.009	Emissions from employees commuting to and from work by car
Upstream asset leasing	Irrelevant	-	Upstream asset leasing businessLow relevance
Downstream transport and distribution	Relevant and counted	1,079.985	All products (95%) sold and delivered to the doors of key customers
Processing of sold products	Relevant and counted	207,457.830	The calculation of product processing procedures is mainly based on assembly testing.
Use of products sold	Irrelevant	-	Our products are intermediate products, which our customers sell their products to more diversified end users. Since such information is confidential and unavailable, it is not possible to calculate the
ultimate disposition of the products sold.	Relevant and counted	37.606	Calculate the carbon emissions from the ultimate disposal of carton materials used in products sold
Downstream asset leasing	Irrelevant	-	Lower relevance in downstream asset leasing business
Franchising	Irrelevant	-	No Franchising
Investment	Irrelevant	-	Investment will generate additional GHG emissions with low business relevance

### 4.3 Other metrics

The implementation status of energy-saving for steam, electricity, and fuel-related to greenhouse gas emissions in 2021 is summarized as follows:

Targets and Achievement for 2021					
CATEGORY	Resource	2021 Target Values	2021 Actual Values	Achieving rate %	Description
Energy saving	Greenhouse gas emissions per output unit (tons/million NTD)	10.4	8.3	125	2% reduction per year based on the previous year's actual emissions

Note 1: The coefficient of Scope 2 GHG emissions is based on the 2021 emissions coefficient from the internal inventory of Nan Ya Plastics Plant (verification has not been completed).  
Electricity: 0.9888530771 metric tons of CO<sub>2</sub>/1000 kWh; steam: 0.3084563385 metric tons of CO<sub>2</sub>/ton.

Note 2: The output value is calculated based on the consolidated revenues.



## Chapter V Report management

- This report covers the period from January 1, 2020 to December 31, 2021.
- Frequency of preparation: whenever there is a material change
- This report has been prepared primarily based on the Recommendations of the Task Force on Climate-related Financial Disclosures (June 2017).
- Correspondent of the report
  - Safety, Health and Environment Division, President's Office  
Mr. Wu
  - Tel.: 03-3223751 ext.1022
  - email: CHUNG@nanyapcb.com.tw

Dimension	TCFD Disclosure Recommendation	Page Number
Governance	The monitoring status of climate-related risks and opportunities by the Board of Directors.	P4-5
	Management's responsibilities in assessing and managing climate-related risks and opportunities.	P4-5
Strategy	Identify short-, medium-, and long-term climate-related risks and opportunities.	P6-8
	The effect of climate-related risks and opportunities on business, strategic and financial planning.	P6-8
	Strategy adaptation, with consideration of different climate-related scenarios(including scenarios with temperatures of 2°C or lower).	P13-14
Low Risk Management	Identification and assessment process for climate-related risks and opportunities.	P9-P13
	Processes for managing climate-related risks and opportunities.	P9-P13
	Procedures for identifying, assessing, and managing climate-related risks and opportunities and how these are integrated into the risk management system.	P9-P13
Metric and Goal	Disclose the organization's strategy and risk management processes Metrics used in assessing climate-related risks and opportunities.	P15-P17
	Disclose Scope 1, Scope 2 and Scope 3 (if applicable)GHG emissions and associated risks.	P15-P17
	The targets used by the organization in managing climate-related risks and opportunities and how the targets were implemented.	P15-P17

