

Task Force on Climate-Related Financial Disclosures **20**
TCFD Report 22



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Task Force on Climate-Related Financial Disclosures

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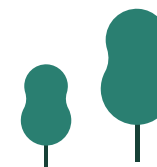
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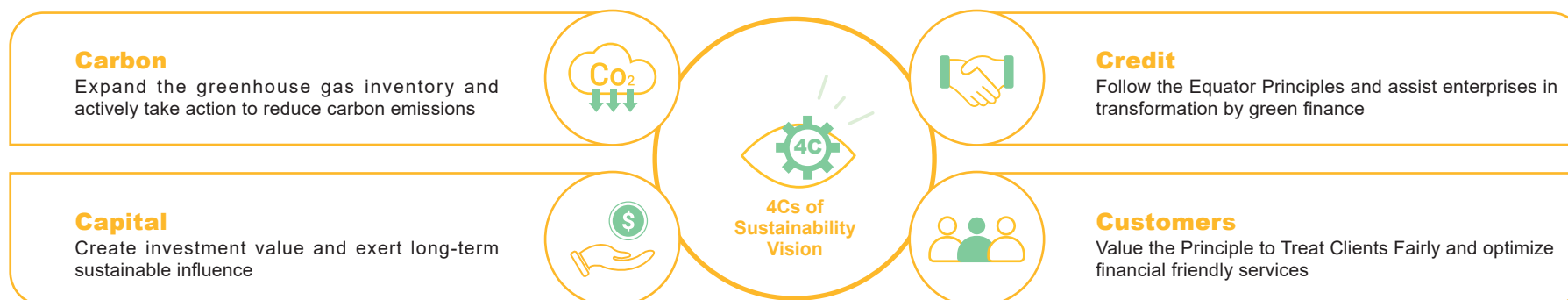
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Introduction

In recent years, the world has faced daunting tests in the form of extreme weather events such as heat waves, frequent floods, food shortages, and energy crises. According to the latest climate change assessment report released by the United Nations Intergovernmental Panel on Climate Change (IPCC), should global warming exceed 1.5°C, the risks to the ecological system or human system will increase significantly; the more the temperature increases, the less able humans will be to adapt. These global warming and climate change issues may evolve into systemic financial crises from the ensuing credit, market, liquidity, and operational risks. Confronted with these climate challenges, the Kyoto Protocol, Paris Agreement, Glasgow Climate Pact, and net-zero trend have driven a global consensus. At the end of 2021, the Glasgow Financial Alliance for Net Zero was formed at the 26th UN Climate Change Conference, announcing at the conference that it aimed to achieve its net-zero target by 2050. Chang Hwa Commercial Bank ("the Bank") is well aware of the responsibility and necessity of creating a sustainable environment. It has long been concerned about climate change issues and actively taken action, as well as been dedicated to climate finance and leveraging our financial influence to guide enterprises toward low-carbon transition and fulfilling our corporate social responsibility.

To align itself with the United Nations Sustainable Development Goals (SDGs), achieve SDG 13 "Climate Action," and improve mitigation and adaptation measures to cope with climate change and its impact, the Bank actively takes various climate actions. To demonstrate our engagement with climate governance, we conduct inventory and verification of greenhouse gas emissions as per the ISO 14064-1 standard each year and follow the PAS 2060 standard to complete the first "carbon neutral branch" project. At the same time, we have adopted international standards, including the ISO 14001 Environmental Management System, ISO 50001 Energy Management System, ISO 46001 Water Efficiency Management System, and ISO 20400 Sustainable Procurement — Guidance, to improve the efficiency of internal energy resource management. This year (2022), we signed onto the Science-Based Targets initiative (SBTi) to stay on top of carbon emissions from investment and financing products with the PCAF methodology, fulfill our corporate commitment to climate governance, and improve bank-wide carbon management operations. Moreover, we set up an internal TCFD task force to launch climate scenario analysis work and develop corresponding scenario analysis models for climate risks. We aim to measure the materiality of each climate risk through qualitative to quantitative analysis and incorporate the results into our risk management framework to continuously improve our climate strategies and management in response to changes in the macro environment, while striving to put into practice a spirit of accountability and realize our vision of sustainability through concrete actions.

In response to the government's 2050 net zero target, the Bank focuses on sustainability vision built around the "4Cs"—Carbon, Capital, Credit, and Customers. Specifically, these targets are:



To achieve sustainable prosperity on Earth, the Bank will continue to facilitate transformation. We aim to prompt the public to attach importance to sustainable development and work together to achieve the goal of zero carbon emissions by enhancing our climate governance, improving our climate risk management mechanism, and leveraging our financial influence to assist enterprises with low-carbon transition.

About this Report

Boundary of operations

The Bank's operating activities are adopted as the boundary for disclosures in this report.

Reporting scope

The scope of this report covers the period from January 1, 2021, to December 31, 2021.

Basis for reporting

We adopted the “Recommendations of the Task Force on Climate-related Financial Disclosures” (hereinafter referred to as “TCFD recommendations”) released by the Financial Stability Board (FSB) as the framework of this report and wrote this report based on the core elements of governance, strategy, risk management, and metrics and targets.



Core elements of the TCFD recommendations

Governance

The organization's governance around climate-related risks and opportunities

Strategy

The actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning

Risk Management

The processes used by the organization to identify, assess, and manage climate-related risks

Metrics and Targets

The metrics and targets used to assess and manage relevant climate-related risks and opportunities



1 Climate governance

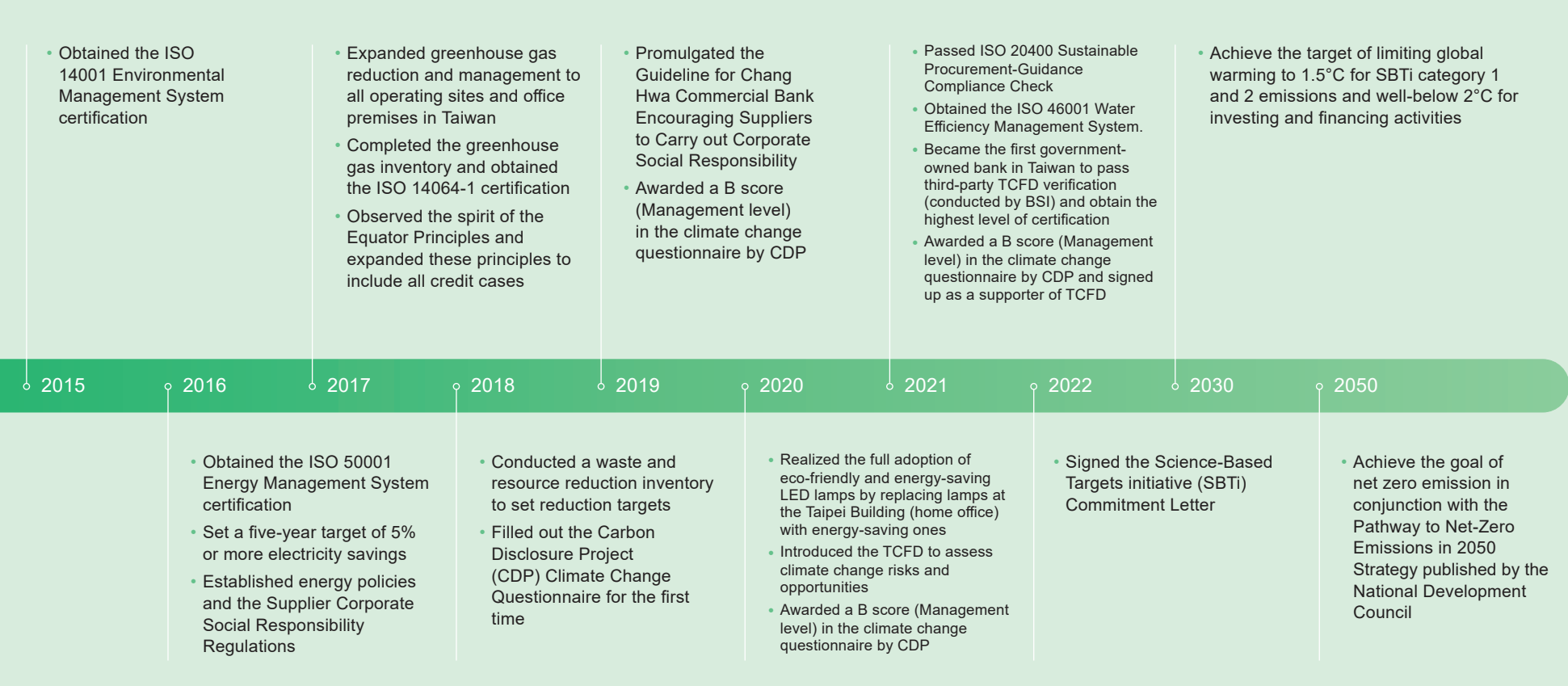
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1-1 Climate governance progress

The Bank signed the commitment to the Science-Based Targets initiative (SBTi) in 2022 and is committed to aligning our business development strategy with the goals to be achieved under the Paris Agreement. We aim to limit global warming to 1.5°C for SBTi category 1 and 2 emissions and well-below 2°C for investing and financing activities (known as category 15 emissions) by 2030. Meanwhile, we actively review our investment and financing portfolio and the carbon reduction strategies of the businesses therein, formulate the review criteria for those businesses' performance in regard to climate, and plan to conduct engagement with carbon-intensive companies which have not yet managed climate risks well, helping them adapt to low-carbon transition.

Furthermore, as one of Taiwan's government-owned banks, the Bank will actively work toward achieving Net Zero by 2050 in line with the Taiwanese government's Pathway to Net-Zero Emissions in 2050 Strategy, published by the National Development Council (hereinafter referred to as "NDC") in 2022, launching corresponding plans and actions.

Figure 1. Climate governance progress and targets



1-2 Climate governance framework

To establish an effective governance structure, the Board of Directors serves as the Bank’s highest governing body for climate issues, guiding, supervising, and managing the Bank’s exposure to climate risks. During 2021, headed by the Risk Management Division, a TCFD task force¹ was formed to identify and assess climate risks and opportunities, formulate action plans, and supervise their implementation as per the Bank’s policies on climate issues. The Risk Management Division compiles climate risk information and implementation and identifies, measures, monitors, and reports climate risks, as well as regularly reporting this information to the Board of Directors and the Risk Management Committee to facilitate responses to climate risks and opportunities. It will report regular climate risk metrics updates including SBTi commitments and achievements to the Board of Directors and the Sustainable Development Committee.

Note 1: The Risk Management Division is the main responsible unit of the task force. Other units include the Credit Management Division, Treasury Division, Financial Management Division, Product Management Division, Trust Division, Insurance Agency Division, Digital Banking Division, General Affairs Division, Secretariat Division, International Banking Division, Human Resources Division, Internal Auditing Division, Domestic Banking Division, and the Compliance Division.

In addition, we regularly report the Bank's greenhouse gas inventory, verification progress, and results of greenhouse gas reduction to the Sustainable Development Committee in accordance with the Sustainable Development Committee Charter and to the Board of Directors each quarter as per the Sustainable Development Roadmap for TWSE/TPEX Listed Companies. Meanwhile, the Sustainable Development Committee is responsible for making decisions on climate issues and regularly reviews Climate-Related Financial Disclosures (TCFD Report).

The President chairs the Risk Management Committee, which is held regularly each month. The main committee members are the Executive Vice Presidents, the EVP & Chief Compliance Officer, and the heads of the Credit Management Division, Risk Management Division, Loan Asset Management Division, Financial Management Division, Operations Division, and Information Security Division. The Committee is responsible for regularly monitoring the Bank's exposure to climate risks and reviewing the resilience of the Bank's countermeasures in different climate scenarios.

The climate governance structure is set out below as Figure 2, whereas Table 1 presents the meeting frequency of each unit in the structure and their roles in climate issues.

Figure 2. Climate governance framework

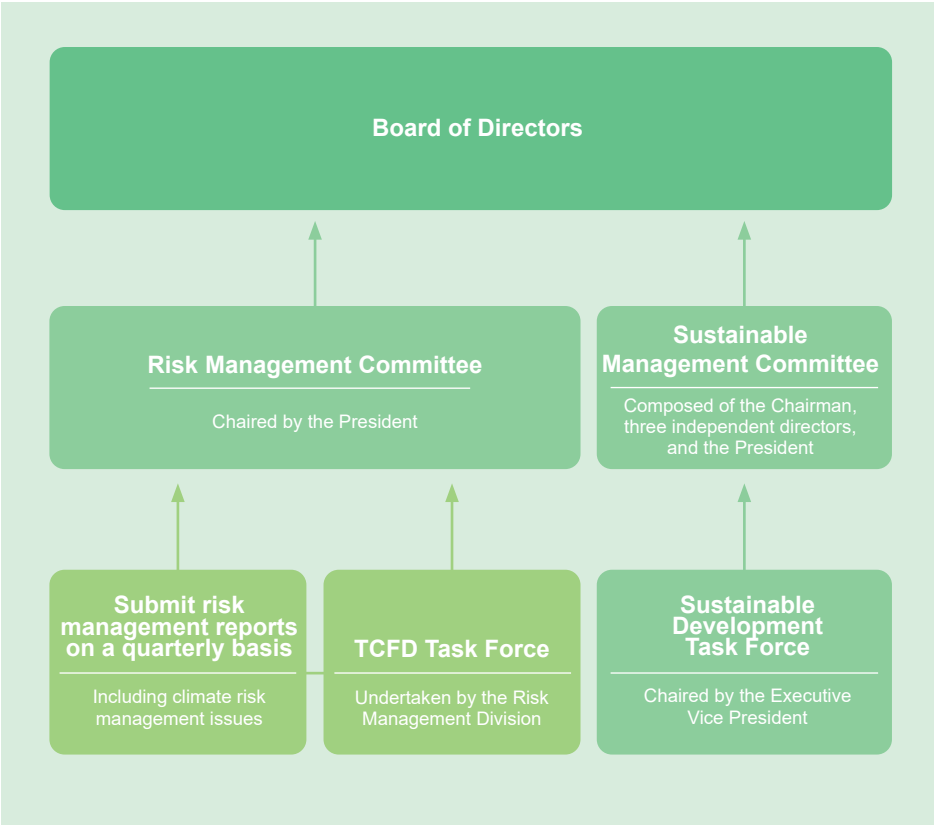


Table 1. Meeting frequency of each unit in the climate governance structure and their roles in climate issues

Unit	Convener/ Responsible unit	Meeting frequency	Role in climate issues
Board of Directors	Chairman	Once per month (at least once per quarter as specified in the Articles of Incorporation)	Highest governance unit for climate issues. Actively pays attention to climate change issues to keep abreast of the Bank's climate-related risks and opportunities.
Sustainable Development Committee	Chairman	At least twice per year and may be convened at any time when necessary	Promotes sustainable development, coordinates with all parties to establish relevant systems, supervises and reviews the implementation of policies and the effectiveness, and regularly reviews implementation reports.
Risk Management Committee	President	Once per month	Monitors exposure to climate risks and examines the resilience of the Bank's response strategies in different climate scenarios.
Sustainable Development Task Force	Executive Vice President	Regularly	An Executive Vice President is appointed by the Sustainable Development Committee as the general person in charge, and each task force (corporate governance, responsible finance, employee care, social inclusion, and environmental sustainability) implements sustainable development tasks, including climate issues.
TCFD Task Force	Risk Management Division	Regularly	Identifies or assesses climate risks and opportunities, formulates environmental policies, and monitors implementation.

Board of Directors

1. Climate change issues are incorporated into the risk management framework

The Bank continues to pay attention to climate change issues and actively strengthens countermeasures against such issues, including the impact of extreme weather events on our branches and the depreciation of the value of real estate collateral, impacting the Bank's business. We have requested relevant units to formulate preliminary response plans. The implementation of the TCFD framework and exposure to carbon-intensive industries are reported to the Risk Management Committee on a monthly basis and are included in the quarterly risk management report for the Board of Directors to review.

2. Credit limit adjustment

During 2021, the Bank raised the credit limit percentages of total loan for 12 green industries by 1%, and lowered the limit percentages of the sum of total loan and investments for 4 energy-intensive industries (paper, petrochemical, cement, and steel) by 2%. In 2022, the Board of Directors resolved to raise the credit limit by 1% for green industries identified by the competent authorities and expand the scope of carbon-intensive industries by including the most polluting industries in the Carbon Border Adjustment Mechanism released by the European Union and carbon-intensive industries associated with climate risks revealed by SASB (i.e., the agriculture, forestry, fishery, and animal husbandry; mining and quarrying; electricity and gas supply; and transportation and warehousing industries); lowered the percentages to 90% of the limit to the sum of total loan and investment. With the adjustments to the limits, the Bank will be able to guide the development of green industries and reduce its exposure to carbon-intensive industries.

Sustainable Development Committee

The Sustainable Development Committee met three times during 2021, with 100% attendance, to discuss the implementation of an emerging risk management mechanism, the implementation of the TCFD framework, the promotion of the Equator Principles, the response to the CDP's climate change questionnaire, and other important topics including environmental sustainability performance and implementation results.

Risk Management Committee

It regularly reports on exposure to the most polluting industries in the Carbon Border Adjustment Mechanism released by the European Union and carbon-intensive industries associated with climate risks revealed by SASB (i.e., agriculture, forestry, fishery and animal husbandry; mining and quarrying; electricity and gas supply; and transportation and warehousing industries) each month to continue to monitor climate risk exposure and review the effectiveness of the credit and investment limits approved by the Board of Directors.

In addition, it performs climate scenario analyses to effectively identify and assess the potential impact of climate-related risks on business performance in a series of potential future situations to keep abreast of the situation and formulate flexible and sound response strategies based on the analysis results while examining the resilience of the Bank's response strategies in different

climate scenarios.

Sustainable Development Task Force

Climate and environment-related tasks reported and implemented by the Sustainable Development Task Force are as follows:

1. The Bank's plan in response to the Financial Supervisory Commission's (FSC) implementation of the Guidelines on Climate-related Financial Disclosures by Domestic Banks from 2022 onwards and the subsequent implementation of the TCFD Recommendations.
2. Implementation of an Equator Principles project.
3. Report on environmental sustainability performance for 2021.
4. Approval of the Bank's implementation of the TCFD Recommendations, review of the TCFD reports, and submission of the reports to the Sustainable Development Committee and the Board of Directors.

TCFD Task Force

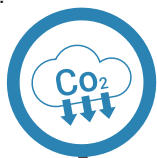
The TCFD Task Force was set up at the end of 2021. It is mainly responsible for identifying or assessing climate risks and opportunities, formulating environmental policies, and supervising the implementation thereof. It also plans to report regularly to the Board of Directors and the Risk Management Committee.



2 Climate strategy

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In response to global warming and climate change issues, the Bank continuously implements energy conservation and carbon reduction, waste reduction, resource management, and green building programs based on the four aspects of the TCFD, in alignment with the spirit of our environmental protection policy of “LOHAS Environmental Protection and Love the Earth,” to mitigate the impact of climate change and achieve the goal of environmentally sustainable management. Additionally, as we are profoundly aware that financial institutions play a critical role in sustainability transformation and low-carbon economies, and as such, we have continued to respond and facilitate the development of green finance through our products, services, as well as investment and financing business in recent years. In the future, we will also actively focus on and formulate business-related climate strategies.



2-1 Climate strategy

With a focus on green finance, we assist enterprises with their low-carbon transition by providing loans, financial products, and services. Meanwhile, we set specific development goals depending on our business development, risk management, and operations.

Table 2. Low-carbon transition and development strategy

Aspect	Development goal	Chapter
Climate risk management	Formulate climate-related performance criteria for target investments and financing companies , incorporate climate-related factors into investment and financing process, and plan to engage with carbon-intensive companies, which have not yet managed climate risks well, to help them adapt to low-carbon transition.	3-4. Investment and financing risk management
Low-carbon operations	The Bank signed up to the SBTi in 2022 and is committed to aligning its daily operating activities with the goals in the Paris Agreement (to limit global warming to 1.5°C) and actively reviewing its carbon reduction strategies.	4-2. Green operations
Low-carbon investing and financing	The Bank signed up to the SBTi in 2022 and is committed to aligning its business development strategies with the requirements of the SBTi (to limit global warming well-below 2°C) and actively reviewing its investing and financing portfolio and the carbon reduction strategies of the businesses in that portfolio.	4-3. Green investing and financing
Green financial products	Comprehensively integrate green financial products (such as loans, sustainable development bonds, and green funds), leverage our financial influence, enhance support for green industries, invested/financed entities and individuals, and assist them with low-carbon transition.	4-3. Green investing and financing
Green industry development	Work with the government to facilitate the development of Taiwan's green energy technology industry, provide financial momentum to industrial innovation and growth, and funding the green energy technology-related industries.	4-3. Green investing and financing

Column—Climate Strategy Implementation Outcomes

TCFD

Since 2019, the Bank has prepared the Corporate Social Responsibility (CSR) Report as per the TCFD framework to disclose our efforts in the aspects of governance, strategy, risk management, as well as metrics and targets related to climate change. The Bank adopted the TCFD in 2020 and signed up to become a TCFD supporter in 2021, becoming the first government-owned bank in Taiwan to have its compliance with the TCFD framework verified by a third party. We assess climate-related risks and opportunities under the TCFD framework and further quantify the financial impact, which is conducive to formulating forward-looking investment and financing policies and mitigating and preventing potential financial losses. Meanwhile, we keep abreast of implicit opportunities to create earnings and reducing operating costs through market participation (investing in sustainable development bonds), product and service development (launching green loans), and resource use efficiency improvements (green procurement and green building). The Bank also published a TCFD report in both Chinese and English for the first time in 2022 for stakeholders' reference.

Equator Principles

The Bank has gradually implemented the Equator Principles since 2017 by adjusting investment and financing limits, excluding the negative list of industries, adding ESG review and management factors, and completing signing on to the Equator Principles Association on Earth Day (April 22) 2022. In the future, we will internalize environmental and social risk management into the credit review process for project financing, establish a risk control mechanism and responses to related processes, as well as develop green financing products that enable coexistence between economic development and friendly environment with the aim of guiding companies towards low-carbon transformation using ESG-related indicators as important benchmarks. Leveraging our financial influence as an institutional investor and capital provider, we will also attach importance to the ESG practices of our target investments in an effort to drive positive investment power and strike a balance between economic growth, environmental sustainability, and social development.

2-2 Climate issue identification and assessment process

In response to climate change risks and opportunities, the Bank is actively undertaking low-carbon transition and incorporating climate change into our daily operations and long-term strategies. We have established a climate risk identification process with reference to the types of climate risks², time intervals, degrees of impact, possibilities of occurrence, relevance of existing risks in the financial industry, and the nature of each business, accurately keeping abreast of the impact of climate risks on the Bank while further taking two major climate actions of mitigation and adaptation to actively respond to such issues.

Note 2: Climate change risks are primarily classified into two categories: "physical risks," which are related to climate change, and "transition risks," which are related to low-carbon economy. Physical risks are divided according to climate patterns into immediate extreme weather events or long-term changes in climate patterns, whereas transition risks are divided according to different influencing factors into several risk factors, including policy and regulatory risk, technological innovation risk, change in market structure, and reputational risk.

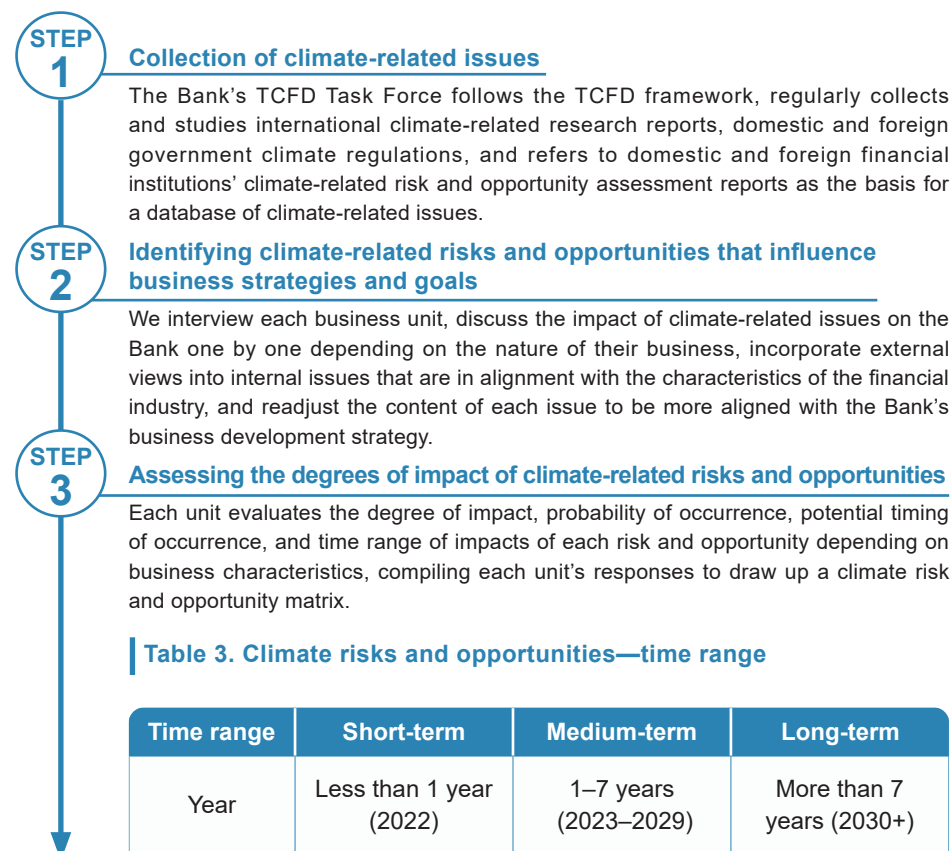


Table 4. Climate risks and opportunities—degrees of financial impact

Degree of impact	Definition
Irrelevant	No financial impact or benefit
Mild	Financial impact or benefit is less than NT\$50 million
Moderate	Financial impact or benefit ranges from NT\$50 million to NT\$100 million
Great	Financial impact or benefit exceeds NT\$100 million

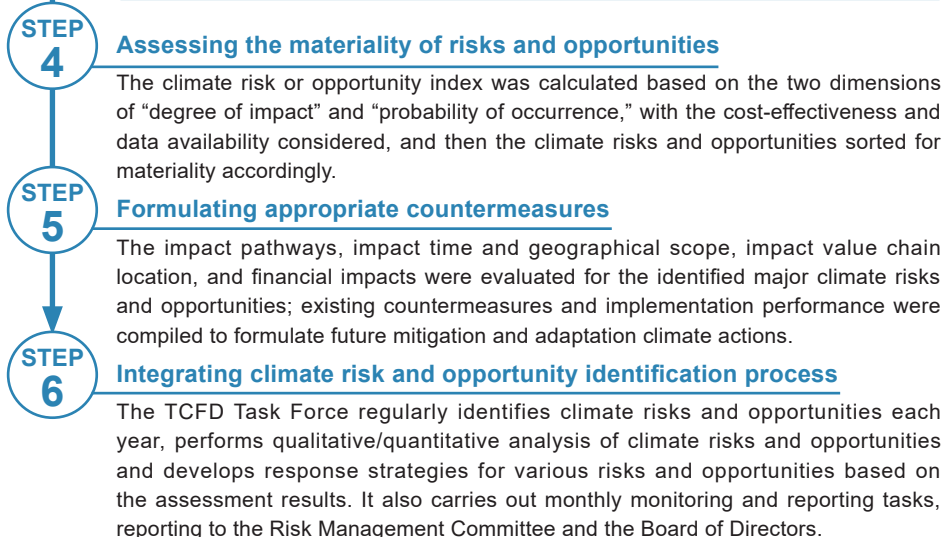
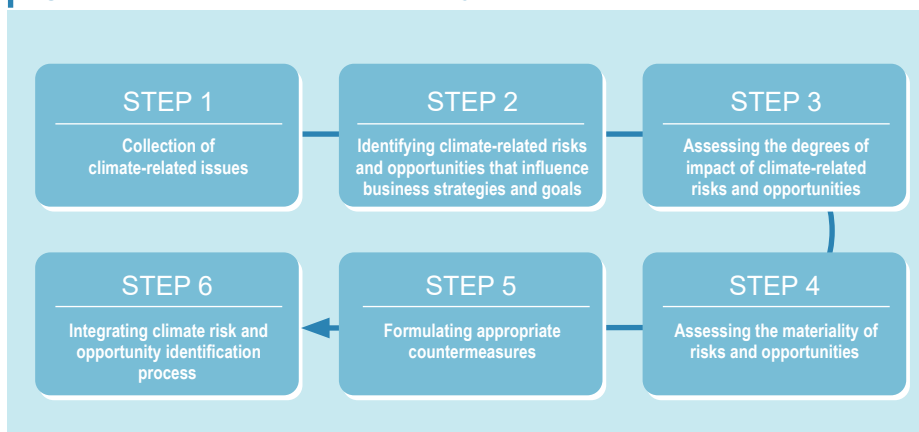


Figure 3 climate risk and opportunity identification process



2-3 Assessing the strategic resilience with scenario analysis

The Bank follows the TCFD Framework and performs climate scenario analysis to effectively identify and evaluate the potential impacts of climate-related risks on business performance from a series of hypothetical situations. It also keeps abreast of the situation and formulates flexible and stable response strategies to enhance the resilience of the Bank's response to climate change.

1. Scope and boundaries of scenario analysis

More than 71% of the Bank's net income for 2021 was from interest. The sources of deposits and loans and changes in interest rate spread are critical to our net income. Therefore, we pay close attention to the impact of climate change issues on our borrowers.

Regarding the 2021 scenario analysis, we analyzed the physical risks of real estate collateral. We also observed changes in the climate value at risk (VaR) in regions where real estate collateral was located in 2025, 2030, and 2050 to get a firm grasp of the impact of extreme climate disasters on asset impairment in monetary terms. Regarding transition risks, we made an inventory of the Bank's borrowers who were carbon-intensive companies placed under the supervision of the Environmental Protection Administration at the end of 2021 to learn about the impact of future policies, laws, and regulations on their business operations, which would in turn affect the expected credit loss of the Bank's credit risk.

Table 5. Scope of scenario analysis

Type of risk	Type of business	Scope
Physical risk	Operations	Operating sites throughout Taiwan
	Financing	Top 150 appraised real estate collateral by monetary value
Transition risk	Financing	Borrowers who were carbon-intensive companies placed under the supervision of the Environmental Protection Administration

2. Climate scenarios

To maintain a firm grasp of the potential impact of climate-related issues in different scenarios, the Bank adopts a stricter pathway (i.e., a scenario that aims to achieve a economy with lower carbon emissions) and a high-emission/business-as-usual pathway, representing the best- and worst-case scenarios, respectively, to enhance the comparability between different scenarios, with all physical and transition risks considered.

Table 6. Scenario analysis application

Organization	Time range analyzed	Pathway adopted	Corresponding warming at end of century
Intergovernmental Panel on Climate Change (IPCC)	2025, 2030, 2050	RCP 2.6	~2°C
		RCP 8.5	>4°C
Network of Central Banks and Supervisors for Greening the Financial System (NGFS)	2025, 2030, 2050	Net Zero Emissions by 2050	~1.5°C
		Delayed transition	~2°C
		Nationally Determined Contributions	~2.5°C

In general, a higher emissions scenario results in higher physical risks, while scenarios that aim to achieve an economy with lower carbon emissions lead to higher transition risks. As per the results of this year's scenario analysis and response strategies, please refer to "3-3.1 Identifying the impact of physical risks on operational risk" and "3-4.3 Identifying the impact of physical risks on credit risk"; for transition risks, please refer to "3-4.2 Identifying the impact of transition risks on credit risk."



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3-1 Climate risk identification results

The Bank, as per the TCFD framework, considered the categories of climate risks and opportunities recommended by the TCFD, including immediate and long-term physical risks and transition risks of policies and regulations, technology, markets, and reputation and collected a total of 12 climate-related issues for this year, while multiplying the probability of occurrence of risk and degree of impact determined by the head of each unit for each climate change risk, as the basis for sorting the risks by materiality. Finally, we assessed the impact of the top three risks on the Bank's operations and drew up countermeasures.

Figure 4. Climate-related risk matrix of 2021

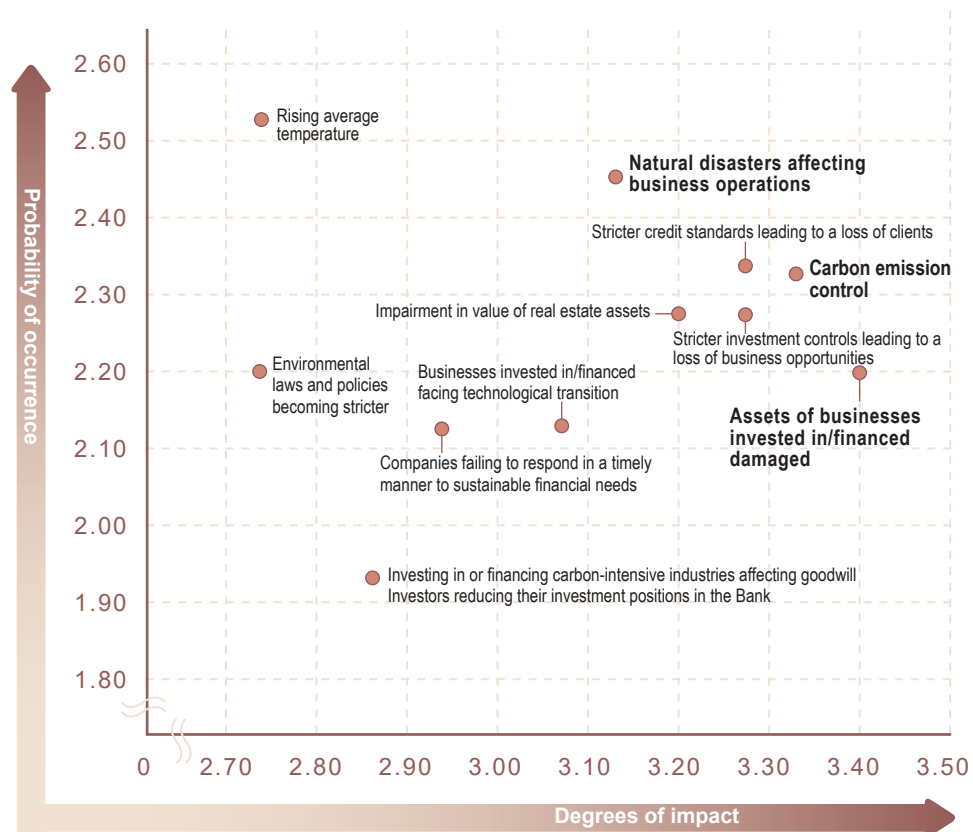


Table 7. Identified issues of climate risks

Type	Risk factor	Risk event	Description
Physical	Immediate	Natural disasters affecting business operations	Due to climate change, typhoons and torrential rains have become more severe and frequent, which may make it more likely for the Bank's operating sites to be impacted by natural disasters, increase the repair or maintenance cost of our buildings or equipment, or even cause business interruption or casualties.
		Impairment in value of real estate assets	With climate change, the frequency and severity of extreme weather events, such as typhoons and floods, have increased, which may result in impairment in value of the investment properties held by the Bank.
		Assets of businesses invested in/financed damaged	With extreme weather events in Taiwan, such as torrential rains, increasing in severity and frequency, the operating sites or collateral of businesses invested in/financed by the Bank may be located in areas with a high physical risk (such as areas prone to severe flooding), which may affect our clients' operations and make it difficult for us to recover loans or result in impairment of collateral, leading to losses on our investment/financing cases.
	Long-term	Rising average temperature	In recent years, the temperature has continued to rise, and the average temperature will continue to rise in the future. With the transformation of Taiwan's power infrastructure, it is estimated that the electricity prices will gradually increase in the future, thereby increasing the Bank's operating costs. If we need to purchase green power to reduce the Bank's carbon emissions, it will increase our operating costs.

Type	Risk factor	Risk event	Description
Transition	Market	Companies failing to respond in a timely manner to sustainable financial needs	With net-zero transition a growing trend, the public is increasingly concerned about sustainability-related issues. The Bank's share in climate-related opportunity markets may be smaller than our competitors as a result of failing to proactively promote sustainability or green financial products and services, resulting in a loss of business opportunities or clients, thereby causing our revenue to decline.
	Technology	Businesses invested in/financed facing technological transition	There will be more policies to achieve the goals under the Paris Agreement in the future, and industries will be forced to transition or develop more energy-efficient and eco-friendly products and technologies. The businesses invested in or financed by the Bank may need to invest a great deal of R&D manpower and capital for such transition, or their transition may be insufficiently timely and result in their investment cost being unrecoverable, which may affect our credit risk or market risk, thereby will indirectly affecting the Bank's income.
	Reputation	Investors reducing their investment positions in the Bank	Awareness of sustainability is on the rise; institutional investors are paying more attention to climate change and environmental issues, regarding it as one of their criteria for selecting targets for investment. If the Bank's investment/financing positions in industries with high climate risk are too large (i.e. the carbon intensity of the investment portfolio is too high), international investment institutions' willingness to invest may decrease and they may even withdraw their funds due to concerns about asset security.
		Investing in or financing carbon-intensive industries affecting goodwill	If the Bank's investment/financing positions in carbon-intensive industries are too large, the public may have doubts about whether the Bank is committed to low-carbon transition, and if it is not aligned with the competent authorities' policies for industry, this will indirectly affect our reputation and income.

Type	Risk factor	Risk event	Description
Transition	Policies and regulations	Stricter investment controls leading to a loss of business opportunities	In recent years, countries around the world have amended many environmental regulations and policies on energy conservation and carbon reduction, which will affect the financial performance of carbon-intensive industries and large GHG emitters. To control relevant risks, we will require every invested targets to sign a carbon reduction commitment in the future, which may lead to a loss of business opportunities.
		Carbon emissions control	The international requirements for energy conservation and carbon reduction in carbon-intensive industries are becoming stricter, and some countries are even about to impose carbon taxation/fees, which will cause a negative impact on the industries' business, thereby affecting their profitability. If the Bank provides too many loans to carbon-intensive industries, our default risk may rise.
		Stricter credit standards leading to a loss of clients	In recent years, international attention to the financial industry's investment and financing standards has continued to increase, as demonstrated by the Equator Principles and the Principles for Responsible Investment. The adoption of such standards by financial institutions will raise the credit standards for clients, which may affect their willingness to cooperate and may lead to the loss of clients.
		Environmental laws and policies becoming stricter	In recent years, many environmental regulations and policies on energy conservation and carbon reduction have been amended onshore and offshore, such as electricity reduction requirements and carbon taxation. In addition to requiring the financial industry to comply with more applicable laws and regulations, such regulations and policies also require the disclosure of more environmental information. The Bank may fail to comply with such laws and regulations and face pressure to implement such policies or be punished.

As per the results of the questionnaire, we have identified three major climate change risks, and the risk events and impacts are specified in the table below:

Table 8. Degree of impact of major climate risks and countermeasures of 2021

Rank	Risk event	Time range	Scope of impact	Traditional risk	Operational impact	Financial impact	Corresponding response
1	Carbon emissions control	Medium-term	Financing business	Credit risk	<ul style="list-style-type: none"> As some of our customers are on the EPA's carbon control list, the future imposition of carbon fees will impact customer revenue, and thus result in credit risk for the Bank. 	3-4.2 Identifying the impact of transition risks on credit risk	3-4 Investment and financing risk management
2	Natural disasters affecting operations business	Medium-term	Own operations	Operational risk	<ul style="list-style-type: none"> Loss of assets at operating sites Disruption of operations at operating sites Possible injuries suffered by employees while commuting 	3-3.1 Identifying the impact of physical risks on operational risk	3-3 Operational risk management
3	Assets of businesses invested in/financed damaged	Medium-term	Financing business Investment business	Credit risk Market risk	<ul style="list-style-type: none"> Depreciation of collateral and reduced liquidity due to falling housing prices in the region where the collateral is located Decline in investment profits due to disruption of operations at invested entities Risk of default caused by difficulty in repaying loans amid disruption of operations at financed entities 	3-4.3 Identifying the impact of physical risks on credit risk	3-4 Investment and financing risk management

3-2 Climate-related risks are integrated into the standard risk assessment framework

Climate change has become one of the risks to which all sectors have paid increasing attention in recent years. The Bank plans to incorporate climate risk into the Integrated Risk Management Policy and establish the Climate Risk Management Policy in accordance with the Guidelines on Climate-related Financial Disclosures by Domestic Banks promulgated by the FSC and the Chang Hwa Commercial Bank, Ltd. Sustainable Development Policy to establish a complete climate risk management procedure, accurately identify and assess climate-related risks and opportunities, and reinforce management of climate risks.




Although we intend to classify climate risks as independent risks under the Bank's risk structure, they are inseparable from existing risks. The definitions of traditional risks related to climate risk is as shown in Table 9. Table 10 shows how each type of traditional risk is affected by physical and transition climate-related risks.

Table 9. Definitions of traditional risks

Risk	Definition
 Credit risk	This refers to the risk of losses caused by the failure of the borrower or counterparty to perform their contractual obligations due to the deterioration of their financial structure or the impact of other objective or subjective factors, including country risk, corporate credit risk, personal credit risk, or financial counterparty's credit risk.
 Market risk	Potential losses on positions on and off the balance sheet due to unfavorable changes in market prices; market prices refer to interest rates, stock prices, exchange rates, and commodity prices.
 Operational risk	Operational risk refers to the risk of loss for the Bank arising from inappropriateness or errors in the Bank's internal operations, personnel, or systems, or external events, including legal risks but excluding strategic risks and reputation risks.
 Other risks	This refers to the material risks that can affect the Bank in addition to the above risks, including but not limited to strategic risks and reputation risks. Although such risks are not easy to quantify, we should develop appropriate management procedures to reduce the risk of potential losses.



Table 10. Links between climate risks and traditional risks

Risk	Physical risk	Transition risk
 Credit risk	Physical risks can cause direct damage to our clients' physical assets (plants, equipment, or operating sites) or indirectly affect their existing business models and value chains, thereby increasing their default rates.	Industries with high climate risk may witness increasing operating costs due to their failure to comply with emerging climate-related regulations, and they may even have stranded assets or impaired assets. Our clients may also fail to meet financial goals due to failure to implement climate-related countermeasures as early as possible, thereby affecting their credit quality.
 Market risk	Severe weather events may affect a company's profitability, which in turn affects its market and stock value.	If a client's products become stranded assets, this may cause drastic changes in the market values of the products or financial instruments.
 Operational risk	Severe weather events may affect the Bank's operating sites and daily operations.	—
 Other risks	—	If the Bank fails to comply with emerging climate-related regulations, it may be sanctioned or be involved in legal proceedings, which would affect our reputation and lead to increased reputation risk.

Through scenario analysis and stress testing, we further examined the potential impact of climate risks on the Bank's traditional risks. Please refer to "3-3.1 Identifying the impact of physical risks on operational risk" and "3-4.3 Identifying the impact of physical risks on credit risk" for detailed analysis results of physical risks, and to "3-4.2 Identifying the impact of transition risks on credit risk" for detailed analysis results of transition risks.

The Bank has examined climate risks related to our operations and business activities and effectively implemented risk management through the “three lines of defense” under the risk management framework. The main responsible units and duties of the three lines of defense are as follows:

Figure 5. The three lines of defense of the risk management framework



3-3 Operational risk management

To strengthen the response of all units in the Bank to major climate-related disasters, we have formulated the Chang Hwa Bank Business Continuity Plan (BCP) to maintain normal business operations when a business interruption incident occurs, protecting our clients' rights and interests and minimizing our financial damage. The details include the chapter “Disaster Prevention and Response Measures.” If the computerised accounting system cannot be repaired in time or the business premises cannot be used due to the occurrence of a climate-related disaster, relevant units also have their response plans for notification and response to avoid business interruption caused by the disaster.

When a business interruption incident occurs, the relevant business management units should review the cause and the process of the incident, put forth improvement measures or issues to be noted within the scope of their duties, and report the handling and improvement status to the management level. The Risk Management Division shall follow up on relevant business management units' improvement plans and the business units shall report to the Risk Management Committee depending on the situation. The Risk Management Committee will also compile a quarterly Risk Management Report and submit it to the Board of Directors.

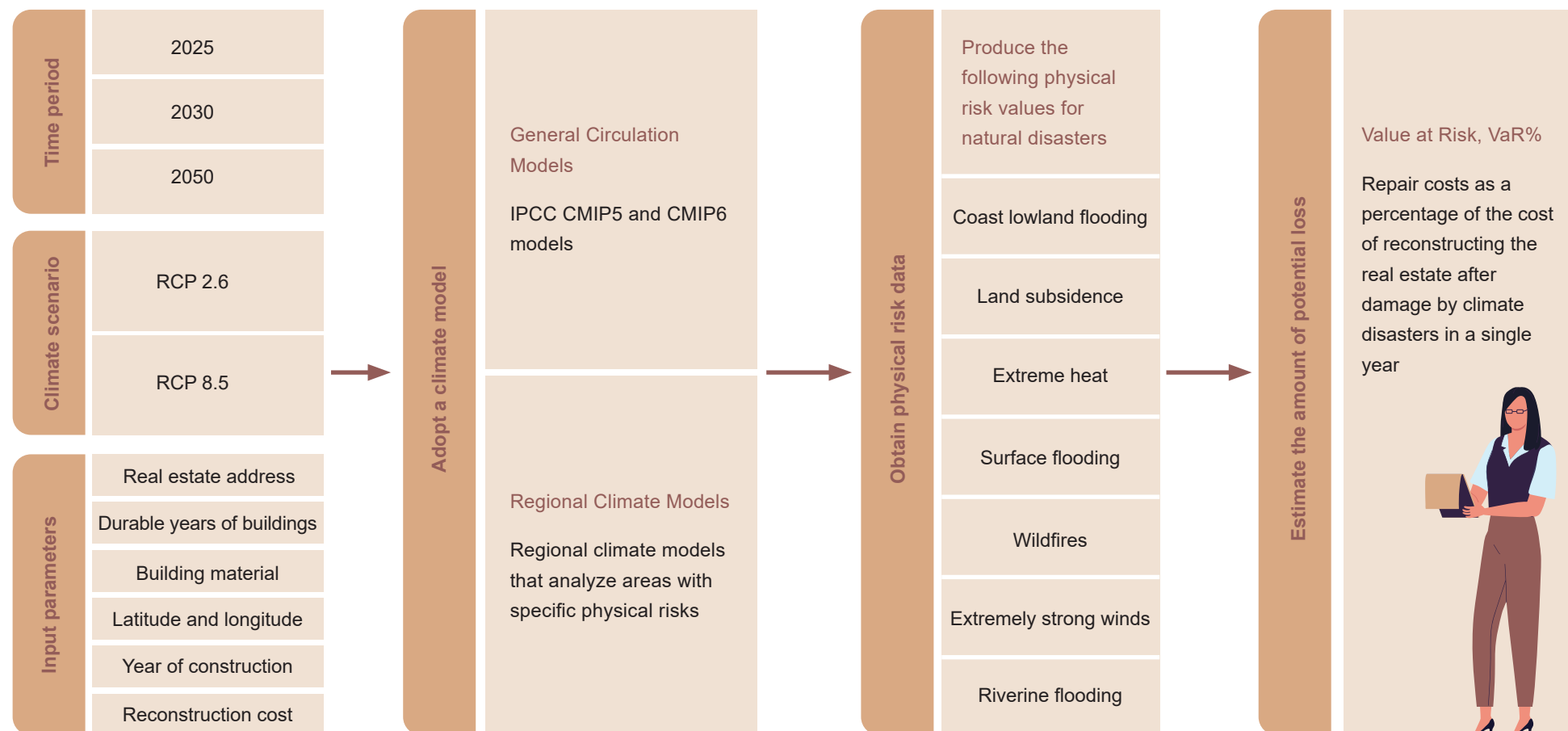
In addition, the General Affairs Division draws up a disaster prevention education and training plan and supervises all units in the Bank in carrying out disaster prevention education and training and exercises regularly each year; the business units perform safety maintenance tasks and carry out regular safety inspections as per the safety maintenance inspection report form formulated by the Bank, improving any defects discovered.

1. Identifying the impact of physical risks on operational risk

Physical risks refer to the potential for serious damage to assets caused by extreme weather events, which in turn affects the Bank's daily operations and exacerbates traditional financial industry risks. For example, extreme weather events interrupt operations, which is regarded as an increase in operational risk.

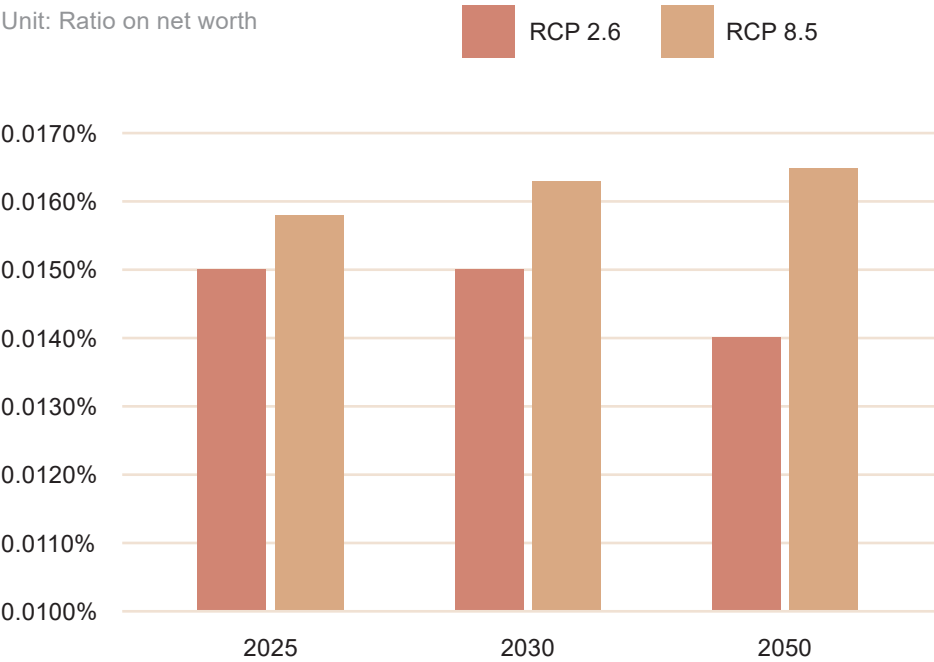


Figure 6. Physical risk scenario analysis process



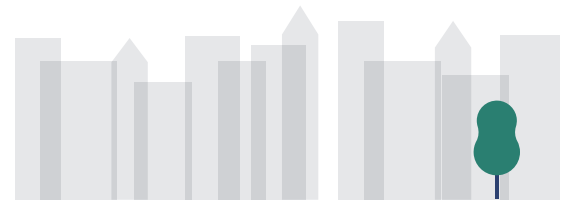
To accurately keep abreast of the impact of physical risks on our operating sites and various business activities, the Bank has specifically assessed the probability of flooding and simulated the depth of flooding as per the Taiwan-wide Disaster Risk Map published on the Disaster Risk Adaptation platform of the National Science and Technology Center for Disaster Reduction (NCDR) in 2020, to estimate the impact of our operating sites and borrowers' real estate collateral (please refer to "3-4.3 Identifying the impact of physical risks on credit risk" for the analysis results related to real estate collateral). To improve the risk identification scale, hazard type, and the amount of loss caused by hazards this year, we adopted the climate risk analysis database recognized by the United Nations Environment Programme Finance Initiative (UNEP FI) to regularly examine and monitor the changes of exposures in areas with high physical risks.

Figure 7. Financial impacts of the Bank’s operating sites



Notes: The number of operating sites and asset values are accurate to the data as of December 31, 2021.

The main source of the Bank's revenue is banking-related business, so we pay close attention to our operating sites in Taiwan. If a site is flooded, its assets and equipment may be soaked in water and unable to be repaired, requiring discarding and replacement. It may even be closed for several days for renovation. What's worse, the price of the real estate may fall, causing a loss in the values of our real estate assets. We assessed the impact on the Bank's operations in Taiwan this year, and the analysis results show that asset impairment is the most severe under the RCP8.5 scenario in 2050, with an impact of about 0.016% of net worth.



3-4 Investment and financing risk management

In addition to our daily operations, the potential impact of climate change on the businesses invested in and financed by the Bank should not be underestimated. To enact more rigorous controls on industries with high climate risks, the Bank has launched relevant management measures and operating procedures to lower the limit on loans for carbon-intensive industries, monitor the climate risks of borrowers in carbon-intensive industries, and assess the impact of transition risks on borrowers' credit risk based on carbon fee collection scenarios to mitigate the climate-related risks that the Bank may face. In addition to examining the financial impact of climate risks on the Bank's business, we calculated the carbon emissions that the Bank needed to amortize for our investment in and financing of businesses with reference to the methodology published by the Partnership for Carbon Accounting Financials (PCAF), and we plan to submit the carbon reduction targets for our investment and financing portfolio to SBTi in two years, thereby fulfilling our critical obligations in the financial industry during the transition to a low-carbon economy.

1. Establishment of a list of carbon-intensive industries

To keep abreast of the potential impact of climate change issues on the Bank, the Board of Directors approved the list of carbon-intensive industries in 2022. This list was formulated based on the existing carbon-intensive industries with reference to the most polluting industries in the European Union's Carbon Border Adjustment Mechanism and the carbon-intensive industries as defined by the Sustainability Accounting Standards Board (SASB). The Bank's list of carbon-intensive industries is as follows:

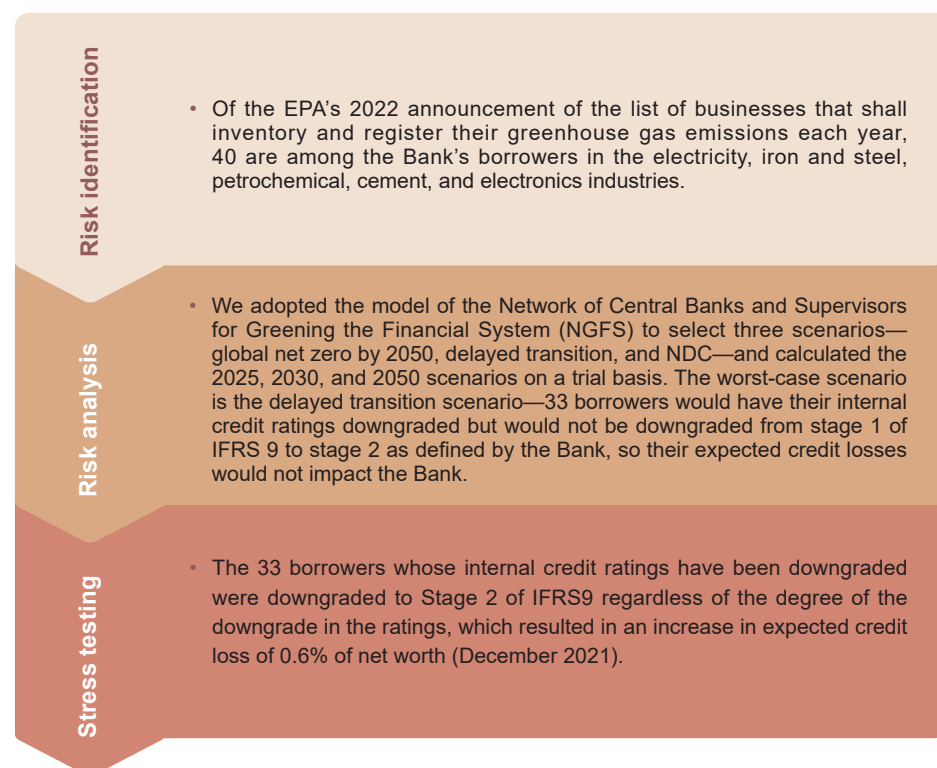
Table 11. The Bank's list of carbon-intensive industries

Industry	
Manufacture of Chemical Material	Manufacture of Pulp
Extraction of Crude Petroleum and Natural Gas	Manufacture of Paper
Manufacture of Cement	Air Transport
Manufacture of Petroleum and Coal Products	Electricity Supply
Quarrying of Stone, Sand and Other Mining	Smelting and Refining of Iron and Steel
Manufacture of Paperboard	Smelting and Refining of Aluminum
Manufacture of Clay Building Materials	Casting of Aluminum

2. Identifying the impact of transition risks on credit risk

Since 2015, the EPA has published a list of companies that should inventory and register their greenhouse gas emissions per year, including the electricity, iron and steel, cement, semiconductor, thin film transistor liquid crystal display, and petroleum refining industries, as well as those whose annual emissions of greenhouse gases from fossil fuel combustion exceed 25,000 metric tons of CO₂e, are considered large GHG emitters and must disclose their greenhouse gas emissions for the prior year on the EPA's platform each year. Taiwan's Greenhouse Gas Reduction and Management Act is currently in the amendment stage. It is expected to impose carbon fees on large GHG emitters, and the companies included in the control list may be required to pay the fees first. If the Bank's borrowers are listed as large GHG emitters, they may have cash outflows due to the payment of carbon fees, which will affect their financial position. Therefore, we adopted an internal risk model to evaluate their credit downgrades to stay on top of our expected credit losses caused by increasing credit risks of borrowers. The evaluation process and evaluation results are as follows:

Figure 8. Calculation results of the carbon fee scenario with the internal model



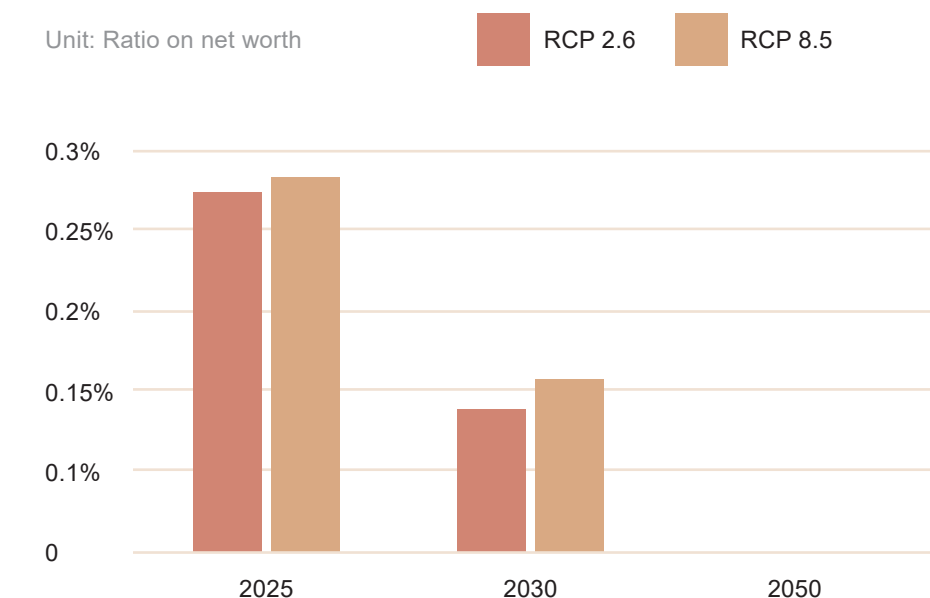
Year / Scenario	2025			2030			2050				
	Down 1 grade	Down 2 grades	Down 3 grades	Down 1 grade	Down 2 grades	Down 3 grades	Down 1 grade	Down 2 grades	Down 3 grades	Down 4 grades	Down 5 grades
Nationally Determined Contributions	16	5	3	11	4	1	12	3	2	-	-
Delayed transition	-	-	-	-	-	-	14	7	9	2	1
Net zero by 2050	6	-	1	5	1	1	17	4	6	3	-

Note: Scenarios are: NDCs, Delayed transition, and Net Zero by 2050.

3. Identifying the impact of physical risks on credit risk

Physical risks refer to the serious damage to assets caused by extreme weather events, leading to macroeconomic instability which in turn affects various businesses undertaken by the Bank in daily operations and exacerbates traditional financial industry risks. For example, extreme weather events interrupt borrowers' operations, resulting in their facing difficulty in repayment and accordingly in the Bank's default risk increasing.

Figure 9. Results of financial impact on real estate collateral



Note: The values of collateral are based on the data related to the collateral as at December 31, 2021.

More than 71% of the Bank's net income for 2021 came from interest. The sources of deposits and loans and changes in interest rate spread are critical to our net income, and therefore, we pay close attention to the impact of climate change on borrowers, most of which provided real estate as collateral. When the collateral is located in areas at a high risk of climate disasters, the value of such assets will fall, which may increase the probability of default. We adopted the climate risk analysis database recommended by the UNEP FI to evaluate the VaR in 2025, 2030, and 2050 of the regions where the collateral we hold is located and calculated how much the value of collateral assets might be impaired in the event of extreme weather events, such as typhoons or floods. We examined the areas where the top 150 collateral assets were located in 2021 in terms of appraised values to learn about how much such assets would be impaired.

In this year's assessment of the impact caused by the Bank's top 150 collateral assets in Taiwan in terms of appraised values, as there are a total of 38 borrowers whose loan periods exceed 2030, while none exceed 2050, the impact of their potential asset impairment decreases over time as per the results, and no data was available for 2050. Such assets would be most impaired in the RCP8.5 scenario in 2025, with an impairment of about 0.28% of net worth.

As per the real estate collateral analysis results, there was no collateral with medium- or high-risk in the 2025, 2030, and 2050 scenarios. The Bank currently avoids taking collateral that is vulnerable to natural disasters (such as winds, floods, or droughts) and requires regular (at least once per year) inspection of its use. In the future, we plan to put those located in physical areas with a medium- or high-risk on a watchlist and check with borrowers whether they have flood control measures in place, to enhance the resilience to withstand the impact of flooding. To prevent this potential risk, we will include the flooding likelihood for areas where collateral is located among the appraisal considerations in the future

4. Incorporation of climate risk monitoring into the credit process

To actively mitigate potential climate-related risks, the Bank has incorporated climate factors into our business procedures and will monitor the climate risks of borrowers who are on the EPA's control list and the Bank's list of carbon-intensive industries. We will check if borrowers participate in international advocacy initiatives and request them to provide information on greenhouse gas emissions to establish a database, thereby facilitating our review of and follow-up on the reduction of their carbon emissions. If borrowers do not participate in any advocacy initiatives and do not submit emissions information, our credit unit shall engage with them based on the attributes of their industries and require them to disclose carbon emission information in the future, while also encouraging them to participate in advocacy initiatives.

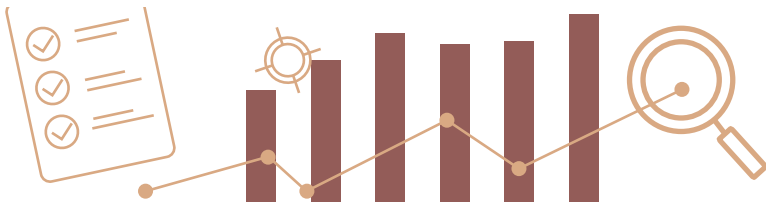
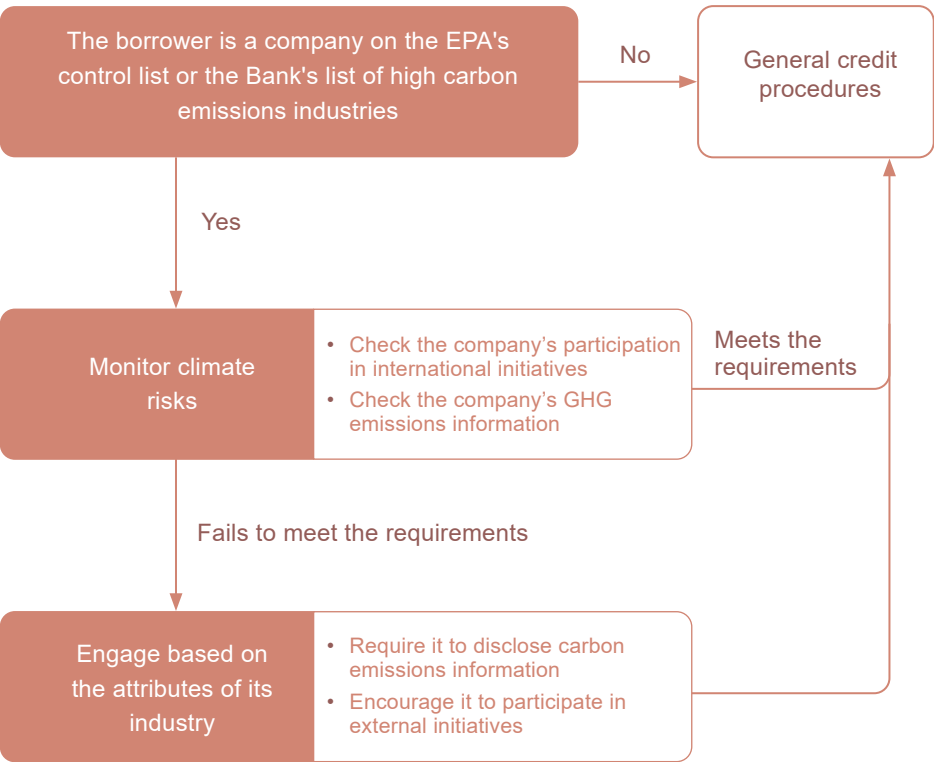


Figure 10. Flow chart of climate risk monitoring in the credit process



5. Carbon reduction plan for investment and financing portfolio

The Bank monitored the climate risks of those with high climate risks, simulated the carbon fee scenario, and examined the exposures of carbon assets in our investment and financing positions and the carbon emissions from our investment and financing portfolio to manage the climate risks of that portfolio. We signed up to the SBTi in 2022 and are committed to submitting the Bank's greenhouse gas emissions reduction target in two years. At present, relevant units are actively working on setting reduction targets corresponding to our key asset categories and will establish specific carbon reduction implementation guidelines based on the targets in the future to keep up with international trends and respond to the carbon reduction targets of the Paris Agreement.

4 Climate impact management

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4-1 Identified climate opportunities

Climate change not only brings risks but also business opportunities. The Bank continues to increase investment in sustainable development bonds and supports the government's green energy industry policies by launching a number of green loans, such as Solar Power Facility Installation Project Loan, to expand our business scope while providing various online services and transactions as shown in the table below:

Table 12. Green Procurement Performance in 2021

Type	Opportunity	Opportunity event	Description
<div>Resource efficiency</div>	Switch to more efficient buildings	Green buildings	The use of green building materials and renewable energy in our buildings or branches reduces operating costs and achieves environmental benefits.
	Development of climate adaptation solutions	Signing of the Equator Principles	In response to the domestic trend toward sustainable development, we have effectively integrated our core business, fulfilled our corporate social responsibility, signed up to the Equator Principles, included ESG factors in the review process, and established a more systematic and comprehensive financing and credit project system. We have done this while controlling social and environmental risks to increase the positive effect of financial institutions on society and increase opportunities to participate in domestic and overseas infrastructure syndicated loan cases.
<div>Products and services</div>	Development and/or creation of low-carbon goods and services	Digital financial services	The Bank has developed and provided more digital financial services and increased the usage rate of e-services, such as online banking, mobile payment, and online order placement/insurance transactions, to reduce the consumption of energy/resources, such as paper, electricity, and water, in the process of operations, while also making it so that clients do not need to travel to and from the Bank. As such, these efforts help reduce operating costs and enable us to develop new customers.
	R&D and innovation of new products and services	Green loans	The market demand for renewable energy is increasing and willingness to invest in green industries is gradually rising. The government is also actively encouraging financial institutions to grant loans to green energy industries. The financial industry is seizing the opportunity to expand the scope and the amount of the green loan business and increase relevant business income.
		Development of green financial products	With the increasing emphasis on carbon reduction in the international community, consumers are gradually coming on board with the concept of sustainability. Many financial institutions have launched a number of green products, such as green credit cards and ESG funds, and through the Green Finance Action Plan 2.0 announced by the FSC in 2020, financial institutions are being continuously encouraged to assist enterprises in issuing green bonds. With the support of policies and enterprises' needs, financial institutions can seize the opportunity to expand relevant businesses and increase business income.

Type	Opportunity	Opportunity event	Description
<div>Market</div>	Development of climate adaptation solutions	Engagements about loan services with clients	With green finance becoming an international trend, the market has adopted negative lists for other non-green industries to raise the threshold for loans or decline business transactions. If the Bank can play a role of communicating ESG issues with clients to assist and guide them in low-carbon transition and help them improve their operational strategies through loans, we will create eco-friendly and stable relations with our existing clients and enhance our corporate image.
	Changes in consumer preferences	Implementation of sustainability business and participation in sustainability evaluations	International investment institutions now regard ESG as one method for selecting investment targets. The Bank actively participates in sustainability-related evaluations and has achieved outstanding performance, such as being rated as management level by the CDP and selected for the FTSE4Good TIP Taiwan ESG Index and the FTSE4Good Emerging Index. Therefore, when the media report on this positively, our overall corporate image will be enhanced and the Bank will be favored by international investment institutions.
	Entry into new markets	Increase in green investments	The Bank keeps abreast of opportunities created by climate change, develops a variety of investment opportunities, and makes thematic investments in ESG-related financial products to ensure that our investment positions are resilient to climate change risks while increasing green income and creating green business opportunities.
<div>Resilience</div>	Participation in renewable energy programs and improvement to energy efficiency	Green Procurement	Most financial institutions use offices as their main operating environment, and the Bank prioritizes purchases of equipment with environmental and energy labels to improve energy efficiency and effectively reduce the costs of energy consumed in operations.
		Use of renewable energy	Branch operating sites are equipped with solar power facilities to increase the use of renewable energy, reduce operating costs, and achieve environmental benefits.

As per the results of this questionnaire, we identified three major climate change opportunities, and the opportunity events and impacts are specified in the table below:

Table 13. Degree of impact of major climate opportunities this year and response measures

Rank	Opportunity	Time range	Scope of impact	Operational impact	Financial impact	Corresponding response
1	Digital financial services	Short-term	Own operations	<ul style="list-style-type: none"> Optimize and develop more digital financial products and services 	Revenue from digital financial channels in 2021 grew by 15.92% compared to 2020. For more details on other relevant indicators and performance in this regard, please refer to "2.3 Innovation and Inclusion of Digital Finance" in the Bank's 2021 ESG Report.	2021 ESG Report 2.3 Innovation and Inclusion of Digital Finance
2	Green loans	Short-term	Financing business	<ul style="list-style-type: none"> Expand the scope and the amount of green loans 	4-3.2 Assistance with the development of green industries	4-3. Green investing and financing
3	Development of green financial products	Short-term	Financing business	<ul style="list-style-type: none"> Develop a multitude of green products such as green credit cards and ESG funds, and assist companies in issuing green bonds 	4-3.1 ESG-related wealth management and insurance products	4-3. Green investing and financing

4-2 Green operations

1. Reduction of GHG emissions

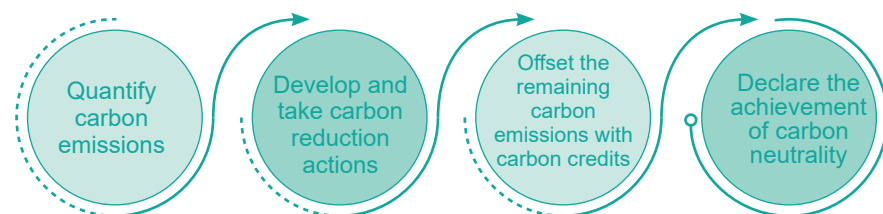
The Bank is implementing various environmental policies, such as resource and energy conservation measures and greenhouse gas emission reduction strategies, along with voluntarily adopting various international management systems, such as the Environmental Management System (ISO 14001), Energy Management System (ISO 50001), Water Efficiency Management System (ISO 46001), and Greenhouse gases inventory (ISO 14064-1), to achieve the goal of reducing carbon dioxide emissions. In response to climate change and the national greenhouse gas reduction policy, we have chosen 2020 as the base year and, with the goal of limiting global warming to below 1.5°C, set the Bank's carbon reduction target as a 42% decrease of Category 1 and 2 greenhouse gas emissions by 2030 from the 2020 level.

To reduce carbon emissions, we analyzed the sources of Category 1 and 2 carbon emissions during the base year (2020). Among them, electricity consumption accounted for 87% and was the main source of our carbon emissions, followed by fuel for company vehicles, accounting for about 8.9%, and other carbon emissions from natural gas, gas, refrigerant, or fire extinguishers accounting for about 4.1%. Therefore, the effective management of the Bank's energy, fossil fuels, natural gas, and gas will reduce bank-wide carbon emissions. In addition, to pursue the goal of sustainable environmental development, water resources are included in management, and we have also set a target of reducing ESG-related indicators by 1% or more from the base-year level.

2. Pursuit of carbon neutral branches

The accomplishment of net-zero carbon emissions by 2050 has become an international trend. To set out a pathway to net-zero in advance, the Bank has set as its short-term goal the achievement of carbon neutral branches. As per the PAS 2060: 2014 Specification for the demonstration of carbon neutrality, to achieve carbon neutrality, the following steps must be followed:

Figure 11. Steps to achieve carbon neutrality



As per the ISO 14064-1: 2018 standard, we conducted inventory of the greenhouse gas emissions of 188 locations across Taiwan and selected Changhwa Branch as our first carbon-neutral demonstration branch. The branch has successfully reduced carbon emissions by 26.7% by taking carbon reduction actions such as replacement of outdated air conditioners and lights, offsetting Category 1 to 5 carbon emissions with the purchase of Gold Standard carbon credits. On July 18, 2022, it was verified and approved by the British Standards Institution (BSI) based on the PAS 2060 and was officially announced as the Bank's first carbon neutral branch.

3. Use of renewable energy

In response to calls for renewable energy usage, we purchased green power between 2016 and 2017, until Taiwan Power Company stopped issuing green power certificates in 2018. After this, we switched to renewable energy certificates, purchasing a total of 312 RECs between 2018 and 2021. In 2022, we signed a contract with an electricity supplier, and we estimate that the Bank's Taipei Building will be powered by green power generated by the Pingtung County Solar Power Plant in Q4. We plan to use a total of 600,000 kWh of green power from 2022 through 2026.

4. Value chain management and green procurement

The Bank has long adopted a policy of facilitating local economic development through local procurement. As the Bank's main operating sites are all based in Taiwan, we work with local partners in Taiwan first for all our procurement cases to ensure stable and localized supply chains and increase local job opportunities. In addition, to promote the concept of sustainable development with our partners, we formulated the Supplier Corporate Social Responsibility Regulations, requiring suppliers with single transaction amounts of NT\$900,000 or more to sign a statement of compliance with the regulations. In 2021, 100% of such suppliers signed statements. In 2021, we formulated the Sustainable Procurement Policy to reduce procurement risks and increase innovation opportunities to achieve the purpose of sustainable supply chain management, while passing the ISO 20400: 2017 audit with a declaration of conformity issued.

To demonstrate our emphasis on environmental protection, the Bank prioritizes the purchase of eco-friendly products with environmental labels, carbon footprint label, energy label, water efficiency label, green building material labels, FSC certified labels, etc., to reduce environmental impact. The Bank's annual green procurement amount reached NT\$24.91 million in 2021 and has been awarded a certificate of appreciation for our excellent performance in the participation in Private Enterprise and Organization Green Procurement Program by the Department of Environmental Protection, Taipei City Government, for four consecutive years.

Figure 12. Green Procurement Performance in 2021



4-3 Green investing and financing


The Bank actively seeks potential green finance development opportunities, creates green value in the financial industry through eco-friendly financial measures, facilitates the development of a green economy, and guides clients to put into practice green consumption and lifestyle concepts. We pay attention to the development of green finance and innovative finance, protect financial consumers' rights and interest, treat financial consumers fairly and reasonably, provide high-quality financial services, facilitate inclusive finance, and ensure the integrity, transparency, and security of the information on our products and services.

1. ESG-related wealth management and insurance products

To facilitate the sustainable development of society, we refer to the environmental, social, and governance aspects specified in product brochures or by investment management institutions and actively launch products with ESG factors incorporated into the investment scope or the decision-making process, enabling investors' funds to create positive benefits for sustainable development. The investment insurance policies refer to investment insurance products linked to ESG accounts.

Table 14. ESG-related wealth management and insurance products

Unit: NT\$



Product	ESG-related product volume	Overall product volume	ESG-related product ratio
Onshore and Offshore Fund	6,613,665,800	100,861,088,849	6.56%
Offshore Bond	2,428,760,494	2,436,555,590	99.68%
ETF	247,811,353	1,468,411,809	16.88%
Investment Linked Product	4,235,973,125	8,370,262,105	50.61%
Total Amount	13,526,210,772	113,136,318,353	11.96%

2. Assistance with the development of green industries

1

Financing for the green technology industry

To work with the government to facilitate the development of our country's green energy technology industry and boost the momentum of industrial innovation and growth, the Bank assists the green energy technology industry endorsed by competent authorities in participating in procurement projects for the Forward-Looking Infrastructure Development Program or by providing the capital and working capital needed to engage in the green energy technology industry.

2

Financing for the renewable energy power generation industry

In cooperation with the government's nuclear-free homeland and renewable energy policies, we actively assist the renewable energy power generation industry in obtaining funds for operation. Clients who have obtained an approval letter for renewable energy power generation equipment or a registration letter for renewable energy power generation equipment issued by the Energy Bureau, Ministry of Economic Affairs, may apply for relevant loans. Among the various types of renewable energy, solar power generation is particularly well-developed, and the Bank provides loans to enterprises for the installation of solar power equipment and the public for the purchase of such equipment.

Table 15. Financing for the green industry and the renewable energy power generation industry over the past three years

Unit: NT\$ million; account

Item	At the end of 2019		At the end of 2020		At the end of 2021	
	Balance of loan	Number of loan account	Balance of loan	Number of loan account	Balance of loan	Number of loan account
Financing for the green technology industry	91,474	1,162	70,241	1,285	79,322	1,543
Financing for the renewable power generation industry	3,076	115	3,017	133	3,444	160

3 Low-Carbon and Sustainable Homeland Program — Replacement of aging large diesel vehicles

In alignment with the EPA's Low-Carbon and Sustainable Homeland Program, we provide loans for the replacement of aging large diesel vehicles. As of 2021, the balance of such loans amounted to NT\$119 million with six accounts (13 loans).



4

Financing for the offshore wind power industry

In alignment with the government's policies to achieve the reduction of carbon emissions and enhancement of independent energy generation capability, we spare no efforts in facilitating the development of renewable energy, including the offshore wind power generation industry, actively assisting that industry in obtaining funds for development, purchase of equipment, and official operations. Data on loans we have provided over the past three years to businesses that meet the criteria under the Offshore Wind Power Generation Planned Site Capacity Allocation Guidelines and have obtained qualification for wind farm development through the Ministry of Economic Affairs' selection and bidding mechanism is as follows:

Table 16. Financing for the offshore wind power generation industry over the past three years

Unit: NT\$ million; account

Item	At the end of 2019		At the end of 2020		At the end of 2021	
	Amount approved	Number of accounts	Amount approved	Number of accounts	Amount approved	Number of accounts
Financing for the offshore wind power industry	1,757	2	726	1	2,189	1

5

Credit limit adjustment

In line with the competent authority's Six Core Strategic Industries Implementation Program and the Bank's Green Enterprise Loan Project, we assist enterprises participating in the program or engaging in green production and services in obtaining financing. As approved by the 23rd meeting of the 26th Board of Directors on February 22, 2022, the credit limit for green energy technology businesses endorsed by the competent authorities and engaging in green production will be raised by 1%. Moreover, we are making good use of our influence as a financial institution to jointly protect the natural environment by lowering the percentages to 90% of the limit to the sum of total loan and investment.

5 Climate metrics and targets

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5-4 Investment and financed portfolio emissions	37




In 2022, Taiwan's National Development Council published the general guidelines on Taiwan's Pathway to Net-Zero Emissions in 2050 and Strategy, putting forth a blueprint for Taiwan to achieve net zero emissions by 2050. The Bank will proactively cooperate with the national policies and guide the flow of funds to green and sustainable development industries, with a view to establishing a more complete green financial system.

We will also set short-, medium-, and long-term targets and disclose our climate change management performance to facilitate the transition to a low-carbon economy. We signed up to the SBTi in 2022 and committed to aligning the Bank's business development strategies with the goals of the Paris Agreement (to limit global warming to 1.5°C); we will gradually set carbon reduction targets for our operating, investing, and financing activities in the future.

The following are the short-, medium-, and long-term metrics and targets we set:



Table 17. Targets


Type	Targets	Base year/ Category	Short-term targets	Achievement during 2021	Medium- and long-term targets	Action plans for future strategies	Corresponding chapters of management measures
 Operations	Greenhouse gas emissions	Category 1 and 2 during 2020	<ul style="list-style-type: none"> Reduced carbon emissions by an average of 4.2% per year 	<ul style="list-style-type: none"> Followed energy-saving and carbon reduction measures; assisted branches in replacing outdated lightings, reducing carbon emissions by about 24,967 kgCO₂e; adopted LED energy-efficient lights at newly leased or relocated business premises, reducing carbon emissions by about 23,554 kgCO₂e; replaced outdated air conditioners in the Taipei Building (head office), reducing carbon emissions by about 7,065 kgCO₂e; reduced carbon emissions by a total of 55,586 kgCO₂e Greenhouse gas emissions during 2021 were 16,361.208 tons of CO₂e, a decrease of 4.65% compared to 2020 	<p>Long-term target:</p> <ul style="list-style-type: none"> Signed up to the SBTi to aim to limit global warming to 1.5°C and set the Bank's carbon reduction targets for a 42% decrease of Category 1 and 2 emissions by 2030 from the 2020 level. 	<ul style="list-style-type: none"> Continue to implement the verification of international standards for environmental sustainability Record information on the use of various resources (water, electricity, fuel oils, and natural gas) each year; take timely and effective corrective measures to alleviate the impact on the environment when there is any non-compliance or anomaly based on the requirements of environmental management; regularly follow up on the improvement goals and management plans listed in the environmental impact identification and evaluation. In addition, conduct greenhouse gas emissions inventory each year to check the reduction and increase management measures. 	<p>ESG Report:</p> <ul style="list-style-type: none"> 3.2.1 Greenhouse gas inventory 3.2.2 Energy use management <p>TCFD report:</p> <ul style="list-style-type: none"> 4-2. Green operation 5-1. Greenhouse gas emissions management 5-2. Energy and resources and water resources management
	Environmental sustainability indicators (including electricity consumption and water consumption)	2020	<ul style="list-style-type: none"> Various environmental indicators decreased by 1% or more compared with the prior year 	<ul style="list-style-type: none"> Electricity consumption decreased by 2.09% compared with 2020. Water consumption decreased by 1.93% compared with 2020. 	<p>Medium- and long-term targets:</p> <p>Various environmental indicators are reduced by 10% or more compared with the base year</p>		
	Renewable energy certificates (RECs)	2020	<ul style="list-style-type: none"> Estimated to use 100,000 kWh of green electricity and obtain 100 RECs during 2022. 	<ul style="list-style-type: none"> The Bank purchased 90 RECs during 2021, an increase of 12.5% compared with 2020 	<p>Medium- and long-term targets:</p> <ul style="list-style-type: none"> Estimated to use 110,000 kWh of green electricity and obtain 110 RECs during 2023 Estimated to use 120,000 kWh of green electricity and obtain 120 RECs during 2024 Estimated to use 130,000 kWh of green electricity and obtain 130 RECs during 2025 Estimated to use 140,000 kWh of green electricity and obtain 140 RECs during 2026 	<ul style="list-style-type: none"> Taiwan Power Company stopped issuing green electricity certificates in 2018, so the Bank has switched to purchasing RECs, purchasing a total of 90,000 kWh (about 45,180 kgCO₂e of carbon emissions) worth, and will increase the purchase of RECs for green electricity or establish renewable energy generation facilities in the future. 	<p>ESG Report:</p> <ul style="list-style-type: none"> 3.2.4 Support of the development of renewable energy <p>TCFD Report:</p> <ul style="list-style-type: none"> 4-2. Green operations

Type	Targets	Base year/ Category	Short-term targets	Achievement during 2021	Medium- and long-term targets	Action plans for future strategies	Corresponding chapters of management measures
Investment and financing portfolio	The Bank plans to submit the carbon emission reduction targets for our investment and financing portfolio to the SBTi in two years.					<p>We have completed the calculation of the carbon emissions from our investment and financing portfolio in 2022 as per the PCAF methodology. At present, relevant units are actively studying and setting corresponding reduction targets for the Bank's key asset categories. In the future, we will formulate specific carbon reduction guidelines based on such targets, to gradually achieve the carbon reduction targets set by the Bank.</p>	<p>TCFD report:</p> <ul style="list-style-type: none"> 3-4. Investment and financing risk management

Table 18. Metrics

Type	Metrics	Description	Unit	2019	2020	2021	Action plan
Operations	Greenhouse gas emissions	Category 1 and 2 greenhouse gas emissions	Tons of CO ₂ e	17,580.1	17,158.3	16,361.2	<ul style="list-style-type: none"> Regularly conduct an inventory of the greenhouse gas emissions each year to check the reduction and increase management measures
	Electricity consumption	The Bank has adopted the ISO 50001 Energy Management System and taken electricity consumption as an indicator to review our energy resource management.	kWh	29,424,689	29,326,120	28,711,779	<ul style="list-style-type: none"> Manage the use of lights to reduce unnecessary lighting power consumption. Replace outdated lightings with energy-efficient LED ones to reduce lighting power consumption. Replace outdated and energy-consuming air-conditioners and regularly clean and maintain them to improve energy efficiency. Control the indoor temperature of the office between 26°C and 28°C to reduce the load on the air-conditioners. Raise the temperature of water chillers and the water from the chillers to 8°C-10°C during the non-summer period, when the load is low, to effectively improve their operating efficiency. Encourage employees to take the stairs more frequently, which is also conducive to health. Have only a few elevators in operation at a time during non-working hours to reduce power consumption.

Type	Metrics	Description	Unit	2019	2020	2021	Action plan
 Operations	Water Consumption	The Bank has adopted the ISO 46001 Water Efficiency Management System and taken water consumption as an indicator to review our energy resource management.	m ³	159,884	163,944	160,777	<ul style="list-style-type: none"> Incorporate water into management to improve the efficiency of water resources management and control. Install water-saving devices on all faucets to adjust water flows. Regularly clean the building's water tower and test water quality. Commission an inspection and testing agency endorsed by the EPA to sample and test the water quality of drinking water dispensers every three months to ensure water quality and safety.
	Green Procurement	Amount of green procurement	NT\$ million	20.39	30.98	24.91	<ul style="list-style-type: none"> To demonstrate our commitment to environmental protection, we give priority to purchasing eco-friendly products environmental labels, carbon footprint label, energy label, water efficiency label, green building material labels or FSC certified labels, etc., to reduce environmental impact. The Bank's 2021 green procurement amounted to NT\$24.91 million and has been awarded a certificate of appreciation for our excellent performance in our participation in the Private Enterprise and Organization Green Procurement Program by the Department of Environmental Protection, Taipei City Government, for four consecutive years.
 Investment and financing	Green loans	Offshore wind power industry loans approved	NT\$ million	1,757	726	2,189	<ul style="list-style-type: none"> To be aligned with the government policies on reducing carbon emissions and achieving energy independence, as well as facilitate the development of the renewable energy and the offshore wind power industries, the Bank actively assists the offshore wind power industry in obtaining the funds required for development, equipment purchase, and business operation. Businesses that meet the criteria of the Offshore Wind Power Generation Planned Site Capacity Allocation Guidelines and have obtained qualification for wind farm development through a selection and bidding mechanism of the Ministry of Economic Affairs.
		Balance of loans to the green energy technology industry	NT\$ million	91,474	70,241	79,322	<ul style="list-style-type: none"> To jointly facilitate the development of Taiwan's green energy technology industry with the government and increase the momentum of innovation and growth in the industry, the Bank assists green energy technology businesses endorsed by the competent authority in participating in procurement projects for the Forward-Looking Infrastructure Program or provides the capital and working capital needed to engage in the green energy technology industry.
		Balance of loans to the renewable energy generation industry	NT\$ million	3,076	3,017	3,444	<ul style="list-style-type: none"> In cooperation with the government's nuclear-free homeland and renewable energy policies, we actively assist the renewable energy power generation industries in obtaining funds for operation. Clients who have obtained an approval letter for renewable energy power generation equipment or registration letter for renewable energy power generation equipment issued by the Energy Bureau, Ministry of Economic Affairs, may apply for relevant loans. Solar power generation is particularly well-developed among the types of renewable energy. The Bank provides loans for the installation of solar power facilities to enterprises and the public for the purchase of solar power facilities.
	Green industry investment	Balance of green industry equity or green bonds: The purpose of investment projects includes climate, environmental protection, energy conservation, and carbon reduction	NT\$ billion	2.17	5.87	9.17	<ul style="list-style-type: none"> To assist enterprises in completing green investment plans, facilitate the development of the green energy industry, and improve environmental quality, the Bank actively invests in green industry.

Type	Metrics	Description	Unit	2019	2020	2021	Action plan
 Investment and financing	Percentage of Value at Risk (VAR%)	We have adopted the climate risk analysis database recognized by the UNEP FI to regularly examine and monitor changes of exposure in areas with high physical risks.	NT\$ million	<ul style="list-style-type: none"> Operating sites: Asset impairment is the most severe under the RCP8.5 scenario in 2050, with an impairment of about 0.016% of net worth. Real estate collateral: Such collateral would be most impaired in the RCP8.5 scenario in 2025, with an impairment of about 0.28% of net worth. Please refer to 3-3.1 Identifying the impact of physical risks on operational risk and 3-4.3 Identifying the impact of physical risks on credit risk for detailed analysis results of physical risks for more detailed financial analysis. 			<ul style="list-style-type: none"> We have formulated the Chang Hwa Bank Business Continuity Plan (BCP) to maintain normal business operations when a business interruption incident occurs, to protect our clients' rights and interests and minimize personnel costs and financial damage to the Bank. As per the real estate collateral analysis results, we plan to put those located in physical areas with a medium- or high-risk on a watchlist in the future and check with borrowers whether they have flood control measures in place, to enhance the resilience to withstand the impact of flooding. To prevent this potential risk, we will include the flooding likelihood for the areas where collateral is located as an appraisal consideration in the future.
	Financed emissions	Conduct an inventory of financed emissions as per the PCAF methodology and observe the changes in the indicators	Tons of CO ₂ e	1,565,584	1,133,583	1,040,509	<ul style="list-style-type: none"> The Bank has been conducting Category 1 and 2 greenhouse gas inventory for many years to confirm the effectiveness of energy conservation and carbon reduction through changes in greenhouse gas emissions over the years. We expanded the inventory of financed emissions for the first time this year and took that as an indicator to actively seek opportunities for greenhouse gas reduction.
	Carbon footprint	Tons of carbon dioxide equivalent produced per NT\$ million of investment and financing balance	Tons of CO ₂ e/ NT\$ million	4.9	3.8	3.0	
	Carbon intensive asset exposure	Proportion of carbon-intensive industries in the investment and financing portfolio to the total position. Used to assess the exposure of industries with high transition risk	%	11	14	13.1	<ul style="list-style-type: none"> The Bank established a list of carbon-intensive industries in 2022. Our investment and financing units need to assess the climate change risks before making investments or granting loans and engage with clients in the future. Please refer to 3-4.1 Establishment of a list of carbon-intensive industries for details.

5-1 Greenhouse gas emissions management

The organizational boundaries of the Bank's greenhouse gas inventory are defined in accordance with the operations control approach. To increase the scope and possibility of future carbon reduction measures, since 2020, we have appointed an independent third party to conduct verification as per the new version of the standard to enable us to continue to formulate plans to save energy and reduce carbon in the future, improving energy efficiency and reducing greenhouse gas emission intensity. The scope and data of greenhouse gas emissions over the past three years are as follows:

Table 19. Greenhouse gas inventory data

Item		2019	2020	2021
Standard adopted for inventory		ISO 14064-1:2018		
Category 1 emissions ^{Note 1} (tons of CO ₂ e)		1,896.699	2,231.307	1,947.895
Category 2 emissions ^{Note 2} (tons of CO ₂ e)		15,683.359	14,926.995	14,413.313
Total carbon emissions: (Scope 1+2) (tons of CO ₂ e)		17,580.058	17,158.302	16,361.208
Carbon emission intensity: (Scope 1+2)/person (tons of CO ₂ e/person)		2.654	2.570	2.475
Energy intensity: (electricity+fuel oil +natural gas+gas)/person (MJ/person)		16,372.364	16,236.129	15,963.299
Number of employees (person)		6,625	6,676	6,610
Category 3 emissions ^{Note 3} (tons of CO ₂ e)	Employee business trips	264.203	117.475	90.673
	Other transportation	1,836.298	5,124.677	5,153.636
Category 4 emissions ^{Note 4} (tons of CO ₂ e)		9,641.621	7,541.974	8,077.079
Category 5 emissions ^{Note 5} (tons of CO ₂ e)		0.007	239.003	266.894
Boundaries of greenhouse gas inventory		82.2%		
Boundaries of greenhouse gas verification		82.2%		

Note 1: Category 1 emissions (also known as Scope 1 as per the ISO 14064-1: 2006 standard) include emissions from the combustion of fuels for company vehicles, diesel for generators, gas, and natural gas, as well as fugitive emissions from fire extinguishing chemicals (greenhouse gases), refrigerant charging equipment, and septic tanks.

Note 2: Category 2 emissions (also known as Scope 2 as per the ISO 14064-1: 2006 standard) are emissions from purchased power.

Note 3: Category 3 emissions are indirect greenhouse gas emissions during transportation, including employee business trips, employee commutes to and from work, and transportation of consumables for business use.

Note 4: Category 4 emissions are indirect greenhouse gas emissions from products purchased by the organization, including the life cycle emissions from consumables and assets, emissions from general waste incineration, and emissions from the transportation of recycled waste.

Note 5: Category 5 emissions are indirect downstream greenhouse gas emissions related to the products manufactured by the organization, including disposal of discarded ATM cards, credit cards, and other cards.

Note 6: According to the new version of ISO 14064-1: 2006, Scope 3 emissions are greenhouse gas emissions from fuels and energy-related activities (excluding Scope 1 and 2).

Note 7: The emission factor selected is based on the greenhouse gas emission factor management table 6.0.4 published by the EPA, Executive Yuan. The global warming potential (GWP) value adopted is based on the IPCC's Fifth Assessment Report.

Note 8: The data in the above table is rounded to the thousandth decimal place.

32 Climate metrics and targets



1

Greenhouse gas reduction performance during 2021

We aim to reduce the average total annual carbon emissions (Category 1 and 2) by 4.2% in the short term and by 42% by 2030 in the long term compared with the base year of 2020.

The Bank's greenhouse gas carbon emissions were 16,361.208 tons of CO₂e during 2021, a decrease of 4.65% compared with the base year, 0.45% higher than the target. The main reason for this is that various energy and water resources management measures we implemented have begun to show results. The implementation results of these measures are detailed in 5-2 Energy and water efficiency management.

Table 20. Greenhouse gas reduction performance during 2021

Item	2020	2021	
	Base year	Achievement	Target
Total carbon emissions (tons of CO ₂ e) ^{Note 1}	17,158.302	16,361.208	16,987
Target/Actual carbon reduction (%)	-	4.65%	4.2%

Note 1: The total amount of carbon emissions is the sum of Category 1 and 2 carbon emissions.



5-2 Energy and water efficiency management

As the global warming effect will continue to intensify in the future, we estimate that the frequency of extremely high temperatures or drought-flood coexistence will increase, thereby increasing the physical risks posed to the Bank. For example, extremely high temperatures may lead to increased electricity consumption from air-conditioners, resulting in higher operating costs to be borne by the Bank; the dry season may result in an unstable national water supply, and different water rationing or water outage measures may be implemented in some areas, which may affect the Bank's operations in the worst-case scenario. To reduce the impact of the above risks, we have adopted international standards, including the ISO 50001 Energy Management System and the ISO 46001 Water Efficiency Management System, to manage energy and water efficiency. The strategies we have adopted are as follows:

1

Energy management

The Bank takes measures proactively to reduce energy consumption, continues to implement energy-saving programs and daily management measures, and implements the Bank's energy policies to do our part for the planet: continuing to improve energy performance and leveraging energy values; complying with energy management laws and regulations and advocating energy-saving concepts; supporting the purchase of energy label products and establishing an energy-efficient environment; and continuing to invest in necessary resources and achieving goals and indicators.

To accelerate energy conservation and carbon reduction and prioritize the reduction of electricity consumption, we replaced lights or air conditioners in 21 offices and branches during 2021. The replacement of the lights is estimated to cut down electricity consumption by about 95,326 kWh. Meanwhile, we actively encourage employees to carry out various energy-saving tasks, including setting the air-conditioning temperature, turning off lights when they are not used, and reducing unnecessary lighting. During 2021, the Bank's electricity consumption dropped to 28,711,779 kWh, a 2.09 % reduction compared with the base year.

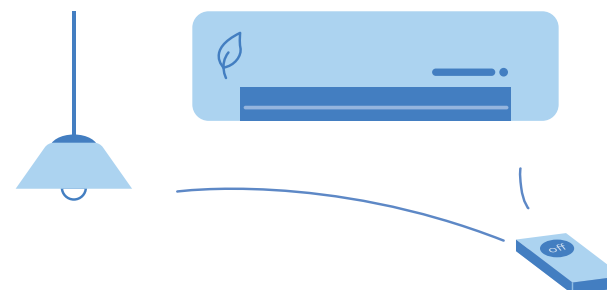


Table 21. Energy consumption data

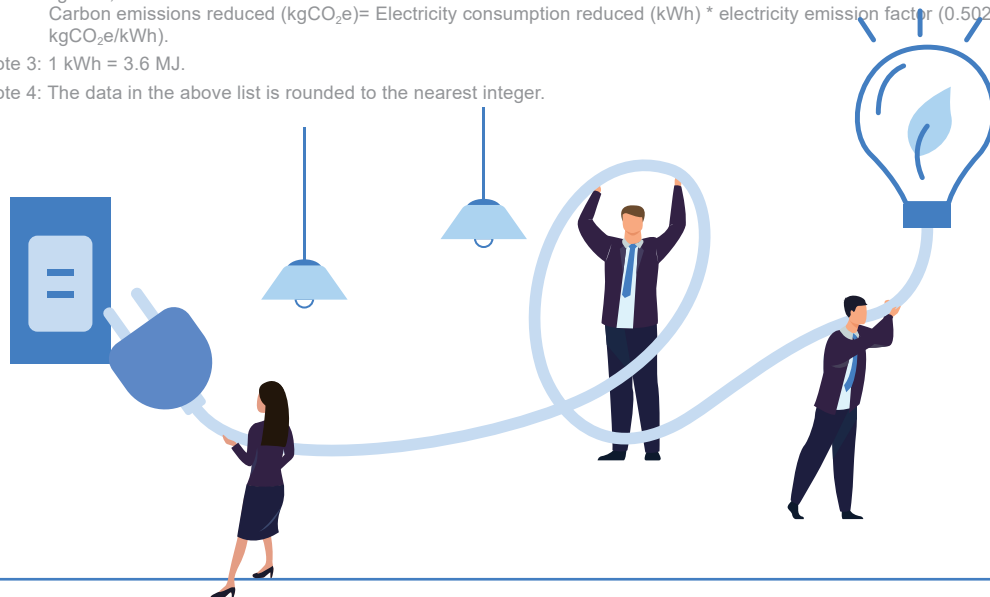
Type of energy	Consumption unit	2019	2020	2021	
			Base year	Achievement	Target
Electricity	kWh	29,424,689	29,326,120	28,711,779	29,032,859
	MWh	29,425	29,326	28,712	29,033
	MJ	105,928,880	105,574,033	103,362,403	-
	Boundaries of data	82.2%			
Electricity intensity	MJ/person	15,989	15,814	15,637	-

Note 1: It is assumed that 1 kWh of electricity is about NT\$3.

Note 2: Calculation method for determining the amount of electricity consumption and carbon emissions reduced by replacement of lights:
 The Bank's outdated lightings are about 40-80W, and the new lights are about 20-40W in size.
 Therefore, assume that the energy efficiency of the new lights is 50% higher than that of the old ones,
 the electricity consumption reduced (kWh) = Specifications of the new lights (W) * Annual use time (hr) * Number of lights/1,000.
 Carbon emissions reduced (kgCO₂e) = Electricity consumption reduced (kWh) * electricity emission factor (0.502 kgCO₂e/kWh).

Note 3: 1 kWh = 3.6 MJ.

Note 4: The data in the above list is rounded to the nearest integer.



2

Water efficiency management

To increase the efficiency of water resource use and reduce the waste of such resources, we have formulated a water resource efficiency management policy and are committed to advocating and promoting the concept of water conservation to conserve water; prioritizing the purchase of water efficiency label equipment when installing new equipment or replacing old one; regularly following up on the efficiency of water resource use to reduce overall water consumption; continuing to improve resources and improving water efficiency performance year by year; complying with water efficiency management laws and regulations and other requirements; seeking opportunities for water conservation; and formulating water reduction measures.

The Bank's water consumption during 2020 (base year) was 163,944 m³, and in 2021, the Bank's water consumption will drop to 160,777 m³, a decrease of about 1.93% compared with the base year.

Table 22. Water resource use data

Type of energy	Consumption unit	2019	2020	2021	
			Base year	Achievement	Target
Water resources	m ³	159,884	163,944	160,777	162,304
	million m ³	0.1599	0.1639	0.1608	0.1623
	Boundaries of data	82.2%			

Note 1: 1 m³ of water = 1 cubic meter of water.



5-3 Exposure to carbon assets

Based on the financial asset category and the methodology under the PCAF regarding the evaluation of carbon asset exposures, the Bank adopted the list of carbon-intensive industries approved by the Board of Directors in 2022 to calculate the risks of carbon-intensive industries to which the Bank is exposed as the basis for setting the limits on loans/investments. The data on the Bank's carbon-intensive industries exposure risk during 2021 is as follows

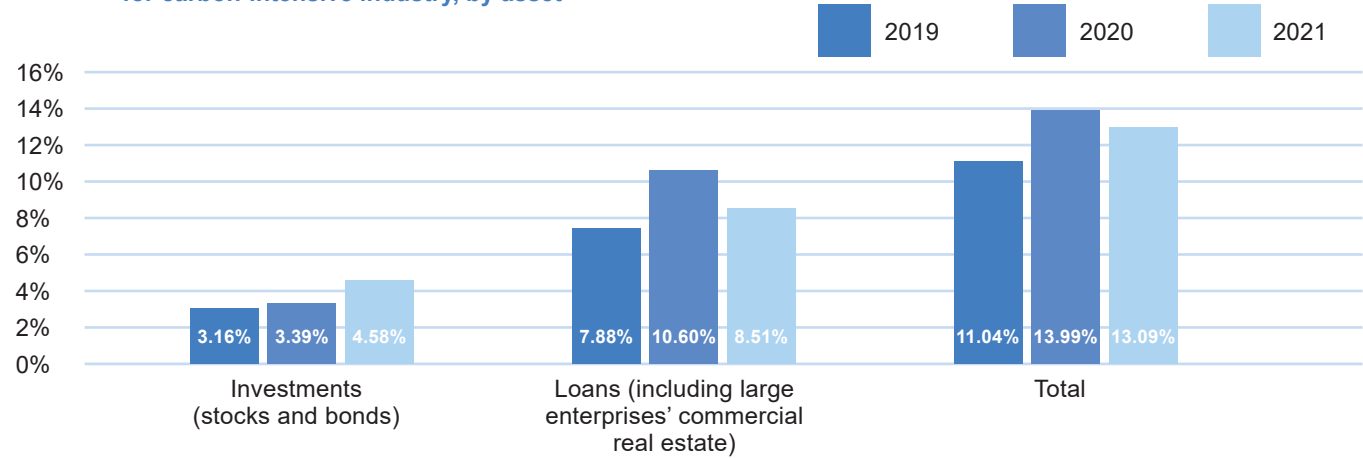
Table 23. Exposure to risks from carbon-intensive industries in each asset portfolio during 2021

Unit: %

Percentage of risk exposure by asset in 2021					
Industry/Asset	Investment portfolio		Loan portfolio		Total
	Stocks	Bonds	Loans	Commercial real estate (Large enterprises)	
Manufacture of Chemical Material	0.13%	1.54%	1.13%	-	2.8%
Manufacture of Cement	0.14%	0.55%	0.02%	-	0.71%
Manufacture of Petroleum and Coal Products	-	-	0.99%	-	0.99%
Quarrying of Stone, Sand and Other Mining	-	0.04%	-	-	0.04%
Manufacture of Paperboard	-	-	0.13%	-	0.13%
Manufacture of Pulp	-	-	0.21%	-	0.21%
Air Transport	-	0.23%	3.26%	-	3.49%
Electricity Supply	-	1.51%	0.89%	-	2.40%
Smelting and Refining of Iron and Steel	0.04%	-	1.68%	-	1.72%
Smelting and Refining of Aluminum	-	0.08%	0.22%	-	0.30%
Manufacture of Clay Building Materials	-	-	-	-	-
Casting of Aluminum	-	-	-	-	-
Manufacture of Paper	-	-	-	-	-
Extraction of Crude Petroleum and Natural Gas	-	0.33%	-	-	0.33%
Total	0.31%	4.28%	8.53%	-	13.12%

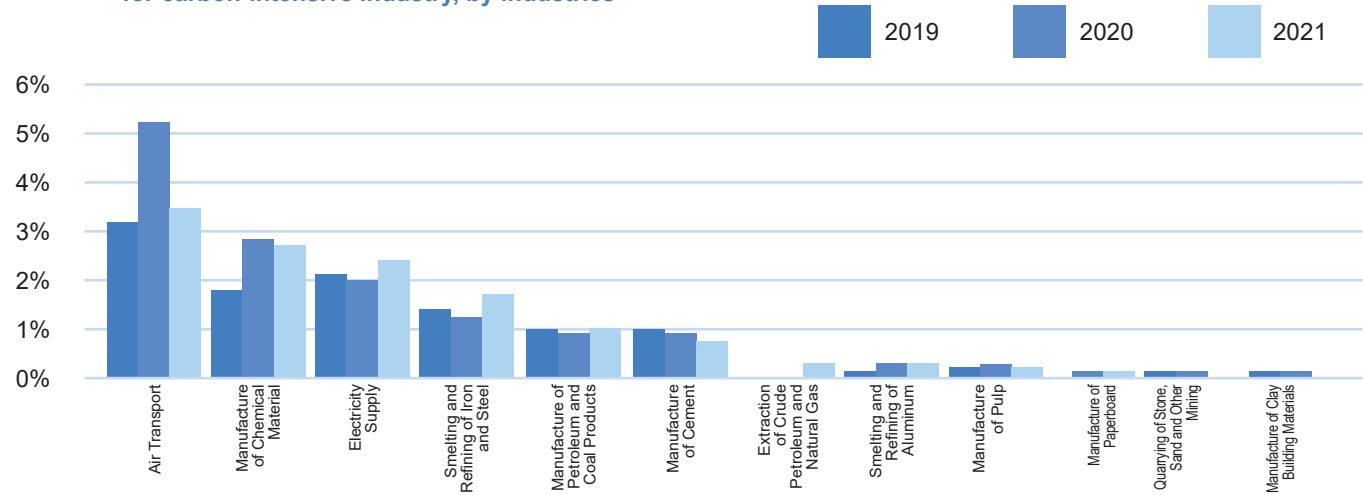
In addition to calculating the Bank's exposure to risks from carbon-intensive industries, we also analyzed the proportion of our investment and financing positions accounted for by carbon-intensive industries over the past three years by asset and industry. Looking at these proportions, we discovered that although the overall proportion of the carbon-intensive industries had increased slightly during 2020, it declined during 2021, mainly due to the changes in the loans granted to carbon-intensive industries.

Figure 13. Proportion of total investment and loan portfolio, accounted for carbon-intensive industry, by asset



When the exposure to each carbon-intensive industry was analyzed, the results indicated that the air transport, electricity supply, smelting and refining of iron and steel, and manufacture of chemical material industries showed relatively higher exposures over the past three years. We also adopted these results as the basis for policy revision and position adjustment. For more information on the establishment of a list of carbon-intensive industries and limits on loans/investments, please refer to “3-4.1 Establishment of a list of carbon-intensive industries.”

Figure 14. Proportion of total investment and loan portfolio, accounted for carbon-intensive industry, by industries



Note 1: The scope of the exposure to risks from carbon-intensive industries calculated is that of our investment and financing portfolio. For detailed calculated positions, please refer to “5-4 Investment and financed portfolio emissions.”

Note 2: The Bank was not exposed to any risk from the manufacture of casting of aluminum, and manufacture of paper between 2019 and 2021. The bank was not exposed to the manufacture of clay building materials in 2021.

5-4 Investment and financed portfolio emissions

1

Calculation of investment and financed portfolio emissions

Extreme weather events pose risks to the global economy, while also creating business opportunities. Enterprises must include climate change risks and opportunities in their business decision-making process, identify and manage risks, and seize opportunities. The Bank has been conducting Scope 1 and 2 greenhouse gas inventory for many years to confirm the effectiveness of energy conservation and carbon reduction through changes in greenhouse gas emissions over the years. We expanded the greenhouse gas inventory to our investment and financing portfolio for the first time this year to actively seek opportunities for reducing greenhouse gas emissions.

We have adopted the PCAF's methodology to calculate invested/financed emissions. With the end of each year as the record date, the total emissions in 2021 were 1,040,509 tons of CO₂e, an 8.21% decrease from 1,133,583 tons of CO₂e in 2020, while the carbon footprint dropped from 3.8 in 2020 to 3.0 (tons of CO₂e/NT\$ million).

The invested/financed emissions calculated by asset over the past two years are as follows:



Figure 15. Carbon Emissions of the investment and financing portfolio by asset

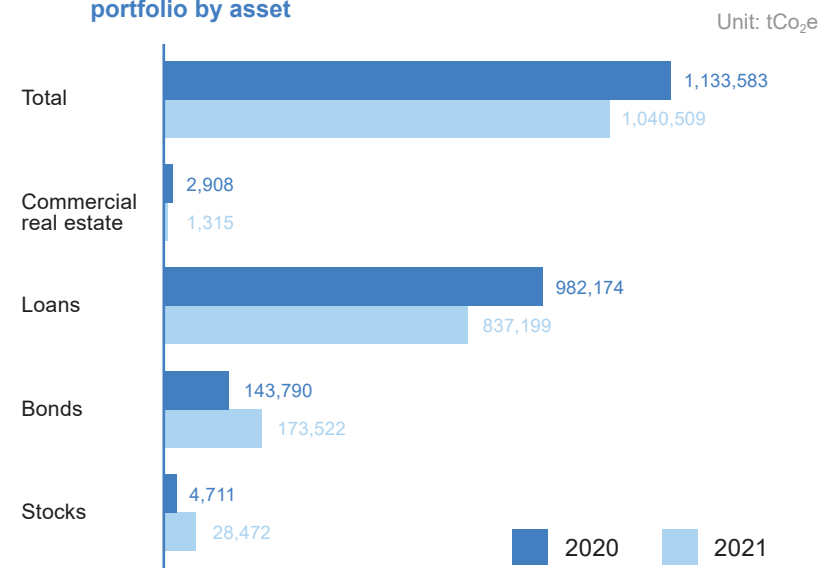
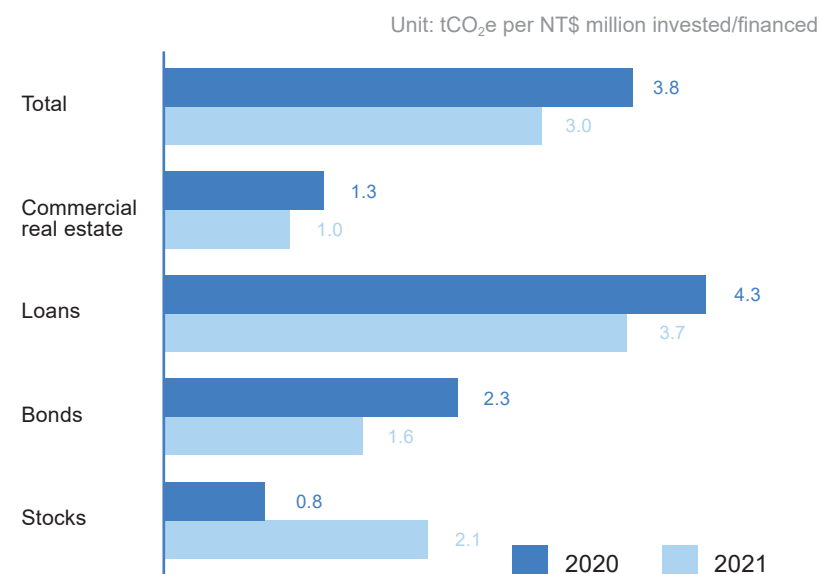


Figure 16. Carbon footprint of investment and financing portfolio by asset



The invested/financed emissions calculated by industry in 2021 are seen below. Among them, the top three industries in terms of absolute carbon emissions are raw materials, industrial services, and technological hardware and semiconductors. The top three industries in terms of carbon footprint (carbon emissions per NT\$ million invested/financed) are oil and natural gas, non-core consumer services and raw materials, which are 9.54, 8.78, and 7.75 tons of CO₂e per NT\$ million invested/financed, respectively, and the carbon footprint of the remaining industries did not exceed 5 tons CO₂e per NT\$ million invested/financed.

Figure 17. Carbon Emissions of the investment and financing portfolio in 2021

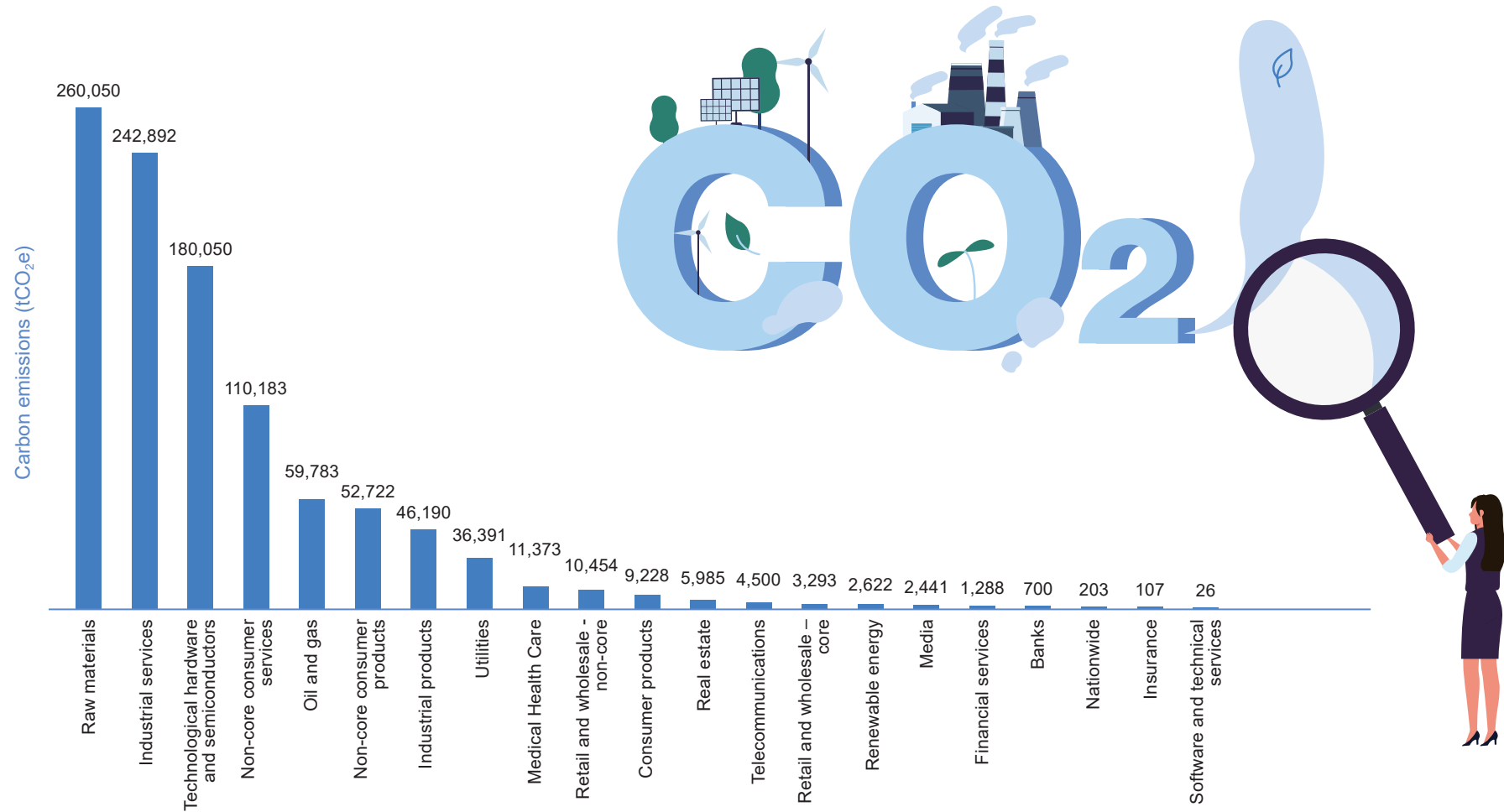
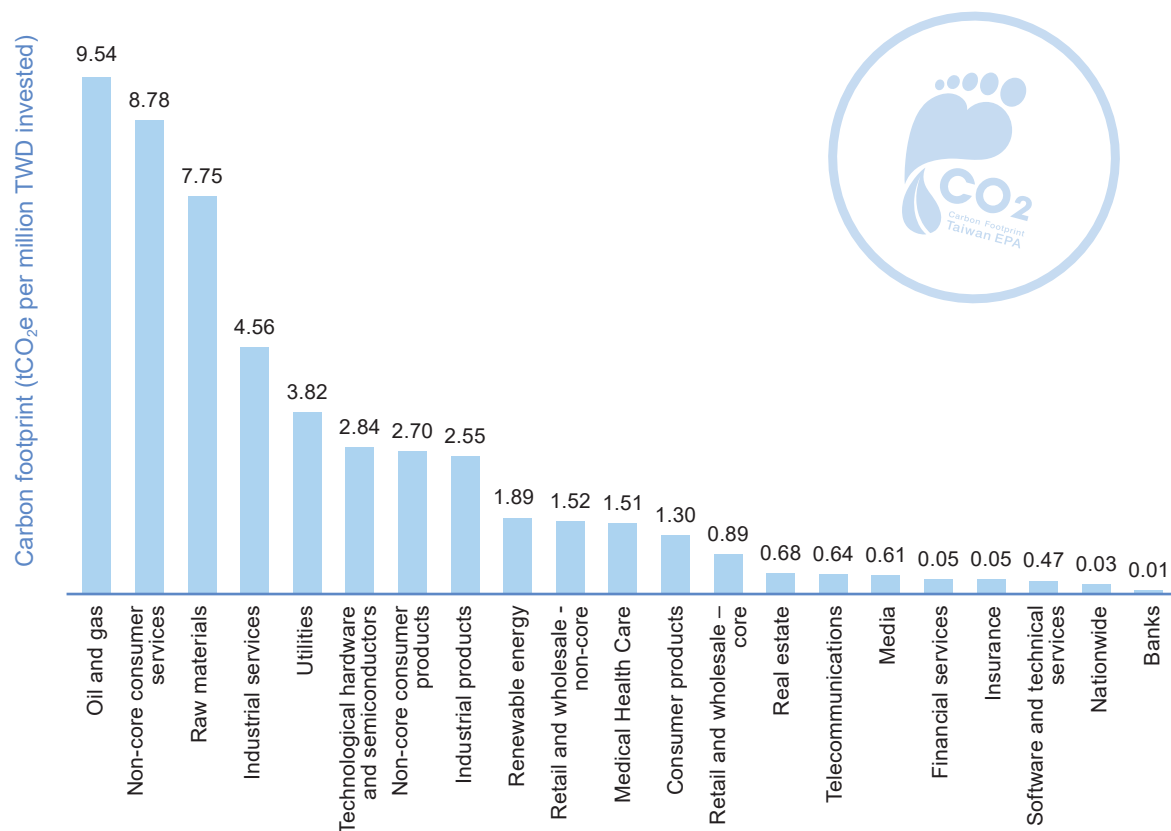


Figure 18. Carbon footprint of investment and financing portfolio in 2021



Note 1: The Bloomberg Industry Classification Standard (BICS) Level 2 was adopted for the industry-specific data.

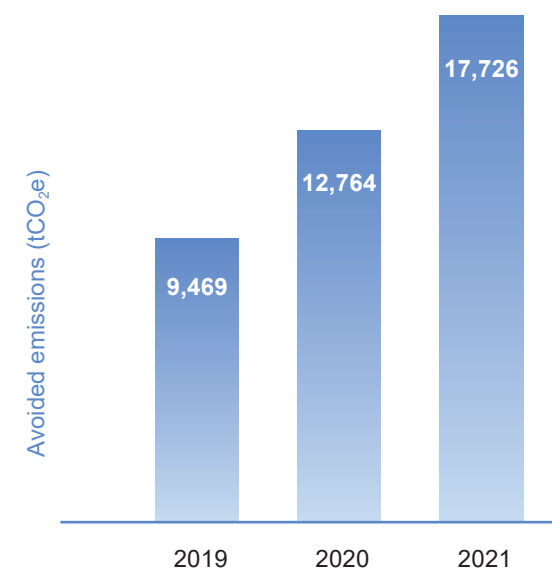
Note 2: The scope of loans calculated includes loans to large enterprises or non-profit organizations with 500 employees or more (with a remaining duration of one year or more).

Note 3: The investment portfolio includes stocks and bonds, with ETFs, private placement funds, derivatives (such as futures and options), IPO underwriting, green bonds, sovereign bonds, government bonds, local government bonds, and supranational bonds not included in this calculation as the methodology for some asset categories was not yet published by the PCAF.

2 Power plant financing projects

In addition to counting the carbon emissions of stocks and bonds, we included loans or investments with clear purposes, such as wind power or solar power construction or operation projects, in the financing project category to calculate carbon emissions based on the PCAF's definition. With the positions at the end of the year as the basis, we conducted an inventory of power plant financing projects and calculated annual avoided emissions from renewable energy generation projects (currently all solar power plants); the data over the past three years is as follows:

Figure 19. Avoided emissions from solar power plant financing projects





6 Prospect

Chang Hwa Bank is the first government-owned bank in Taiwan that has been recognized by BSI for the Bank's outstanding performance in the implementation of the TCFD framework. We plan to continue to work with various external organizations and regularly assist directors and senior executives in staying informed of climate change trends at home and abroad through education, training, and project presentations in the future, helping them to make decisions conducive to enhancing the Bank's climate resilience.

Meanwhile, with the progress of international climate change research, Taiwan's competent authorities are also gradually improving the data quality for domestic climate-related scenario analysis and stress testing. We plan to further expand the scale of the scenario analysis and stress testing in the following few years and include relevant data in our risk appetite statements and assessments.








Moreover, we have realized the influence of financial institutions on climate issues when implementing the TCFD framework. And we must engage with our clients and target investments to assist them with climate transition in the process of climate risk management and on the pathway to net-zero emissions. We will work with them to reduce carbon emissions and realize the concept of green finance. In this regard, we plan to design further engagement procedures and set relevant targets with our clients and target investments as an external risk management approach, while mitigating transition risk each year by launching engagement activities.

In addition, as per the Pathway to Net-Zero Emissions in 2050 published by the NDC, Executive Yuan, and the growing move toward compliance with the Paris Agreement by international financial institutions, we have set our carbon reduction targets for Category 1 and 2 emissions and are committed to setting the carbon reduction targets for our investment and financing portfolio in two years. We will submit and disclose relevant plans in accordance with the SBTi regulations, with a view to gaining international recognition. Meanwhile, we will update relevant metrics and targets in the following year's TCFD report, enabling stakeholders to review the achievement of such targets.

We will continue to uphold the spirit of sustainable development, regard climate-related risks as one of our main risks, and continue to improve governance measures and strategies, while improving risk management mechanisms each year, establishing an eco-friendly environment, and achieving the sustainable development goals to be a benchmark for the practice of green finance in Taiwan.

Appendix

Core Elements of the TCFD Recommendations

Aspect	General guidance	Corresponding chapter
 Governance	Describe the Board's oversight of climate-related risks and opportunities.	1-2. Climate governance framework-Board of Directors 1-2. Climate governance framework-Functional committees
	Describe management's role in assessing and managing climate-related risks and opportunities.	1-2. Climate governance framework-Management (business units)
 Strategy	Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	3-1. Climate risk identification results 4-1. Identified climate opportunities
	Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	3-1. Climate risk identification results 4-1. Identified climate opportunities
	Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	2-3. Assessing the strategic resilience with scenario analysis
 Risk management	Describe the organization's processes for identifying and assessing climate-related risks.	2-2. Climate issue identification and assessment process
	Describe the organization's processes for managing climate-related risks.	3-3. Operational risk management 3-4. Investment and financing risk management
	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	3-2. Climate-related risks are integrated into the standard risk assessment framework
 Metrics and targets	Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	5. Climate metrics and targets
	Disclose Category 1 and 2, and greenhouse gas (GHG) emissions of investment and financing portfolios, if appropriate, along with the related risks.	5-1. Greenhouse gas emissions management 5-4. Investment and financed portfolio emissions
	Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	5. Climate metrics and targets
Aspect	Supplemental Guidance for the Financial Sector	Corresponding chapter
 Strategy	Describe significant concentrations of credit exposure to carbon-related assets	5-3. Exposures to carbon assets
 Risk management	Consider characterizing their climate-related risks in the context of traditional banking industry risk categories such as credit risk, market risk, liquidity risk, and operational risk.	3-1. Climate risk identification results 3-2. Climate-related risks are integrated into the standard risk assessment framework
 Metrics and targets	Provide the metrics used to assess the impact of (transition and physical) climate-related risks on their lending and other financial intermediary business activities in the short, medium, and long term.	5. Climate metrics and targets
	Disclosing greenhouse gas emissions from financing and other financial intermediary business activities.	5-1. Greenhouse gas emissions management 5-4. Investment and financed portfolio emissions

TCFD Conformity Verification Statement

bsi.



Conformity Statement

Climate related Financial Disclosure

This is to conform that

Chang Hwa Commercial Bank Ltd. No. 57, Sec. 2, Zhongshan N. Rd. Zhongshan Dist. Taipei City 104411 Taiwan	彰化商業銀行股份有限公司 臺灣 台北市 中山區 中山北路二段 57 號 104411
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Holds Statement Number <CFD 775440>

As a result of carrying out conformity check process based on TCFD requirement, BSI declares that:

- Chang Hwa Commercial Bank Ltd. follows Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) to disclose climate-related financial information which is clear, comparable and consistent about the risks and opportunities and its financial impact. The disclosures cover four core elements and have been prepared by seven principles for effective disclosures.
- The maturity model for the Climate-related Financial Disclosures is **Level-5+: Excellence** grade.

For and on behalf of BSI

Managing Director BSI Taiwan, Peter Pu

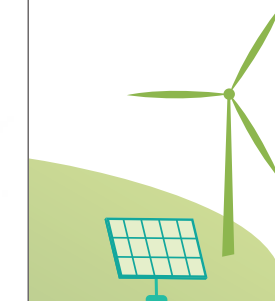
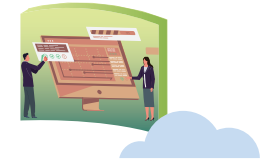
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