TCFD

Task Force on Climate-Related Financial Disclosures

東和鋼鐵
TUNG HO STEEL

2023

氣候相關財務揭露報告書

Contents

Message from the Management

A Declaration for Corporate Sustainable Development in the Face of Climate Change

We are committed to addressing climate-related risks and opportunities to pursue corporate sustainable development. The Board thus established the Corporate Governance Committee (now renamed the ESG Committee) in 2019, with a “Environmental Sustainability Working Group”. The group chaired by the President assesses and manages the climate-related risks and opportunities, sets management strategies, and targets for climate-related risks and opportunities, continuously analyzes and controls climate-related risks and opportunities, and periodically reviews the effectiveness of management and reports to the ESG Committee. In 2020 we began to implement projects for environment- and climate-related international initiatives, including the TCFD Recommendations (climate-related financial disclosures), CDP (carbon disclosures), and EPD (Type III Environmental Product Declaration). In 2021 we signed up to become a TCFD supporter and published our first “Report on Climate-Related Financial Disclosures”.

This report was verified by the British Standards Institution (BSI) and ranked at “Level 5+ Excellent”. In 2021 we answered the CDP Climate Change Questionnaire for the first time and were ranked level B for two consecutive years. In 2022 our score was above: the average (Level C) of the metal smelting, refining, and forming industry, the average of Asian businesses (C), and the average of global businesses (C). These results showed that we have entered the stage of climate change management and adopted integrated actions for climate-related issues. Additionally, we are the first construction steel manufacturer in Taiwan to pass EPD and CPD accreditation.

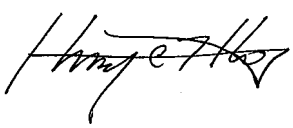
To take action for climate change adaptation and mitigation, the Board passed the establishment of the “Regulations for Appropriation and Utilization of the Special Reserve for Climate Change Adaptation and Mitigation” in 2022 to spend the special reserve on projects and programs for climate change adaptation and mitigation, such as energy-efficient equipment, equipment performance improvement and replacement, the R&D of energy conservation technology, and the development of technology for low-emission products. In the meeting for identifying climate-related risks and opportunities this year, the Environmental Sustainability Working Group identified seven material climate-related risks and four material climate-related opportunities. Based on our short-, medium- and long-term financial conditions, we are still able to maintain stable and sustainable operations and take advantage of the opportunities arising from climate change to generate more profits and set carbon reduction targets that are in line with the national pathway to net-zero emissions in 2050.

This year the Board also passed the 2030 stage targets (carbon reduction by 30% and RE30) for "Net Zero 2050" and made the following announcement to all guests and stakeholders at the Company's 60th anniversary celebration: (1) Reduce carbon by 30%: through equipment replacement, process improvement, and the combined effort of heterogeneous partners, reduce total carbon emissions in 2030 by 50% over 2005; (2) RE30: Use over 30% of renewables in total electricity consumption. To achieve the 2030 stage targets, we will actively implement measures and advance the schedule for "value change engagement" to work on the 2030 carbon emission target in collaboration with suppliers.

In carbon reduction by 30%, we will engage in equipment modification in the next five years, planning to retire the electric arc furnace of the Miaoli and Taoyuan Works in 2026 and 2030 respectively. In renewables, we will actively engage in "energy storage" and "energy creation", planning to build 100MW energy storage equipment in Longgang, Miaoli for on-grid connection in mid-2025. We will also continue to actively promote renewables including solar PV and wind power to increase renewables proportion to 30% in 2030 and achieve carbon neutrality during 2040–2050. All these claims can specifically demonstrate our strong and determined self-expectations and responsible actions and strategies for sustainable development so as to contribute to eco-friendliness and net zero emissions.

In the future, we will ensure full disclosures and good performance with regard to climate risks and opportunities according to TCFD recommendations and other internationally recognized frameworks. To ensure the sustainable management of Tung Ho Steel, we hope to keep ahead of our peers in electric furnaces with a lower carbon emission intensity and actively meet the expectations of all stakeholders.

Chairman Henry C. T. Ho



1.Climate Change Management

With respect to the "Global Risks Ranked by Severity" (Figure E) as disclosed in the Global Risks Report 2023 by the World Economic Forum (WEF) in January 2023, "failure to mitigate climate change" and "failure of climate-change adaptation" are the top two long-term risks. Additionally, the government of Taiwan not only published "Taiwan's Pathway to Net-Zero Emissions in 2050" in March 2022 to set plans and targets for transition to net zero emissions, but also announced the targets and action plans for different stages towards net-zero emissions and proposed in December 2022 the nationally determined contribution (NDC) to carbon reduction by 24±1%. In January 2023, Taiwan's legislature passed the Climate Change Response Act to stipulate net zero 2050, setting the legal basis for future climate governance and establishing the carbon fee mechanism. In order to pursue sustainable development and stay committed to tackling the risks and opportunities presented by climate change, Tung Ho Steel Enterprise Corporation (hereinafter "Tung Ho Steel" or "we") has included climate change as a material issue and a key material risk for sustainable development, and has continued to engage in its analysis and control and promote low-carbon transition and climate adaptation.

With reference to the TCFD (Task Force on Climate-related Financial Disclosures) recommendations on climate-related financial disclosures published by the Financial Stability Board (FSB), we have established a climate change governance framework based on the four core elements of climate-related financial disclosures, namely "governance", "strategy", "risk management", and "metrics and targets", to identify the potential material risks and opportunities in operations, propose strategies in response to such risks and opportunities, and establish climate-related metrics and targets that can be continually managed. In February 2021, we formally signed up to become a TCFD supporter[Note]. In May 2022, we published our second "Report on Climate-related Financial Disclosures (TCFD)" which was verified by the British Standards Institution (BSI). Also in 2022, we for the second time completed CDP's climate change questionnaires and achieved the level of "Management (B)".

Note: For the list of TCFD supporters, please visit: https://www.fsb-tcfd.org/supporters/.

▲ Milestones in climate change management

2007

- Feb — The project for installation of new wind turbines in the Longgang Industrial Park passed the EIA review, and the project formally commenced to install wind turbines with a capacity of 11.5MW.

2009

- Jul — Construction began in the project to install -11.5MW wind turbines.
- Sep — In accordance with the "Principles Governing the Inventory and Registration of Greenhouse Gases" and "Principles Governing the Early Action and Offsetting Programs for Greenhouse Gases" promulgated by the Environmental Protection Administration, we began to conduct greenhouse gas inventories retroactively to 2003.
- Nov — Upon an investigation by the Environmental Protection Administration, we provided the data of the greenhouse gas emission intensity of our products as a basis of reference for determining the phase-1 emission intensities to be published for the steel industry to ensure smooth implementation of the subsequent policy on early action programs.

2010

- Jul — The steel rolling mill of the Taoyuan Works conducted a successful hot trial run of its direct hot charge rolling system and began production, making it the first steel mill in Taiwan adopting a process for direct rolling of hot steel billets without any reheating furnace.

2011

- Oct — Installation of the -11.5MW wind turbines was completed, but they could not be incorporated into the systems of Taipower due to problems in feeder lines.
- Nov — The Miaoli Works received a "verification statement issued by Bureau Veritas (BV)" for the carbon footprints of its products of steel shapes and plates.

2012

- Oct — We applied to join the World Steel Association (WSA) as an associate member, and we also joined the WSA Climate Action Program to become a climate action member. We submitted the information of greenhouse gases and retroactively provided the data of greenhouse gas emissions for 2007–2011.
- Dec — The Miaoli Works was certified under the ISO 50001 Energy and Resource Management System.

2014

- Jun — A plan for alternative lines was implemented for the project to install wind turbines, with the laying of 22.8kV power cables until the Longgang Branch No. 1 transmission tower adjacent to the Miaoli Works to be incorporated into the systems of Taipower.
- Aug — The Taoyuan Works and Miaoli Works received reduction quotas issued by the Environmental Protection Administration for greenhouse gas early action programs totaling 447,603 ton-CO_2e.
- Nov — The Kaohsiung Works received a "verification statement issued by Bureau Veritas (BV)" and won a "glazed trophy" from the Industrial Technology Research Institute for the carbon footprints of five products including steel shapes and rebar, making it the first steelworks in the rebar industry of Taiwan to receive a "carbon footprint certificate.

2015

- Mar — The "Corporate Social Responsibility Best-Practice Principles" (renamed the "Sustainable Development Best-Practice Principles" in 2022) was published and became effective after approval by the Board.
- Sep — The Taoyuan Works received a "verification statement issued by Bureau Veritas (BV)" for the carbon footprints of five products including rebar.
- Dec — We set up a cross-departmental "CSR Task Force."

2016

- Jan — The fuel for the reheating furnaces at the steel rolling mill of the Kaohsiung Works was changed from heavy oil to natural gas. The Kaohsiung Works also applied for a greenhouse gas offsetting program and was expected to receive an offsetting quota of 71,600 ton-CO_2e.
- Aug — We voluntarily published our first CSR report (which won the silver award for traditional industries in corporate sustainability reporting from the "2016 Taiwan Corporate Sustainability Awards").

  Our subsidiary Tung Kang Wind Power Corp. received a 25-year license for power company issued by the Bureau of Energy, Ministry of Economic Affairs, and began to sell electricity on a wholesale basis.

2017

- Jan — We received a certificate from the World Steel Association (WSA) recognizing us as a 10-year climate action member.
- Jul — The Miaoli Works passed the verification by Bureau Veritas (BV) and received a "statement on verification of water footprints" for its products of steel shapes and plates.
- Nov — The Taoyuan Works was certified under the ISO 50001 Energy and Resource Management System.

2018

- Jan — The carbon steel billets from the electric furnaces of the Miaoli Works passed and received the "certification for green products using recycled resources."

  We became a formal member of the World Steel Association (WSA).
- Sep — We took part in the presentation of achievements of energy efficiency service teams at businesses organized by the Bureau of Energy, Ministry of Economic Affairs, and we won the Award for Outstanding Performance in Achievements of Energy Efficiency in 2015–2017.

2019

- Mar The steel rolling mill of Tung Ho Steel Vietnam Corporation Limited conducted a successful hot trial run of its direct hot charge rolling system and began production, making it the first steel mill in Vietnam adopting a process for direct rolling of hot steel billets without any reheating furnace.
- Jun We made an investment to establish Tung Sugar Energy Service Co., Ltd. as a biomass energy processing center to generate marsh gas power.
- Sep The Board established a Corporate Governance Committee, under which an "Environmental Sustainability Working Group" was set up to manage climate-related issues.
- Oct The Taoyuan Works cooperated with the Water Resources Agency in organizing the 2019 Work Plan for Guidance in Water Conservation by Major Water Consumers in Central Taiwan, and received a certificate of appreciation for the "Observational On-site Visits to Entities with Outstanding Performance in Water Conservation."

  The Taoyuan Works received a statement on verification of material flow cost accounting (MFCA) and won an award for "exemplary businesses in analysis of material flow cost accounting" from the Industrial Development Bureau, Ministry of Economic Affairs.

  The fuel for the reheating furnaces at the steel rolling mill of the Miaoli Works was changed from heavy oil to natural gas. The Miaoli Works also applied for a greenhouse gas offsetting program and was expected to receive an offsetting quota of 144,600 ton-CO_2e.
- Nov The Taoyuan Works received a "statement on verification of carbon footprints" for its products.

2021

- Jan The Miaoli Works was certified by UL in the U.S. and received a certificate of Type III Environmental Product Declaration (EPD) for its steel shapes and plates, making it the first steel producer in Taiwan to receive an EPD for steel shapes and plates.
- Apr Our 2021 report on climate-related financial disclosures (TCFD) was verified by the British Standards Institution (BSI).
- May We set an absolute reduction target, which was a science-based reduction target calculated with the SBTi Tool (SDA_Tool_v1.2.1 using the Sectoral Decarbonization Approach (SDA)) provided by the Science Based Target Initiative.
- Nov We won the platinum award for traditional industries in corporate sustainability reporting from the "2021 Taiwan Corporate Sustainability Awards."
- Dec For the first time, we completed CDP's climate change questionnaires and achieved the level of "Management (B)."

2022

- Jan We received a certificate of Type III Environmental Product Declaration (EPD) for the rebar of the Taoyuan Works and the steel shapes and channels of the Kaohsiung Works.
- Apr Signed up to the "Carbon Neutrality Alliance" formed by the Chinese National Federation of Industries and Taiwan Steels and Iron Industries Association.Our 2022 report on climate-related financial disclosures (TCFD) was verified by the British Standards Institution (BSI).
- Aug Signed up to the Corporate ESG for Net Zero in Agriculture.
- Nov Signed the "Environmental, Renewables, and Carbon Reduction Initiative" advocated by the National Central University.

  Became a member of the Set Up Program of World Steel Association (WSA).
- Dec Answered the CDP Climate Change Questionnaire 2022 and ranked "B" in management and "A-" in leadership for supplier engagement.

  Passed the certification of ISO 14064-1:2018 Greenhouse Gas Inventory and received the assurance statement.

2023

- Feb The Board passed the 2030 stage target: Carbon reduction by 30% + RE30 for "Net Zero 2050".
  Signed up to the Global Steel Climate Council as a supporting member.
- Mar Joined the "Alliance of Industrial Application of Hydrogen in Combustion and Hydrogen High-Pressure Storage Technology Industry".
- Apr Announced the no use of milling iron as the raw material for steel refining at the target meeting.
  Sustainable Finance First Movers Coalition engagement with E.SUN Bank.
- May Fubon Sustainable Future Forum: Key transition of Taiwan in global multiple crises (the President was the panelist).
  NCKU Civil Engineering Construction Materials TDP: Low-emission Buildings.

▲ Overview of climate change management

2.Climate Change-Related Governance

▲ The Board takes charge of the governance of climate change issues

The Board reviews and guides strategy, action plans, and objectives, monitors implementation and performance every year, and reviews GHG reduction targets and achievement rates.

We have established the Sustainable Development Committee (a functional committee) under the Board with three members. With the chairperson as the convener, over half of the committee members are independent directors and appointed by the Board to handle issues related to climate change, including the establishment, oversight, and review of the systems and targets to achieve environmental sustainable development. Each year the Sustainable Development Committee holds at least two committee meetings each year and reports content related to climate change. Each quarter the Board discusses the GHG inventory and schedule planning report. The risk management plan, strategy, and targets related to climate change in this report were approved by the 27th meeting of the 24th term of the Board on May 09, 2023.

▲ The competency of the Board in the governance of climate change issues

With regard to climate change-related issues, we have hired external instructors in 2021 to 2023 to provide the relevant training. All members of the Board and senior managers have attended training sessions on corporate climate governance and TCFD disclosure practices for a total of 233 hours.

Additionally, the Board actively participates in engagements between the government and industries regarding corporate issues, while facing the challenges of climate change to sustainable development with a pragmatic and forward-looking approach.

◆ Exchanges and Cooperation

Name of trade association	Position	Our representative
Taiwan Steel and Iron Industries Association	Convener of the Board of Supervisors	Chairman
Chinese National Federation of Industries	Managing director	Chairman

◆ Signing Climate-Related Initiatives

Date of meeting	Names of Climate-related Initiatives	Our representative
February 2021	TCFD Supporters	Chairman
April 2022	"Carbon Neutrality Alliance" formed by the Chinese National Federation of Industries.	Chairman
August 2022	Corporate ESG for Net Zero in Agriculture of the Council of Agriculture.	Chairman
November 2022	"Environmental, Renewables, and Carbon Reduction Initiative" of National Central University.	Chairman
February 2023	Global Steel Climate Council-Supporting Member.	Chairman
March 2023	Joined the "Alliance of Industrial Application of Hydrogen in Combustion and Hydrogen High-Pressure Storage Technology Industry".	Chairman

◆ Government agency

Government agency	Title of meeting	Date of meeting	Our representative
Ministry of Economic Affairs	1st plenary meeting of the "Committee on Work Circle of Industrial and Energy Efficiency" in 2022.	January 26, 2022	Chairman President
Chinese National Federation of Industries and various industry associations.	Signed the "Agreement on Carbon Neutrality Alliance".	April 7, 2022	Chairman
Legislative Yuan	The DPP held a public hearing on the amendment to the Climate Change Response Act in the Legislative Yuan.	April 25, 2022	President
Ministry of Economic Affairs	Consultation with the Premier: Manufacturing Sectors' Pathway to Carbon Reduction for 2030	July 8, 2022	Chairman President
Ministry of Economic Affairs	Steel and Iron Industries' Pathway to Carbon Reduction for 2030 Seminar	August 9, 2022	President
Ministry of Economic Affairs	Hydrogen Energy Storage & Industrial Combustion Application Pilot Research Technical Seminar	September 5, 2022	President
ITRI	Intelligent Industry Energy Management System Technology	September 8, 2022	President
CTCI Foundation	Emissions Training System (ETS): Viewpoint and Recommendations of Industries Seminar	September 22, 2022	President
Environmental Protection Administration	Taiwan-UK Forum on Carbon Pricing	October 11, 2022	President
Intellectual Property Office, MOEA	Analysis of the Global Trends for Carbon Capture Patents	October 18, 2022	President
Industrial Development Bureau	"Industrial Upgrading Innovation Platform Guidance Program Achievement Presentation" Seminar: Net Zero Emissions – The Inevitable Industrial Issue	October 28, 2022	President
National Cheng Kung University	MOE Carbon Neutrality Technology and Talents Development Base – First Forum	October 28, 2022	President
Ministry of Economic Affairs	Second plenary meeting of the "Committee on Work Circle of Industrial and Energy Efficiency" in 2022	November 7, 2022	Chairman President
Cathay Securities Corporation	2022 Q4 Industry Forum: ESG	December 8, 2022	President
Ministry of Economic Affairs	Alliance of Industrial Application of Hydrogen in Combustion and Hydrogen High-Pressure Storage Technology Industry	March 28, 2023	President

◆ Media organization

Media organization	Title of interview	Date of publication	Our representative
Business and Industry Interview	Dayeh Works Investment: Enhance THS competitiveness, Pave way for the next 60 years with an open mind, Saying goodbye to the old EAF works, Lead by two generations of curve wreckers, maintain brotherhood with workers.	April 2023	Chairman President
CommonWealth Magazine	The Thing That Neither THS Nor TSMC Can Miss: THS Green Transition	April 2023	Chairman President

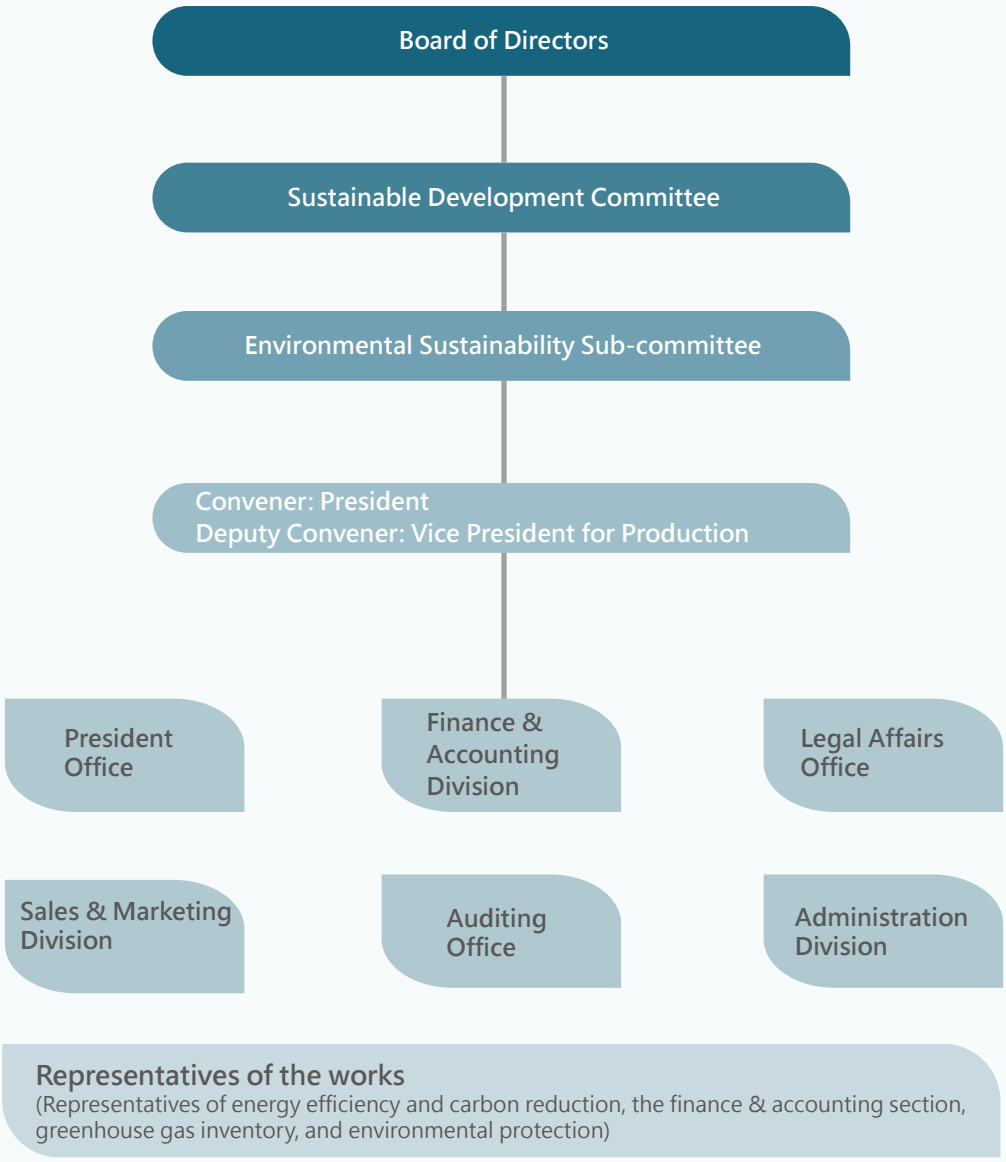
◆ Climate change-related training session

Date of session	Climate change-related training session	Hours	Attendees
May 11, 2021	2021 Guide to Corporate Governance – Corporate Climate Governance and TCFD Disclosure Practices	3 hours	All members of the Board and senior managers
May 5, 2022	Risks and Opportunities of Climate Change and the Net-Zero Emission Policy for Business Operations	3 hours	All members of the Board and senior managers
March 8, 2023	Development and Planning of Energy Storage Systems	4 hours	All members of the Board

▲ The representative of climate change issues under the Board

The Environmental Sustainability Working Group is established under the Sustainable Development Committee (a functional committee) of the Board, with the President and the Vice President for Production being the convener and deputy convener respectively. Consisting of members appointed by the relevant departments, the working group assesses and manages climate-related risks and opportunities, sets related strategies and targets, and makes continual analysis and control. The Environmental Sustainability Working Group periodically reports its performance to the Sustainable Development Committee.

◆ Organization of climate change-related governance at Tung Ho Steel



Board — **Convener : Chairman**

Missions in Climate Change Governance

Reviewing and directing the strategies, action plans and annual targets for climate change, regularly monitoring their implementation on an annual basis, and reviewing the targets of greenhouse gas reduction and the level of their achievement.

Performance

- Passed the application for renting the roof of certain buildings in the works for installing solar PV systems and peripheral facilities filed by subsidiary Tung Kang Wind Power in the 17th meeting of the 24th term of the Board on April 12, 2022.
- Passed the risk management plan, strategy, and targets for climate change in 2022 in the 19th meeting of the 24th term of the Board on May 27, 2022.
- Passed the establishment of the "Regulations for Appropriation and Utilization of Special Reserve for Climate Change Adaptation and Mitigation" in the 20th meeting of the 24th term of the Board on August 4, 2022.
- Passed the 2030 stage targets for "Net Zero 2050", setting two "30" stage targets for 2030: (1) Reduce carbon emissions by 30%: total carbon reduction by 30% over 2005; (2) RE30: Use over 30% of renewables in total electricity consumption in 2030; and complete the renewables procurement contracts for up to 30% of THS' total electricity consumption by 2030 in the 25th meeting of the 24th term of the Board on February 22, 2023.
- Passed the construction of the on-grid E-dReg energy storage system proposed by subsidiary Tung Kang Wind Power in the 26th meeting of the 24th term of the Board on April 11, 2023.

Sustainable Development Committee — **Convener : Chairman**

Missions in Climate Change Governance

Climate change-related issues, including the establishment, supervision and review of the system and targets for environmental sustainability, and submitting regular reports on climate-related issues to the Board.

Performance

- Passed the publication of the Climate-related Financial Disclosures Report 2022 and submitted the report to the Board in the 4th meeting of the 2nd term of the Sustainable Development Committee on May 24, 2022.
- Passed the establishment of the "Regulations for Appropriation and Utilization of Special Reserve for Climate Change Adaptation and Mitigation" in the 5th meeting of the 2nd term of the Sustainable Development Committee on July 29, 2022.
- Passed the publication of the Climate-related Financial Disclosures Report 2023 and submitted the report to the Board in the 8th meeting on May 2, 2023 of the 2nd Sustainable Development Committee Committee.

Environmental Sustainability Sub-committee — **Convener : President
Deputy Convener: Vice President for Production**

Missions in Climate Change Governance

Assessing and managing climate-related risks and opportunities, establishing the relevant operational plans and targets, and submitting regular reports to the Sustainable Development Committee regarding its performance.

Performance

- A meeting was held on the enhancement of management, where the President gave a keynote speech on the "Roadmap for Carbon Reduction by Tung Ho Steel."
- A meeting was held to discuss the methodology for assessing climate-related scenarios and finance.
- A meeting was held to assess climate-related strategies.
- A meeting was held on the project for modification of steel scrap preheating-type electric furnaces.
- A meeting was held to determine climate-related targets.
- A meeting was held to discuss the first draft of the report on climate-related financial disclosures (TCFD).
- Held the energy conservation and carbon reduction program planning meeting, established a working group, and unfolded the analysis and assessment of various energy conservation and carbon education plans.
- Implemented the carbon capture and reuse and hydrogen energy technology development projects (TDPs) of the Green Energy and Environment Research Labs, ITRI.
- Held the WSA Set-Up Program kick-off meeting.

▲ The reward mechanism for climate change issues

We have established a reward mechanism for climate change issues, with the Board overseeing and directing the following systems.

Article 10 of the "Board Performance Evaluation Regulations" stipulates that the results of the Board performance evaluation shall be the reference for director election or nomination, and the results of performance evaluation of individual directors the reference for the determination of their salary and remuneration. In December 2021, we amended the “Regulations Governing Evaluation of the Performance of the Board” by including climate change-related items for evaluation to strengthen the supervision of the governing hierarchy and participate in climate change management.

In addition, we have established the “Regulations Governing Improvement Proposals” to accept proposals concerning climate-related strategies, greenhouse gas reduction, and energy efficiency. Rewards will be given based on the results of review and the effectiveness of projects. In 2021 to 2023, the Taoyuan Works and Miaoli Works submitted five proposals concerning greenhouse gas reduction and were given rewards.

3.Management of Climate Change-Related Risks and Opportunities

▲ The process for management of climate-related risks and opportunities

We have established the Sustainable Development Committee with three working groups: Environmental Sustainability, CSR, and Corporate Governance working groups. The Corporate Governance Working Group establishes, oversees, and reviews the policies and management mechanisms relating to corporate governance, ethical corporate management, and risk management. The Board has set up a Corporate Governance and Nomination Committee consisting of sub-committees on corporate governance, sustainable development, ethical management, environmental sustainability, and risk management. The Risk Management Sub-committee is a body responsible for risk management, and is tasked with coordinating with the relevant departments in risk identification, assessment, control, and monitoring and submitting regular reports to the Sustainable Development Committee regarding its performance. The Sustainable Development Committee will submit a report to the Board regarding the overall performance in risk management at least annually. Each of the relevant departments will assess the likelihood and impact of each risk factor within the scope of its responsibilities and establish and implement necessary measures to properly manage all risks. The Auditing Office will establish an annual audit plan according to the risk management policy and the results of risk assessment, conduct audits of the relevant systems according to the plan, assist the Board in monitoring and controlling the possible risks inherent in the implementation of decisions, ensure the effective control of all operational risks, and provide timely recommendations for improvement.

The Environmental Sustainability Sub-committee under the Sustainable Development Committee is a body responsible for climate change-related management. Besides learning about the contents of international initiatives and organizations related to various sustainability and climate change issues, the Company has taken the concerns and evaluation criteria of international initiatives into account when establishing environmental and GHG policies to facilitate conformity with international development trends and to enhance the Company’s capacity in addressing climate change.

◆ The process for risk management at Tung Ho Steel

▲ The Process for Identification, Assessment and Response of Climate-related Risks and Opportunities

At the climate risk and opportunity identification meeting convened by the ESS, apart from assessing the countermeasures and financial impacts of the major short-, medium-, and long-term risks and opportunities identified with respect to the list of transition risks, physical risks, and opportunities recommended by the TCFD, departments also consider the impacts on the Company's business operations and strategies of products and services, the supply chain, adaptation and mitigation activities, R&D investment, and business operations (including business types and facility locations). The identification and assessment of climate change-related transition risks and physical risks includes the degree of impact on business operations, likelihood of occurrence, and vulnerabilities caused. The identification and assessment of climate change-related transition risks and physical risks include the level of their impact on business operations, the likelihood of their occurrence and the vulnerabilities in case of their occurrence. The identification and assessment of climate change-related opportunities include the level of their effects on business operations and the likelihood of their occurrence.

A matrix analysis will be conducted after identification, and the Environmental Sustainability Working Group will hold a discussion to finally identify the material climate change-related risks and opportunities.

Then, the Environmental Sustainability Working Group will hold a meeting to discuss the response strategies for TCFD risks and opportunities and decide our future climate change-related strategies, and the Corporate Governance and Nomination Committee will review the climate-related risks and opportunities and the relevant strategies and targets. Lastly, the Board will review and direct the strategies, action plans and annual targets for climate change, regularly monitor their implementation on an annual basis, and review the targets of greenhouse gas reduction and the level of their achievement.

◆ Identification and Assessment of Climate-related Risks and Opportunities at Tung Ho Steel

Timeline	• Short Term: 2023 to 2025 • Medium Term: 2026 to 2030 • Long term: 2031 to 2050
Measurement of Risks and Opportunities	• Likelihood of occurrence • Level of financial Impact • Potential vulnerability
Types of Risks and Opportunities	• Transition risks: Policies and laws, technology, market, reputation • Physical risks: Acute and chronic • Opportunities: Resource efficiency, energy sources, products and services, market, resilience
Setting a Climate Scenario	• 1.5° C scenario • NDC scenario • (SSP5-8.5) scenario in IPCC' s 6th assessment report on climate change

4.Climate Change-Related Strategy

▲ Application of climate-related scenarios

As climate-related risks and opportunities affect our strategies and financial planning, we have analyzed and assessed the resilience of our climate strategies in terms of the transition and physical risks and the worst-case scenarios faced by climate opportunities as recommended by TCFD.

Types of climate-related risks and opportunities	Scenarios for the assessment of our strategies	Scenario description
• Transition Risks • Opportunities	• 1.5° C scenario • Taiwan' s pathway and strategy for net-zero emissions in 2050 • Taiwan NDC • Taiwan' s Climate Change Response Actw	As Net Zero by 2050 has become a global trend, the government of Taiwan not only published the "Taiwan' s Pathway to Net-Zero Emissions in 2050" in March 2022 to set plans and targets for transition to net zero emissions, but also announced the targets and action plans for different stages towards net-zero emissions and proposed in December 2022 the nationally determined contribution (NDC) to carbon reduction by 24±1%. In January 2023, Taiwan' s legislature passed the Climate Change Response Act to stipulate net zero 2050, setting the legal basis for future climate governance and establishing the carbon fee mechanism.
• Physical Risks	• The worst-case scenario for global warming (SSP5-8.5) in IPCC' s 6th scientific assessment report	Under a scenario of extremely high greenhouse gas emissions (SSP5-8.5), climate change would exacerbate changes in the average temperature, extremely high temperature, annual total precipitation, annual maximum 1-day intensity of heavy precipitation, annual maximum number of consecutive dry days and percentage of strong typhoons in the future, with likely effects on the operations of Tung Ho Steel and its value chains.

Description of 1.5° C scenario, Taiwan's pathway, and strategy for net-zero emissions in 2050, and Taiwan's *Climate Change Response Act*	
Carbon Fee Imposition	The government of Taiwan collects the carbon fee from all businesses in accordance with the Climate Change Response Act. The estimated carbon fee in the short, medium, and long term is NT$300/$tCO_2e$, NT$500/tCO_2e, and NT$750/$tCO_2e$–NT$1,500/tCO_2e respectively.
Electricity Price Increase	In response to the government of Taiwan' s 2030 NDC, Taiwan Power Company (TPC) will raise the electricity price by 20% every five years.
Taiwan Power Company reduces the electricity carbon emission factor	In response to the government of Taiwan' s Net Zero 2050 policy, TPC adjusts the electricity carbon emission factor every year.
Required to Install Renewable Energy	In accordance with the Renewable Energy Development Act, the government of Taiwan requests heavy electricity users to build renewables generation facilities with a capacity of about 10% of the required contract capacity.
Changes in customer behavior	Some customers request THS to provide the certificate of carbon neutrality after the medium term.
Government Provides Relevant Subsidies	The government of Taiwan subsidizes businesses for carbon reduction, renewables, energy storage systems, and carbon capture in accordance with the *Climate Change Response Act.*

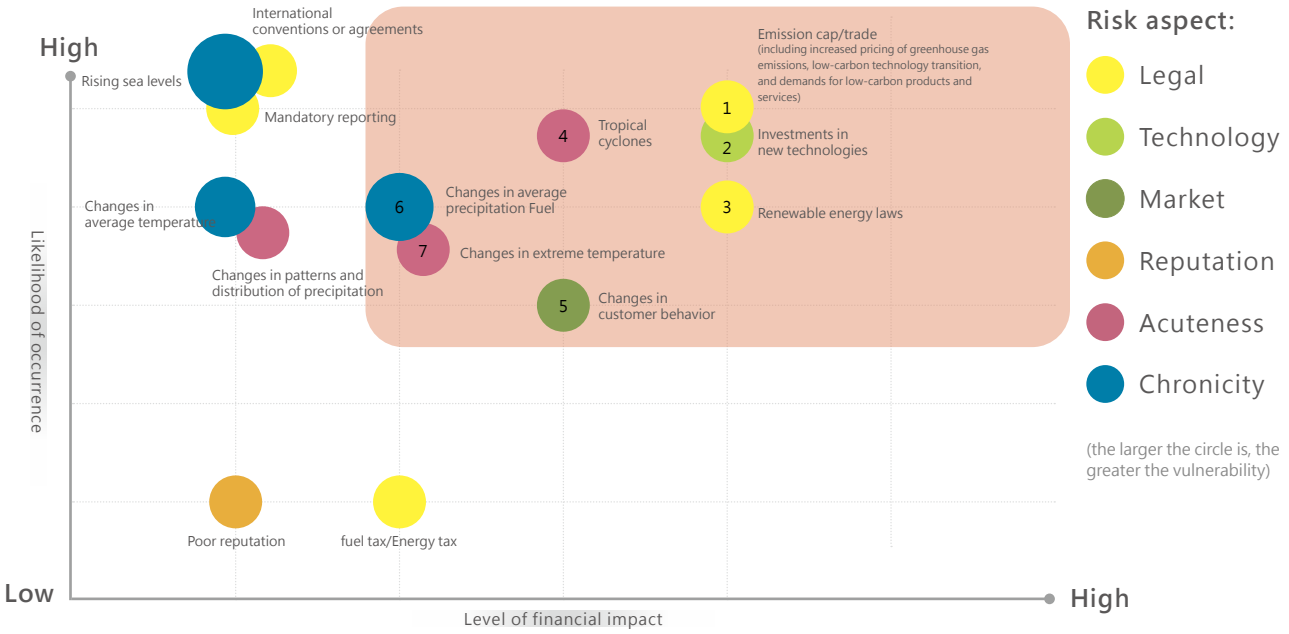
Description of the Worst-case Scenario for Global Warming (SSP5-8.5) in IPCC' s 6th Scientific Assessment Report	
temperature	It is estimated that the temperature in Taiwan will continue to rise. Under the worst-case scenario for global warming (SSP5-8.5), the average temperatures in the middle and at the end of the 21st century are likely to rise by more than 1.8° C and 3.4° C, respectively.
extreme high temperature	In future events of extremely high temperature, the number of days with maximum temperature above 36° C would increase. Under the worst-case scenario (SSP5-8.5), the number of days in the middle and at the end of the 21st century would increase by approximately 8.5 and 48.1, respectively.
annual total rainfall	It is estimated that the annual total precipitation in Taiwan is likely to increase in the future. Under the worst-case scenario (SSP5-8.5), the average amount of annual total precipitation in Taiwan in the middle and at the end of the 21st century would increase by approximately 15% and 31%, respectively.
intensity of heavy rain	The annual maximum 1-day intensity of heavy precipitation in Taiwan is likely to increase. Under the worst-case scenario (SSP5-8.5), the average annual maximum 1-day intensity of heavy precipitation in the middle and at the end of the 21st century would increase by approximately 20% and 41.3%, respectively.
consecutive dry days	The annual maximum number of consecutive dry days is likely to increase. Under the worst-case scenario (SSP5-8.5), such number of days in the middle and at the end of the 21st century would increase by an average of approximately 5.5% and 12.4%, respectively.
typhoon	Under the worst-case scenario (RCP8.5), the number of typhoons affecting Taiwan in the middle and at the end of the 21st century would decrease by approximately 15% and 55% respectively, and the percentages of strong typhoons would increase by approximately 100% and 50% respectively, while the rates of change in typhoon precipitation would increase by approximately 20% and 35% respectively.

▲ Result of identification of climate-related risks and opportunities

In the meeting for identifying climate-related risks and opportunities, the Environmental Sustainability Working Group has identified seven material climate-related risks and four material climate-related opportunities based on the TCFD-recommended assessment framework (the score of [significance of impact x likelihood of occurrence] ≥ 8 is considered as material). The financial impact (NT$/year) in the short, medium, and long term is defined as 2025, 2030, and 2050 respectively.

Compared to the 1.5°C scenario, Taiwan's pathway and strategy for net-zero emissions in 2050, and the worst-case scenario for global warming (SSP5-8.5) in IPCC's 6th scientific assessment report we used in the assessment of climate-related risks and opportunities for 2022, in 2023 we added the Taiwan 2030 NDC to the carbon reduction targets, the "changes in extreme temperature" to the material climate-related risks, and the "shift toward decentralized energy generation" to material climate-related opportunities to replace the "incentive policy".

◆ Matrix of climate-related risks at Tung Ho Steel

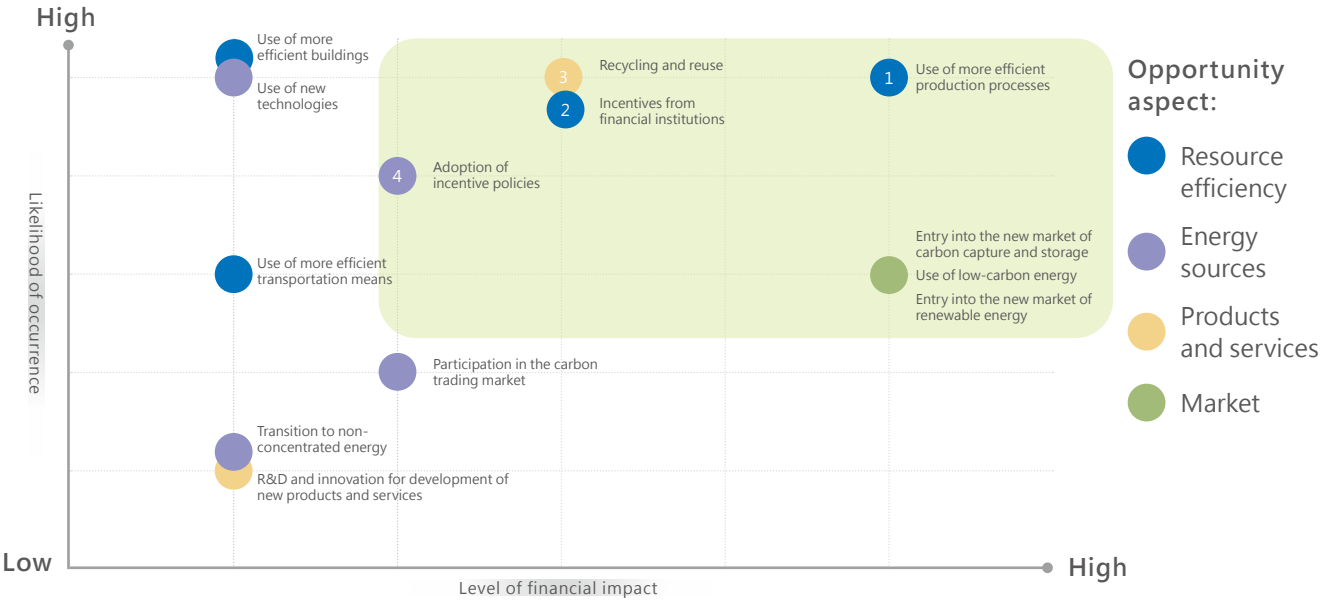


◆ Identified Climate-related Material Risks

Risk Ranking	Risk Type	Risk Description	Risk Scope	Timing	Likelihood of occurrence	Level of financial Impact
1	Transition risks Opportunities	【Legal】 Emission Cap/Trade (increased pricing of GHG emissions + transition to lower-emission services + demands for low-carbon products and services + use of low-emission energy).	Tung Ho Steel	Short term Medium term	Very Likely	Medium-high
2	Transition risks Opportunities	【Technology】 Investments in New Technologies (entry into the carbon capture and storage (CCS) market).	Tung Ho Steel	Medium term	Very Likely	Medium-high
3	Transition risks Opportunities	【Legal】 Renewables Laws and Regulations (entry into the renewables market).	Tung Ho Steel	Medium term	Likely	Medium-high
4	Physical risks	【Acuteness】 Tropical cyclones	Tung Ho Steel	Long term	Very Likely	Medium
5	Transition risks	【Market】 Changes in customer behavior	Tung Ho Steel, Customers	Long term	Possible	Medium
6	Physical risks	【Acuteness】 Changes in average precipitation	Tung Ho Steel	Long term	Likely	Medium-Low
7	Physical risks	【Chronicity】 Changes in Extreme Temperature.	Tung Ho Steel	Long term	Likely	Medium-Low

Note: The levels of financial impact are based on the risk management policy and procedures of Tung Ho Steel.

◆ Matrix of climate-related opportunities at Tung Ho Steel



◆ Identified Climate-related Material Opportunities

Opportunity ranking	Opportunity description	Opportunity scope	Timing	Likelihood of occurrence	Level of financial Impact
1	【Resource Efficiency】 Use of higher-efficiency production means.	Tung Ho Steel	Medium term	Very Likely	High
2	【Energy Efficiency】 Recycling and reuse.	Tung Ho Steel	Short term	Very Likely	Medium
3	【Market】 Incentives from financial institutions.	Tung Ho Steel, financial institutions	Short term	Very Likely	Medium
4	【Energy Source】 Shift toward decentralized energy generation.	Tung Ho Steel	Medium term	Very Likely	Medium

Note:
1.The levels of financial impact are based on the risk management policy and procedures of Tung Ho Steel.
2.Entry into the CCS market, use of low-carbon energy, entry into the new market of renewables" will be discussed in Risks 1-3.

▲ Assessment of climate-related material risks and strategies

After identifying the climate-related risks and opportunities by the Company and the discussion financial exposure assessment of each department, the Finance & Accounting Division assisted all departments in defining the relevant accounting titles in their statement of comprehensive income, statement of financial position, and statement of cash flow based on the Company's accounting system and IFRS by judging the financial exposure and cost and effectiveness of strategies.

Timing: Short term、Medium term/ Likelihood of occurrence: Very Likely/ Level of financial Impact: Medium-high

◎ Risk 1

Risk 1:【Legal】Emission Cap/Trade (increased pricing of greenhouse gas emissions + transition to lower emission services + demands for low-carbon products and services)
Risk 2:【Technology】Investments in New Technologies
Risk 3:【Legal】Renewable Energy Laws
Opp 1:【Resource Efficiency】Use of Higher-efficiency Production Means

- Risk Description

In 2023 the government of Taiwan passed the Climate Change Response Act to establish the mechanism to collect carbon fee from businesses. She also passed the Renewable Energy Development Act to request heavy electricity users to build renewables generation facilities with a capacity of about 10% of the required contract capacity. These laws and regulations will cause an impact to the Company's capital expenditure and operating cost.

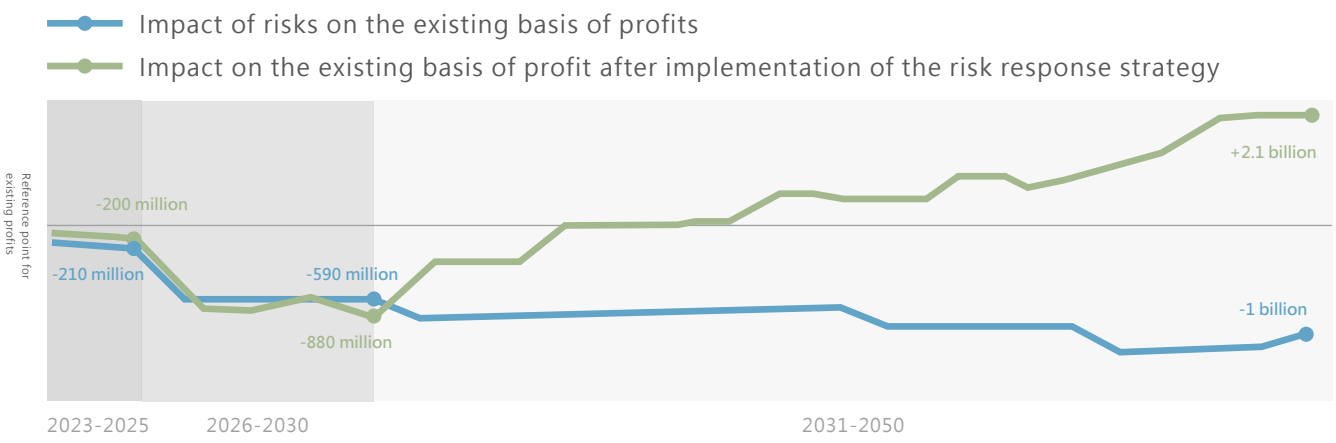
- Strategic Response:

In response to the increasingly stringent requirements concerning emission cap/trade, renewables laws and regulations, increased pricing of greenhouse gas emissions, transition to low-emission services, and demands for low-carbon products and services, in the future we will adopt measures to mitigate climate-related impacts, such as using higher-efficiency furnaces, purchasing renewable energy certificates (RECs), using no milling iron in steel refining, and entering the CCS market, to transform such impacts into financial opportunities for business operations.

◆ Description of financial impact

Term	Financial Impact (NT$/year)	Impact of risks on the existing basis of profits	Financial impact (NT$/year)	Impact on the existing basis of profits after implementation of the risk response strategy
Short	-210 million	【Increased Cost】 The estimated carbon fee for 2024–2025 is at NT$300/tCO$_2$e, and TPC increases electricity prices by 20% every five years.	-200 million	【Increased Cost】 Purchase of RECs from Tung Kang Wind Power and the carbon capture, utilization, and storage (CCUS) university-industry collaborative research project. 【Reduced Cost】 Carbon fee offset/waiver, no use of milling iron.
Medium	-590 million	【Increased Cost】 The estimated carbon fee for 2026–2030 is NT$500 tCO$_2$e; substitute payment of heavy electricity users in accordance with the Renewable Energy Development Act; and TPC increases electricity prices by 20% every five years.	-880 million	【Increased Cost】 Purchase of RECs from Tung Kang Wind Power and from other sources; costs of depreciation, amortization, and operations of the CCUS experimental works; and the depreciation of the EAF 1 modification project. 【Capital Expenditure】 Establishment of an experimental work for carbon capture, utilization, and storage (CCUS). 【Reduced Cost】 Offset/waiver of the substitute fee under the requirements for heavy electricity users, reduced cost for purchased electricity, and no use of milling iron.
Long	-1 billion	【Increased Cost】 The estimated carbon fee for 2031–2040 is NT$750 tCO2e, 2041–2045 is NT$1,000 tCO$_2$e, 2046–2050 is NT$1,500tCO$_2$e; substitute payment of heavy electricity users in accordance with the Renewable Energy Development Act; and TPC increases electricity prices by 20% every five years.	+2.1 billion	【Increased Cost】 Purchase of RECs from Tung Kang Wind Power. Purchase of RECs from other sources. Costs of depreciation, amortization, and operations of the mass production works for carbon capture, utilization, and storage (CCUS). Costs of depreciation and amortization EAFs 1 and 2. 【Capital Expenditure】 Establishment of a mass production works for carbon capture, utilization and storage (CCUS). Activation of the modification projects for EAFs 1 and 2. 【Reduced Cost】 Offset/waiver of the substitute fee under the requirements for heavy electricity users, reduced cost for purchased electricity, and no use of milling iron.

◆ Risk 1 Financial impacts of short-, medium- and long-term risks and the strategies in response to them



Note: In "Financial impact (NT$/year)," "-" means a decrease in the profit relative to the existing basis of profits, and "+" means an increase in the profit relative to the existing basis of profits.

Timing: Medium term/ Likelihood of occurrence: Very Likely/ Level of financial Impact: Medium-high

◎ Risk 2

【Technology】 Investments in new technologies

- Risk Description

As an electric arc steel refinery, apart from the indirect "Scope 2" GHG emissions from purchased electricity, we also need to pay the carbon fee for direct "Scope 1" GHG emissions. In the future, we may be requested to develop CCUS-related technologies, causing financial impacts due to increased capital expenditure, and increased operating cost.

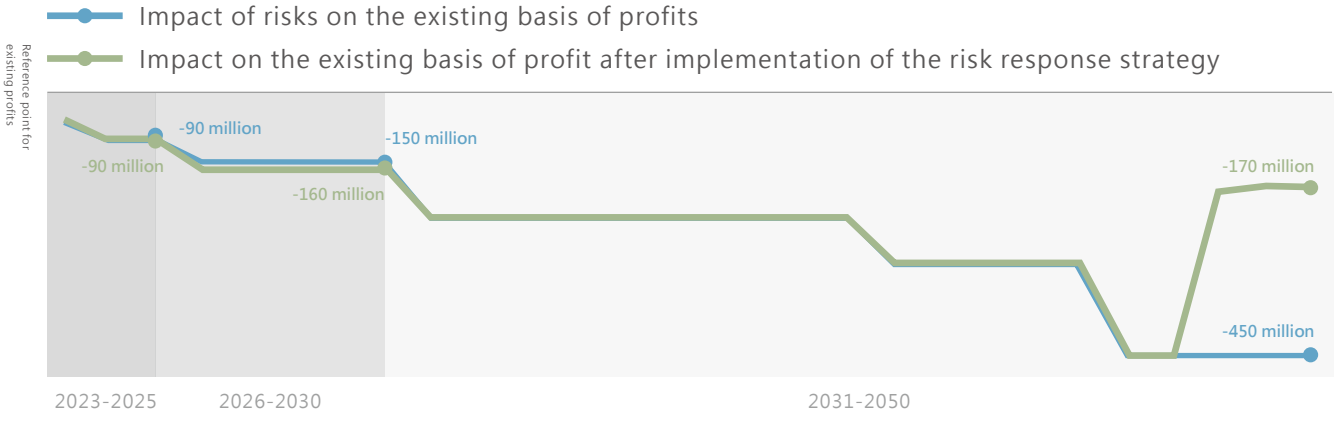
- Strategic Response:

We will engage in the CCUS university-academia collaborative research project in the short run and activate the CCUS experimental and mass production works for the long run to meet the climate-related legal and regulatory requirements and so to lower the financial impact on future corporate operations.

◆ Description of financial impact

Term	Financial Impact (NT$/year)	Impact of risks on the existing basis of profits	Financial impact (NT$/year)	Impact on the existing basis of profits after implementation of the risk response strategy
Short	-90 million	【Increased Cost】 The estimated carbon fee of Scope 1 GHG emissions for 2024–2025 is NT$300 tCO2e.	-90 million	【Increased Cost】 Activation of the CCUS university-industry collaborative research project.
Medium	-150 million	【Increased Cost】 The estimated carbon fee of Scope 1 GHG emissions for 2026–2030 is NT$500 tCO2e.	-160 million	【Capital Expenditure】 Establishment of an experimental works for carbon capture, utilization and storage (CCUS). 【Increased Cost】 Costs of depreciation, amortization, and operations of the CCUS experimental works.
Long	-450 million	【Increased Cost】 The estimated carbon fee of Scope 1 GHG emissions for 2031–2040 is NT$750tCO2e, 2041–2045 is NT$1,000tCO2e; and 2046–2050 is NT$1,500tCO2e.	-170 million	【Capital Expenditure】 Establishment of a mass production works for carbon capture, utilization and storage (CCUS). 【Increased Cost】 Costs of depreciation, amortization and operation of the CCUS mass production works. 【Reduced Cost】 Carbon fee offset/waiver.

◆ Risk 2 Financial impacts of short-, medium- and long-term risks and the strategies in response to them



Note:
1.In "Financial impact (NT$/year)," "-" means a decrease in the profit relative to the existing basis of profits, and "+" means an increase in the profit relative to the existing basis of profits.
2.The amount of "Impact of risks on the existing basis of profits" under this risk is already covered by "Impact of risks on the existing basis of profits" under Risk 1.
3.The amount of "Impact on the existing basis of profit after implementation of the risk response strategy" under this risk is already covered by "Impact on the existing basis of profit after implementation of the risk response strategy" under Risk 1.

Timing: Medium term/ Likelihood of occurrence: Likely/ Level of financial Impact: Medium-high

◎ Risk 3

【Legal】Renewable energy laws

- Risk Description

The Taiwanese government has enacted the "Renewable Energy Development Act," which requires large electricity consumers to install renewable energy generation facilities with a capacity of 10% of their contracted capacity. The implementation of these regulations will result in capital expenditure and cost impacts on our company.

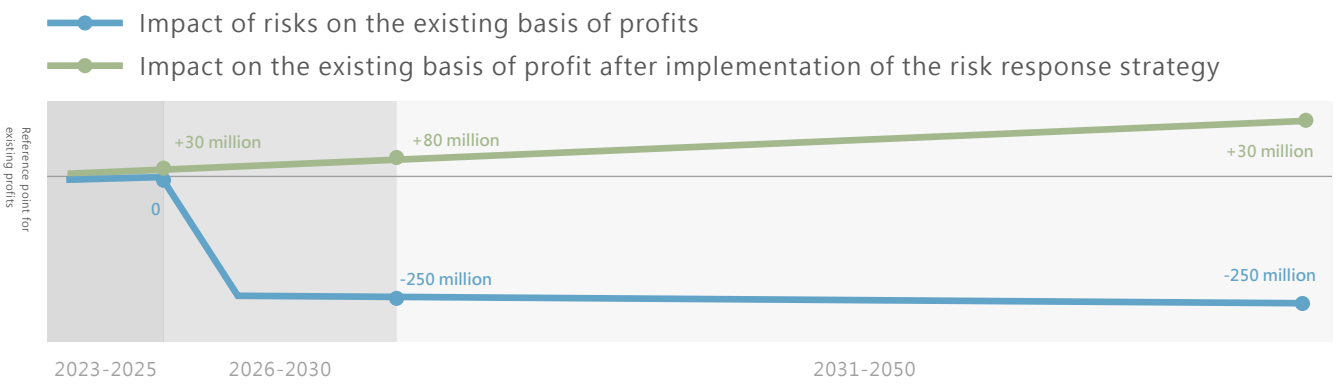
- Strategic Response:

To comply with the "Renewable Energy Development Act," our company will install solar power generation equipment. This initiative will not only offset the costs associated with regulatory compliance but also reduce electricity usage expenses, providing cost benefits to the company.

◆ Description of financial impact

Term	Financial Impact (NT$/year)	Impact of risks on the existing basis of profits	Financial impact (NT$/year)	Impact on the existing basis of profits after implementation of the risk response strategy
Short	0	【Increased Cost】 None	+30 million	【Capital Expenditure】 Installation of solar PV facilities. 【Reduced Cost】 Offset/waiver of the substitute fee under the requirements for heavy electricity users and reduced cost for purchased electricity. 【Increased Cost】 Costs of depreciation, amortization, and operation of solar PV facilities.
Medium	-250 million	【Increased Cost】 The contracted capacity of power consumed by THS is 250,000 kW. If we fail to deploy renewables in accordance with the requirements for heavy electricity users, we will need to pay an annual substitute fee from 2026.	+80 million	【Reduced Cost】 Offset/waiver of the substitute fee under the requirements for heavy electricity users and reduced cost for purchased electricity. 【Increased Cost】 Costs of depreciation, amortization, and operation of solar PV facilities.
Long	-250 million	【Increased Cost】 The contracted capacity of power consumed by THS is 250,000 kW. If we fail to deploy renewables in accordance with the requirements for heavy electricity users, we will need to pay an annual substitute fee from 2026.	+300 million	【Reduced Cost】 Offset/waiver of the substitute fee under the requirements for heavy electricity users and reduced cost for purchased electricity. 【Increased Cost】 Costs of depreciation, amortization, and operation of solar PV facilities.

◆ Risk 3 Financial impacts of short-, medium- and long-term risks and the strategies in response to them



Note:
1.In "Financial impact (NT$/year)," "-" means a decrease in the profit relative to the existing basis of profits, and "+" means an increase in the profit relative to the existing basis of profits.

2.The amount of "Impact of risks on the existing basis of profits" under this risk is already covered by "Impact of risks on the existing basis of profits" under Risk 1.

3.The amount of "Impact on the existing basis of profit after implementation of the risk response strategy" under this risk is already covered by "Impact on the existing basis of profit after implementation of the risk response strategy" under Risk 1.

Timing: Long term/ Likelihood of occurrence: Very Likely/ Level of financial Impact: Medium

◎ Risk 4

【Acute】Tropical Cyclones

- Risk Description

According to the IPCC's Sixth Assessment Report, in the worst-case scenario of global warming (SSP5-8.5), Taiwan is projected to experience a 100% increase in severe typhoons. It is estimated that starting from 2030, there will be two typhoons each year, resulting in property damage and financial impacts due to production site disruptions.

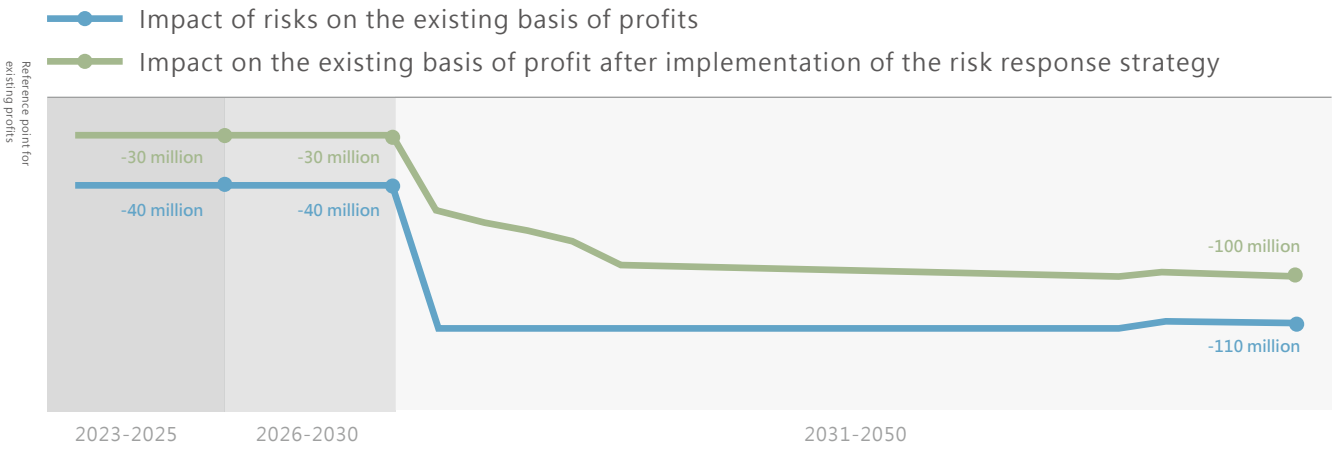
- Strategic Response:

In response to the financial impacts caused by future severe typhoons, our company will purchase relevant insurance to transfer this risk and reduce the increased risk to the company.

◆ Description of financial impact

Term	Financial Impact (NT$/year)	Impact of risks on the existing basis of profits	Financial impact (NT$/year)	Impact on the existing basis of profits after implementation of the risk response strategy
Short	-40 million	【Increased Cost】 Loss on PP&E (repairing fee) due to typhoons.	-30 million	【Increased Cost】 Loss on PP&E (repairing fee) due to typhoons. Insurance expenses. 【Increased Income】Insurance claim.
Medium	-40 million	【Increased Cost】 Loss on PP&E (repairing fee) due to typhoons.	-30 million	【Increased Cost】 Loss on PP&E (repairing fee) due to typhoons. Insurance expenses. 【Increased Income】Insurance claim.
Long	-110 million	【Increased Cost】 Loss on PP&E (repairing fee) due to typhoons. Loss on PP&E (labor cost) due to typhoons. Loss on PP&E (depreciation) due to typhoons. 【Reduced Profit】 Business disruption of the works due to typhoons.	-100 million	【Increased Cost】 Loss on PP&E (repairing fee) due to typhoons. Loss on PP&E (labor cost) due to typhoons. Loss on PP&E (depreciation) due to typhoons. Insurance expenses. 【Reduced Profit】 Business disruption of the works due to typhoons. 【Increased Income】 Insurance claim.

◆ Risk 4 Financial impacts of short-, medium- and long-term risks and the strategies in response to them



Note: In "Financial impact (NT$/year)," "-" means a decrease in the profit relative to the existing basis of profits, and "+" means an increase in the profit relative to the existing basis of profits.

Timing: Long term/ Likelihood of occurrence: Possible/ Level of financial Impact: Medium

◆ Risk 5

【Market】Changes in Customer Behavior

- Risk Description

Facing the increasing demand for low-carbon transformation services, low-carbon products, and strict requirements, customers may require EPD (Environmental Product Declaration) certificates in the short term and carbon neutrality proofs for reinforcing bars in the medium to long term to qualify for delivery. Failure to meet these requirements may lead to a financial risk of reduced revenue for the company.

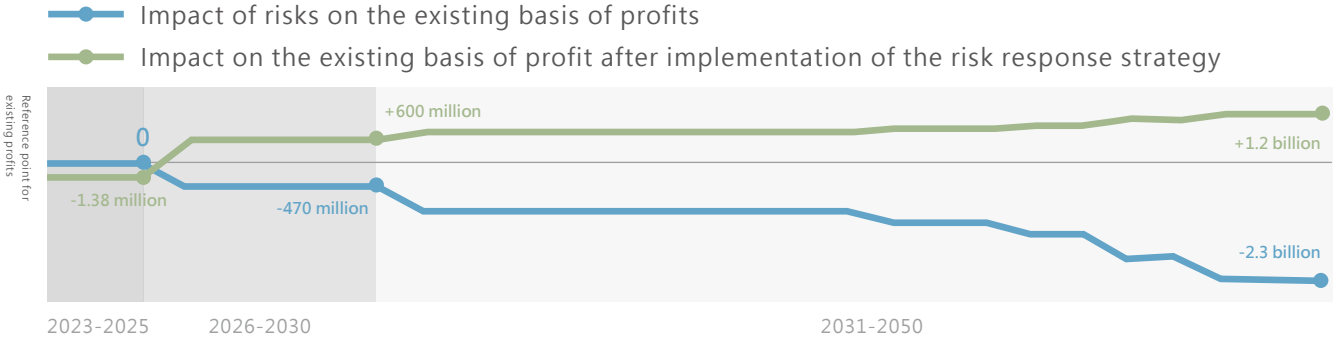
- Strategic Response:

Our company will continue to invest in guidance and certification for EPD carbon labeling. In the medium to long term, we will purchase carbon credits to achieve product carbon neutrality and meet market and customer demands. This not only reduces the revenue risk associated with reduced orders but also provides financial opportunities for additional revenue and increased profitability.

◆ Description of financial impact

Term	Financial Impact (NT$/year)	Impact of risks on the existing basis of profits	Financial impact (NT$/year)	Impact on the existing basis of profits after implementation of the risk response strategy
Short	0	None	<-10 million. (-1.38 million)	【Increased Cost]】 Implementation of guidance for and certification of the EPD carbon label. 【Profit Increase】 Acquisition of customer orders requiring carbon labels for products.
Medium	-470 million	【Reduced Profit】 Loss of customer orders requiring carbon labels for products. Loss of customer orders requiring carbon neutrality for products.	+600 million	【Increased Cost】 Implementation of guidance for and certification of the EPD carbon label. Purchase of carbon credits to achieve carbon neutrality for products. 【Profit Increase】 Acquisition of customer orders requiring carbon labels for products. Acquisition of customer orders requiring carbon neutrality for products.
Long	-2.3 billion	【Reduced Profit】 Loss of customer orders requiring carbon labels for products. Loss of customer orders requiring carbon neutrality for products.	+1.2 billion	【Increased Cost】 Implementation of guidance for and certification of the EPD carbon label. Purchase of carbon credits to achieve carbon neutrality for products. 【Profit Increase】 Acquisition of customer orders requiring carbon labels for products. Acquisition of customer orders requiring carbon neutrality for products.

◆ Risk 5 Financial impacts of short-, medium- and long-term risks and the strategies in response to them



Note: In "Financial impact (NT$/year)," "-" means a decrease in the profit relative to the existing basis of profits, and "+" means an increase in the profit relative to the existing basis of profits.

Timing: Long term/ Likelihood of occurrence: Likely/ Level of financial Impact: Medium-Low

◆ Risk 6

【Chronicity】Changes in Average Precipitation

- Risk Description

According to the IPCC's Sixth Assessment Report, in the worst-case scenario of global warming (SSP5-8.5), Taiwan is projected to experience a 15% increase in annual total rainfall. However, there will also be a 5.5% increase in the number of consecutive dry days. This could lead to water supply disruptions, causing the local water company to implement water rationing measures. As a result, our company's facilities may experience a 7-day water shortage, leading to a financial impact of reduced revenue and increased costs.

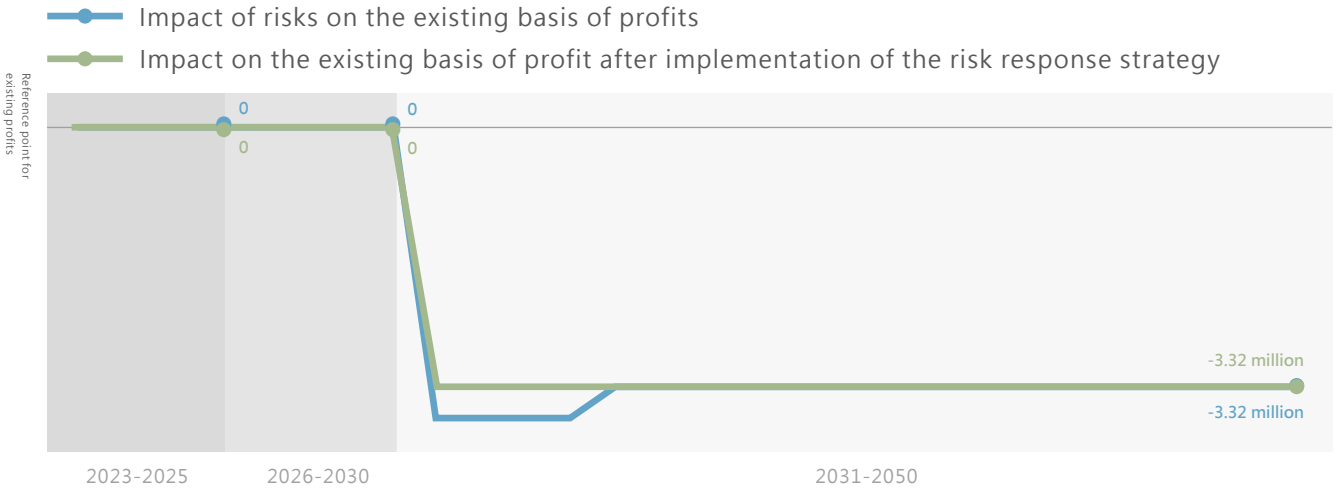
- Strategic Response:

To mitigate the financial impact of water shortages, our company will develop a long-term strategy of using water trucks to sustain operations at the facilities. While this strategy will incur additional costs for water transportation, it will help minimize the financial impact of reduced revenue and increased costs.

◆ Description of financial impact

Term	Financial Impact (NT$/year)	Impact of risks on the existing basis of profits	Financial impact (NT$/year)	Impact on the existing basis of profits after implementation of the risk response strategy
Short	0	None	0	None
Medium	0	None	0	None
Long	< -10 million (-3.32 million)	【Reduced Profit】 Business disruption of the works due to water outage. 【Increased Cost】 Loss on PP&E (labor cost) due to water outage. 【Increased Cost】 Loss on PP&E (depreciation) due to water outage.	< -10 million (-3.32 million)	【Increased Cost】 Use of water tankers to transport water.

◆ Risk 6 Financial impacts of short-, medium- and long-term risks and the strategies in response to them



Note: In "Financial impact (NT$/year)," "-" means a decrease in the profit relative to the existing basis of profits, and "+" means an increase in the profit relative to the existing basis of profits.

Timing: Long term/ Likelihood of occurrence: Likely/ Level of financial Impact: Medium-Low

◆ Risk 7

【Acute】Changes in Extreme Temperatures

- Risk Description

According to the IPCC's Sixth Assessment Report in the worst-case scenario of global warming (SSP5-8.5), Taiwan may experience power restrictions due to extreme heat, leading to work stoppages: short-term - 5 days, medium-term - 10 days, long-term - 20 days. This would result in a financial impact of reduced revenue and increased costs for the company.

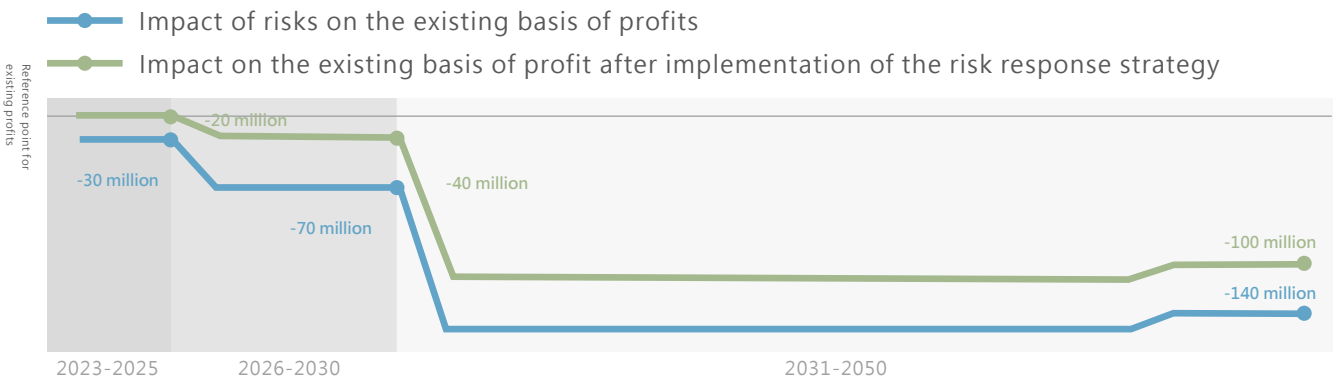
- Strategic Response:

Our company plans to implement flexible scheduling to mitigate the financial impact caused by the loss of reduced labor costs.

◆ Description of financial impact

Term	Financial Impact (NT$/year)	Impact of risks on the existing basis of profits	Financial impact (NT$/year)	Impact on the existing basis of profits after implementation of the risk response strategy
Short	-30 million	【Reduced Profit】 Losses on basic electricity bills due to business disruption of the works as a result of power outage. 【Increased Cost】 Losses of labor costs of the works due to power outage. Loss on PP&E due to power outage.	-20 million	【Reduced Profit】 Losses on basic electricity bills due to business disruption of the works as a result of power outage. 【Increased Cost】 Loss on PP&E due to power outage.
Medium	-70 million	【Reduced Profit】 Losses on basic electricity bills due to business disruption of the works as a result of power outage. 【Increased Cost】 Losses of labor costs of the works due to power outage. Loss on PP&E due to power outage.	-40 million	【Reduced Profit】 Losses on basic electricity bills due to business disruption of the works as a result of power outage. 【Increased Cost】 Loss on PP&E due to power outage.
Long	-140 million	【Reduced Profit】 Losses on basic electricity bills due to business disruption of the works as a result of power outage. 【Increased Cost】 Losses of labor costs of the works due to power outage. Loss on PP&E due to power outage.	-100 million	【Reduced Profit】 Losses on basic electricity bills due to business disruption of the works as a result of power outage. 【Increased Cost】 Loss on PP&E due to power outage.

◆ Risk 7 Financial impacts of short-, medium- and long-term risks and the strategies in response to them



Note: In "Financial impact (NT$/year)," "-" means a decrease in the profit relative to the existing basis of profits, and "+" means an increase in the profit relative to the existing basis of profits.

Timing: Medium term/ Likelihood of occurrence: Very Likely/ Level of financial Impact: High

◆ Opp 1

【Resource Efficiency】Use of higher-efficiency production means

- Opportunity Description:

The implementation of an efficient electric arch furnace will bring cost opportunities in terms of reduced electricity expenses compared to existing equipment. It will also help in reducing indirect greenhouse gas emissions in Category 2.

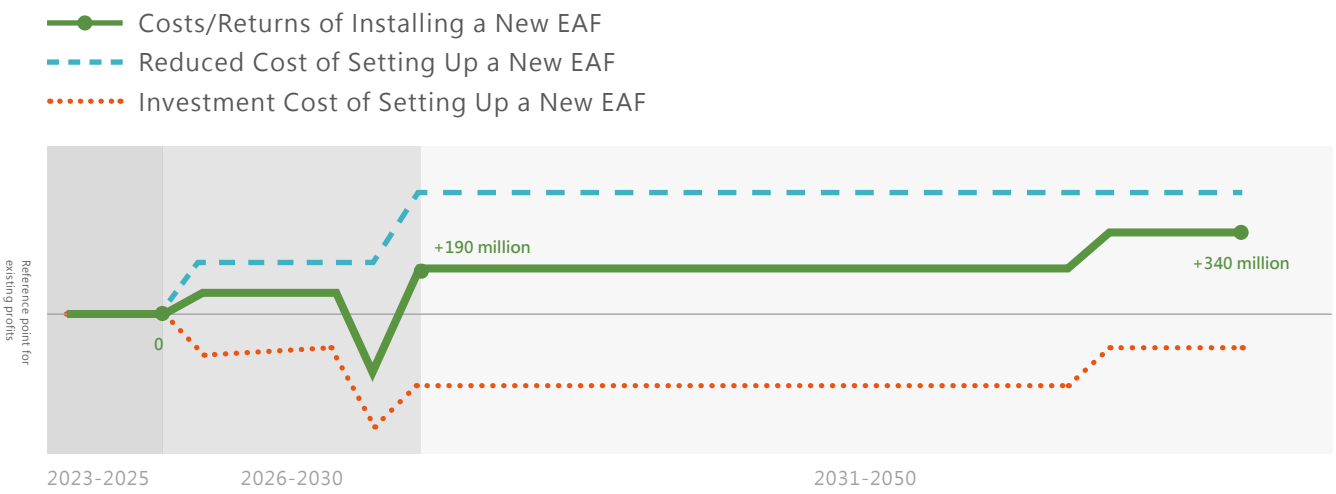
- Strategy Response:

In the medium term, our company plans to replace the old electric furnace with a new waste steel preheating electric furnace. This replacement will result in a reduction of 100 to 120 kilowatt-hours of electricity per unit of smelting. While there will be an increase in capital expenditure and depreciation costs, the overall reduction in purchased electricity expenses will provide the company with cost savings and increased profitability.

◆ Description of financial impact

Term	Financial impact (NT$/year)	Impact on the existing basis of profits after implementation of the opportunity response strategy
Short	0	None
Medium	+190 million	【Capital Expenditure】 Installation of new high-efficiency EAF. 【Increased Cost】 Cost of depreciation of new EAF. 【Reduced Cost】 Reduced cost of purchased electricity.
Long	+340 million	【Capital Expenditure】 Installation of new high-efficiency EAF. 【Increased Cost】 Cost of depreciation of new EAF. 【Reduced Cost】 Reduced cost of purchased electricity.

◆ Financial impacts of short-, medium- and long-term opportunities and the strategies in response to them



Note:

1. In "Financial impact (NT$/year)," "-" means a decrease in the profit relative to the existing basis of profits, and "+" means an increase in the profit relative to the existing basis of profits.

2. The amount of "Impact on the existing basis of profits after implementation of the opportunity response strategy" under this opportunity is already covered by "Impact on the existing basis of profit after implementation of the risk response strategy" under Risk 1.

Timing: short term/ Likelihood of occurrence: Very Likely/ Level of financial Impact: Medium

◆ Opp 2

【Energy Efficiency】Recycling and Reuse

- Opportunity Description:

  In the trend of global climate change risk management, the strategy of waste recycling and reuse in the circular economy is becoming increasingly important. The recycling and reuse industry also offers significant financial opportunities.

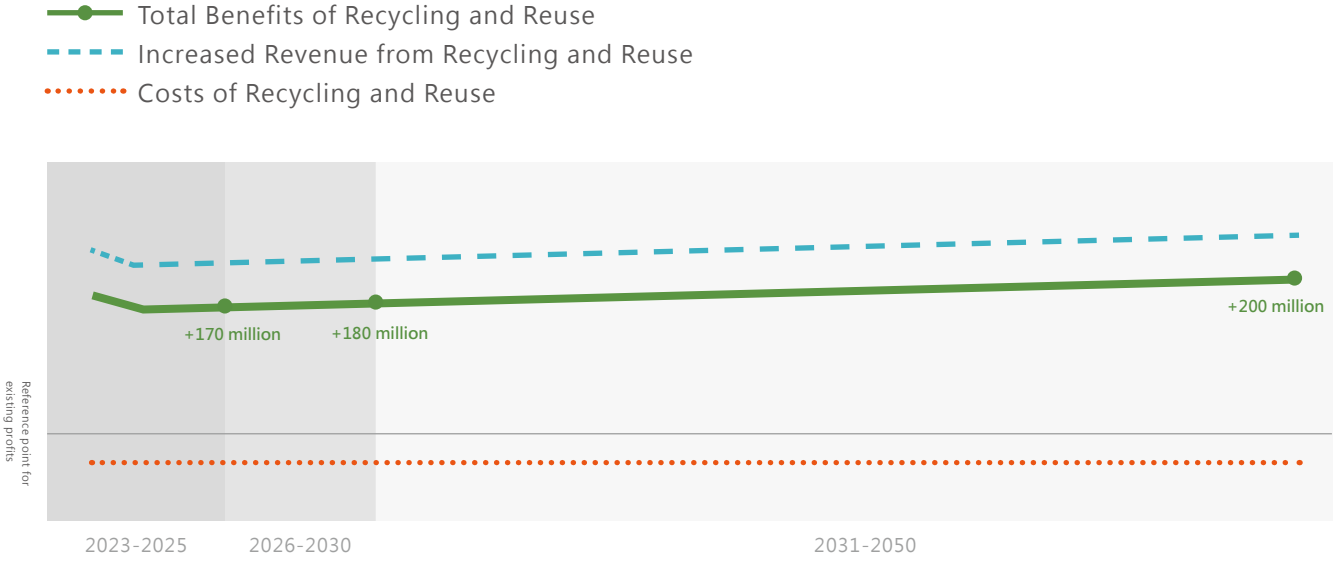
- Strategy Response:

  Our company is investing in Taiwan Steel Union and Katec Creative Resources Corporation, which will provide stable income opportunities by recycling and reuse businesses.

◆ Description of financial impact

Term	Financial impact (NT$/year)	Impact on the existing basis of profits after implementation of the opportunity response strategy
Short	+170 million	【Profit Increase】 Acquisition of profit from the investments in recycling and reuse business. 【Opportunity Cost】 Opportunity cost of the amount invested.
Medium	+180 million	【Profit Increase】 Acquisition of profit from the investments in recycling and reuse business. 【Opportunity Cost】 Opportunity cost of the amount invested.
Long	+200 million	【Profit Increase】 Acquisition of profit from the investments in recycling and reuse business. 【Opportunity Cost】 Opportunity cost of the amount invested.

◆ Financial impacts of short-, medium- and long-term opportunities and the strategies in response to them



Note: In "Financial impact (NT$/year)," "-" means a decrease in the profit relative to the existing basis of profits, and "+" means an increase in the profit relative to the existing basis of profits.

Timing: short term/ Likelihood of occurrence: Very Likely/ Level of financial Impact: Medium

◆ Opp 3

【Market】Incentives From Financial Institution

- Opportunity Description:

In the global trend of sustainable finance, the credit and investment provided by financial institutions will be linked to a company's ESG (Environmental, Social, and Governance) performance and climate change management. Companies with good performance will have the opportunity to lower their loan interest costs.

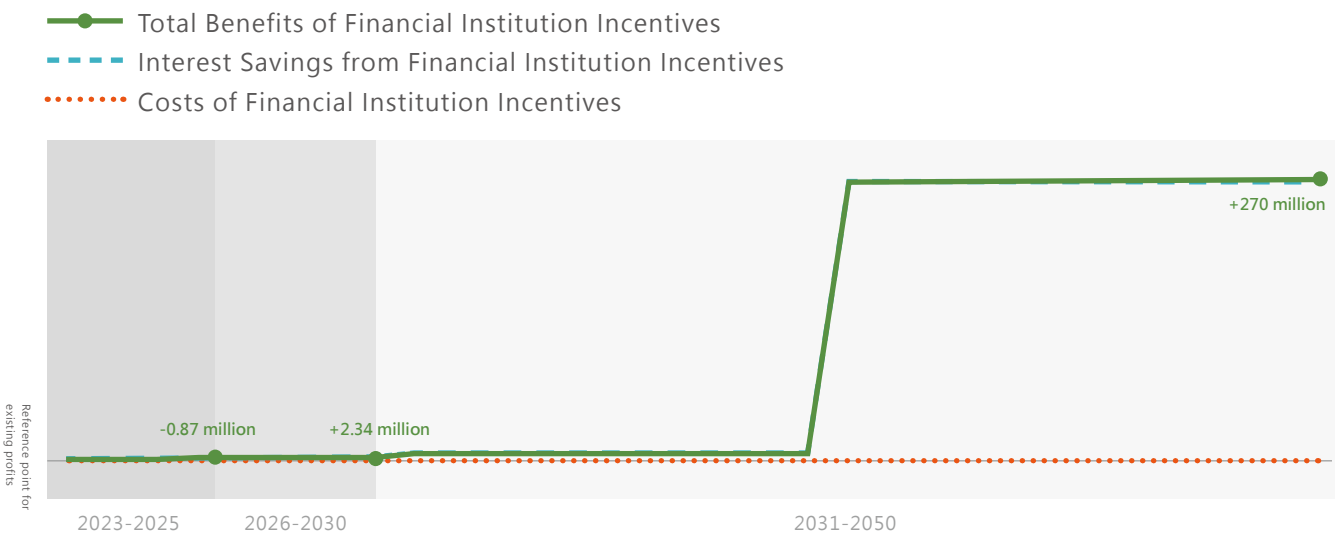
- Strategy Response:

Our company will engage in climate change management reporting and assessments such as TCFD (Task Force on Climate-related Financial Disclosures) and CDP This will enhance our ability to obtain credit, low-interest loans, and financing opportunities in the financial market.

◆ Description of financial impact

Term	Financial impact (NT$/year)	Impact on the existing basis of profits after implementation of the opportunity response strategy
Short	<-10 million (-0.87 million)	【Reduced Cost】Opportunity for reduced interest from incentives of financial institutions. 【Increased Cost】Costs for TCFD and CDP.
Medium	<-10 million (+2.34 million)	【Reduced Cost】Opportunity for reduced interest from incentives of financial institutions. 【Increased Cost】Costs for TCFD and CDP.
Long	+270 million	【Reduced Cost】Opportunity for reduced interest from incentives of financial institutions. 【Increased Cost】Costs for TCFD and CDP.

◆ Financial impacts of short-, medium- and long-term opportunities and the strategies in response to them



Note: In "Financial impact (NT$/year)," "-" means a decrease in the profit relative to the existing basis of profits, and "+" means an increase in the profit relative to the existing basis of profits.

Timing: Medium term/ Likelihood of occurrence: Very Likely/ Level of financial Impact: Medium

◆ Opp 4

【Energy Source】Shift Toward Decentralized Energy Generation

- Opportunity Description:

In the future, the management of net-zero emissions, both internationally and in Taiwan, will involve a shift towards decentralized energy systems. Government subsidy programs related to battery energy storage systems can present financial opportunities for investors.

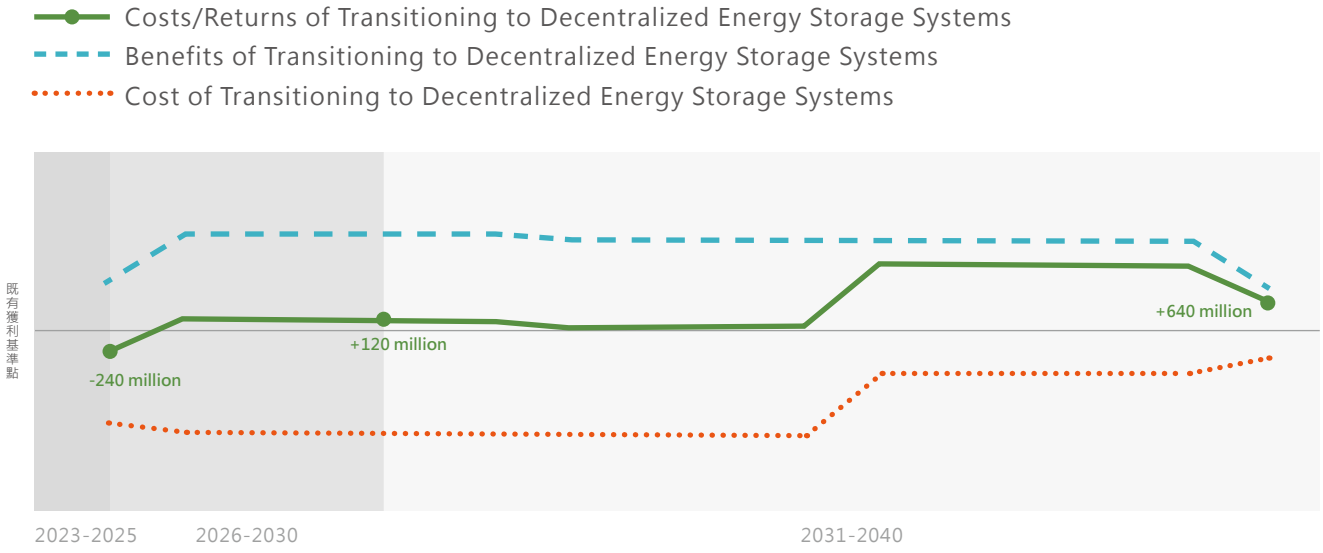
- Strategy Response:

Tungho Steel subsidiary, Tung Kang Wind Power Corp., will invest in battery energy storage systems, which will bring financial benefits in terms of increased revenue and profitability for our company.

◆ Description of financial impact

Term	Financial impact (NT$/year)	Impact on the existing basis of profits after implementation of the opportunity response strategy
Short	-240 million	【Capital Expenditure】Installation of Energy Storage Systems. 【Increased Cost】Costs of depreciation, amortization, and operations of energy storage systems. 【Increased Income】 Income from capacity. Electricity service fees.
Medium	+120 million	【Capital Expenditure】Installation of energy storage systems. 【Increased Cost】Costs of depreciation, amortization, and operations of energy storage systems. 【Increased Income】 Income from capacity. Electricity service fees.
Long	+640 million	【Capital Expenditure】 Installation of energy storage systems. 【Increased Cost】Costs of depreciation, amortization, and operations of energy storage systems. 【Increased Income】 Income from capacity. Electricity service fees.

◆ Financial impacts of short-, medium- and long-term opportunity and the strategies in response to them



Note: In "Financial impact (NT$/year)," "-" means a decrease in the profit relative to the existing basis of profits, and "+" means an increase in the profit relative to the existing basis of profits.

▲ Overall assessment of climate-related material risks, opportunities and strategies

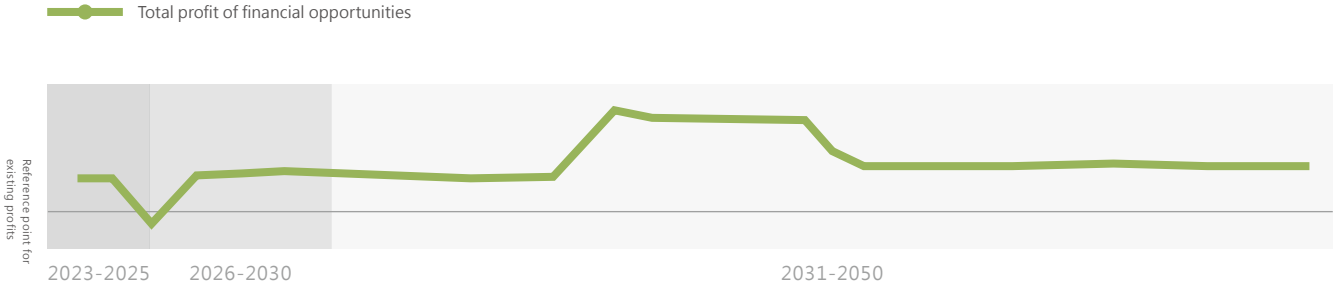
◆ Overall Assessment of Climate-related Material Risks and Strategies

The challenges of climate change faced by Tung Ho Steel include emissions cap/trade (increased pricing of greenhouse gas emissions + transition to lower emission services + demands for low-carbon products and services), renewable energy laws and regulations, investments in new technologies, tropical cyclones, changes in customer behavior, changes in average precipitation, and other risks. Our team has conducted a practical assessment of the strategies and financial impacts, and its result indicates that based on our short-, medium-, and long-term financial conditions, we are still able to maintain stable and sustainable operations and generate more profits in the future.

Note: The financial impacts of inaction and action against risks do not include the "Impact of risks on the existing basis of profits" and "Impact on the existing basis of profit after implementation of the risk response strategy" under Risk 5: "[Market] Changes in Customer Behavior".

◆ Overall Assessment of Climate-related Material Opportunities and Strategies

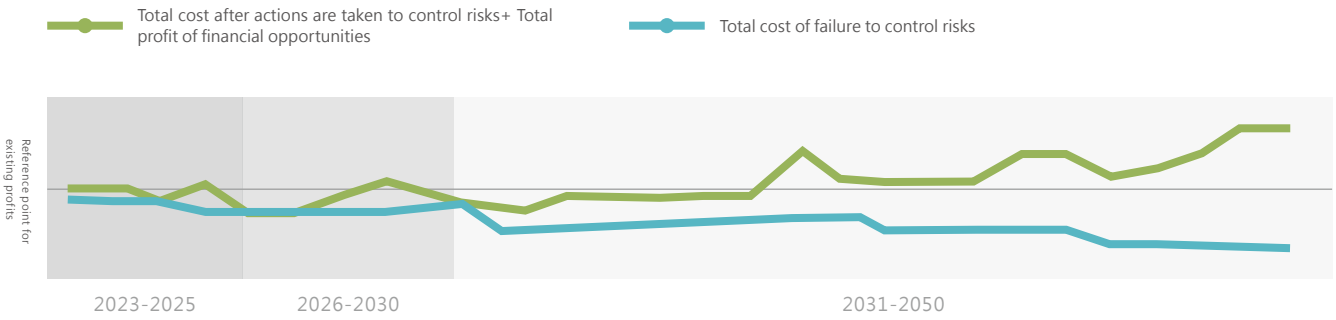
The opportunities of climate change faced by Tung Ho Steel include the use of higher-efficiency production means, recycling and reuse, incentives from financial institutions, and the use of decentralized energy generation. Our Environmental Sustainability Working Group conducted a practical assessment of the strategies and financial impacts, and its result indicates that we are able to take advantage of the opportunities arising from climate change, maintain sustainable development, and generate more profits in the future.



Note: The opportunity benefit under "Opp 1: [Resource Efficiency] Use of higher-efficiency production means" is already covered by the financial impact of actions taken against risks, and thus the total benefit of financial opportunities do not include "Opp 1: [Resource Efficiency] Use of higher-efficiency production means."

◆ Overall Assessment of Climate-related Material Risks, Opportunities and Response Strategies

The opportunities of climate change faced by Tung Ho Steel include the use of higher-efficiency production means, recycling and reuse, incentives from financial institutions, and the use of decentralized energy generation. Our Environmental Sustainability Working Group conducted a practical assessment of the strategies and financial impacts, and its result indicates that we are able to take advantage of the opportunities arising from climate change, maintain sustainable development, and generate more profits in the future.



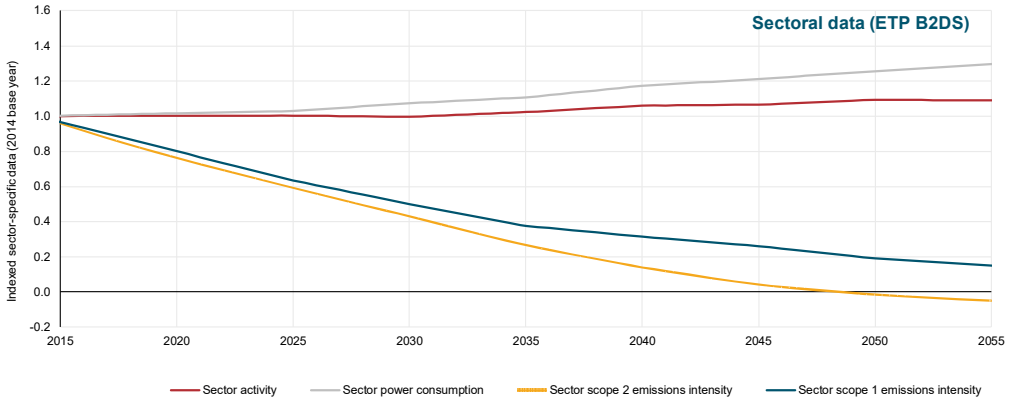
5.Climate Change-Related Metrics and Targets-Reduction by 30% + RE30 by 2030

▲ Science-based reduction targets (SBTi)

We use science-based reduction targets as the basis for assessment of climate change-related metrics and targets at Tung Ho Steel, and we hold a target meeting each month, where the President follows up on and reviews the “difference between the performance and target of greenhouse gas emission intensity at each works” and determines the necessary measures. In response to the global trend and Taiwan’s Net Zero 2050 target, we have included climate change as a material issue of sustainable development, At the 25th meeting, the 24th term Board passed the stage targets for 2030 of our “Net Zero 2050”:

1. Carbon Reduction By 30%: Reduce total carbon emissions by 30% in 2030 over 2005
2. RE30: Use over 30% of renewables in total electricity consumption in 2030.

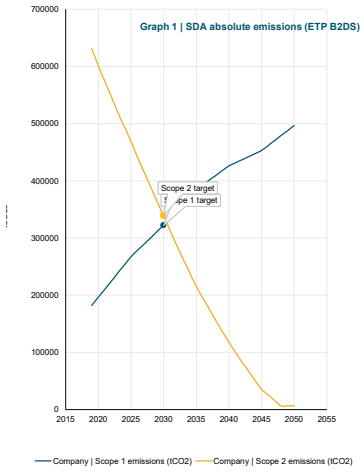
◆ Climate Change-related Science-based Reduction Targets (SBTi) at Tung Ho Steel

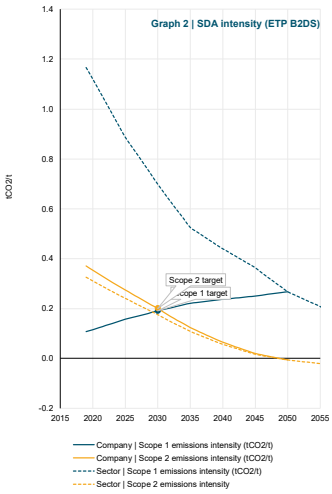


IEA ETP B2DS scenario

Review all target modelling data

	Base year (2019)	Target year (2030)	% Reduction
Company | Scope 1 emissions (tCO2)	181,832.00	322,077.06	-77.1%
Company | Scope 2 emissions (tCO2)	630,931.00	339,224.11	46.2%
Company | Scope 1+2 emissions (tCO2)	812,763.00	661,301.17	18.6%
Company | Scope 1 emissions intensity (tCO2/t)	0.107	0.190	-78.1%
Company | Scope 2 emissions intensity (tCO2/t)	0.370	0.200	45.9%
Company | Scope 1+2 emissions intensity (tCO2/t)	0.477	0.368	22.8%





▲ Description of Greenhouse Gas Emission Targets: Carbon Reduction by 30%

We have set absolute reduction targets using the SBTi-Tool (Science-based Target Setting Tool Ver. 2.1) of the Science Based Target Initiative (SBTi). Additionally, we have also referred to Taiwan's pathway and strategy for net-zero emissions in 2050 announced in March 2022 and Taiwan's NDC announced in December 2022. Using 2005 as the reference year, we have set the percentage of emission reduction to 30% for the medium-term target in 2030, and the long-term carbon reduction target is in line with Taiwan's pathway to net-zero emissions in 2050.

The 2022 total emissions were 810,098 tCO_2e, including 188,593 tCO_2e of Scope 1 (Category 1) and 621,505 tCO_2e of Scope 2 (Category 2), reduced by 2.52% over 2005 (base year, 831,012 tCO_2e). Please refer to the 4-2 Energy and Resource Use of our Sustainability Report 2022 for the trend comparison and description of differences. Our greenhouse gas emissions in 2022 were lower than in 2021, and in the future, we will continue to seek alternative renewable energy and improve the performance of electric furnaces to move toward the emission reduction target of 30% in 2030.

Year	Carbon Emissions (ton-CO_2e) Set According to the "Taiwan's Pathway to Net-Zero Emissions in 2050"	Percentage of emission reduction (%)
2005 (Reference year)	831,012	-
2030 (Short- and medium-term targets)	581,708	30%
2050 (Long-term target)	0	100%

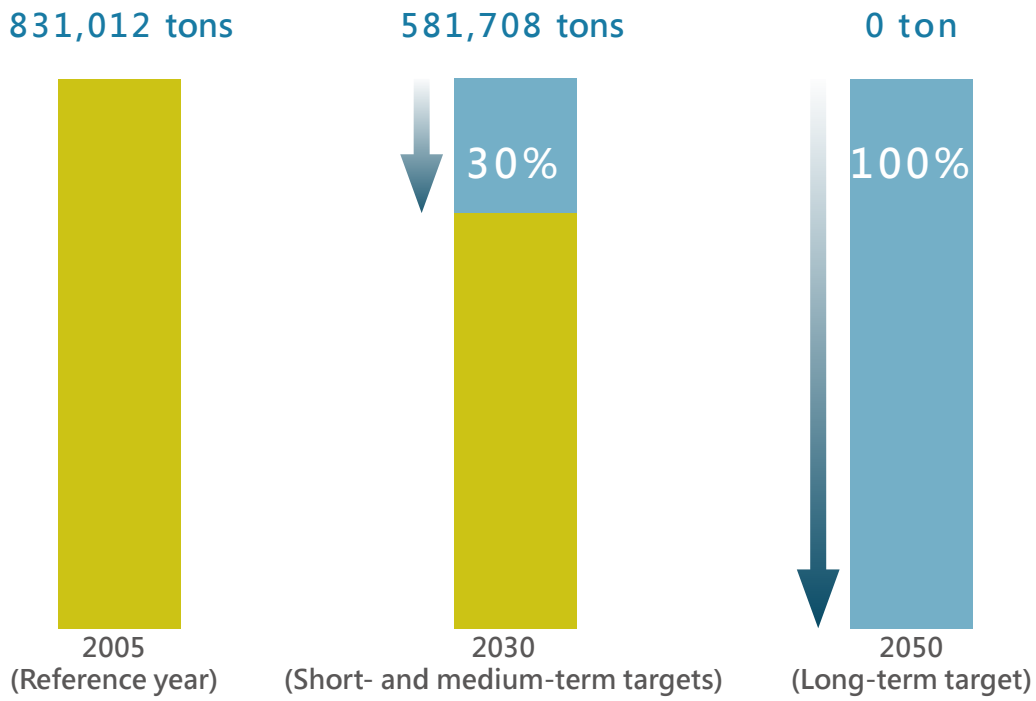
Note:

1.We set the 2030 reduction target at 30% less over 2005 based on Taiwan's NDC announced in December 2022.

2.Greenhouse gas emissions are the total of Scope 1 and Scope 2 emissions.

◆ Targets of Greenhouse Gas Emissions (tCO_2e)

Unit: tons



▲ Description of the Targets for Using Low-carbon Materials

We stopped using pig iron for EAF steel refining in 2023.

Note: Milling iron has higher GHG emissions than steel scrap at the materials stage.

▲ Description of Other Climate-related Targets: RE30

About 76% of our total GHG emissions are generated by electricity use. To realize our goal for sustainable development, purchasing renewable energy certificates (RECs) is one of the important measures for THS to achieve this goal. Additionally, fulfilling our environmental commitment, lowering fossil fuel dependency, reducing energy costs, and meeting the national requirements for renewables are also the realization of our social responsibility and mission. However, in terms of Taiwan's existing generation capacity of renewables, it will be impractical for all manufacturers with high carbon emissions join RE100. After assessing from a practical point of view, we believe that RE30 is an achievable target through continuous efforts.

In response to the global trend and Taiwan's Net Zero 2050 target, we have included climate change as a material issue of sustainable development, At the 25th meeting, the 24th term Board passed the stage targets for 2030 of our "Net Zero 2050":

1. Carbon reduction by 30%: Reduce total carbon emissions by 30% in 2030 over 2005.
2. RE30: Use over 30% of renewables in total electricity consumption in 2030.

6.Emissions reduction actions

In order to support the development of national greenhouse gas reduction strategies and the targets for development of sustainable energy that taken into account resource efficiency, energy efficiency and environmental protection, Tung Ho Steel has been promoting the ISO 50001 energy management system, ISO 14064-1 greenhouse gas inventory, PAS 2050 product carbon footprint and ISO 14067 product carbon footprint certification. At the same time, we have invested Capital expenditures and the relevant human resources and materials with respect to the resource demands under energy efficiency plans with the expectation to keep track of the production costs and use energy in an effective and appropriate way. In 2022, the total energy saved and carbon reduced by the works amounted to approximately 25,789.6 ton-CO_2e.

Actions for energy efficiency and carbon reduction

Works	Measures for energy efficiency and carbon reduction	Estimated amount of energy saved (GJ)	Estimated amount of carbon reduced (ton-CO_2e)
Taoyuan Works	• Reducing energy consumption of cooling fans by 20%.	3,049.4	431.2
	• Reducing peak-hour electricity use in the summer.	134,817.3	19,061.7
	• Reducing the number of running scroll wheels.	494.8	70.0
	• Enhancing oxygen utilization of furnace valves.	29,832.0	4,217.9
	• Reducing energy consumption of continuous casting jet water.	121.5	17.2
	• Reducing electricity consumption for heating warm and cold billets.	335.9	47.5
	• Replacing lighting at columns A to F of the rolling steel line.	1,958.4	276.9
	• TPC demand bidding – Economy type.	1,802.4	254.8
	• Contingency measures 2022.	3,041.0	430.0
	• Reducing electricity consumption for heating billets of rolling steel line 2.	349.3	49.4
Miaoli Works	• Replacing sodium-vapor lamps with high-power COB-LED project lights at the Steel Refining Division.	826.7	122.4
	• Plan for energy efficiency by reducing the failure time of machine equipment in 2022.	4,236.9	627.3
	• Replacing the 144 400W mercury street lamps in Miaoli Works with 80W LED lamps.	330.1	48.9
Kaohsiung Works	• Plan for replacement and improvement of the air compressors for rebar shearing lines.	570.6	80.7
	• Plan for replacement and improvement of the (fixed frequency) refrigerators in the Common Facility and Production Management Office.	216.2	30.6
	• Plan for replacement and improvement of the 400W high-pressure sodium-vapor lamps on the cranes with 150W LED lights.	145.8	20.6
	• Plan for replacement and improvement of lamps in the offices of each site.	19.5	2.8
Total		**176,754.1**	**25,789.6**

Note:

1.Indirect (Scope 2) emissions from purchased electricity was calculated based on the 2021 electricity carbon emission factor 0.509 kg-CO_2e published the Bureau of Energy, Ministry of Economic Affairs.
2.The scope of calculation includes: CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, and other types of gases.
3.The scope of reduction only includes indirect emissions from energy (Scope 2).
4.Basis for calculation of energy consumption and greenhouse gas reduction at the Taoyuan Works, Miaoli Works and Kaohsiung Works: Based on the amount of consumption in the previous year.
5.The capacity and operating time of equipment and the production volume are used for calculation

7.Low-carbon products

Our products are low-carbon products categorized by emission intensity, and low-carbon products account for 100% of the profits in the reporting year. We manufacture products by melting steel scrap using electric arc furnaces. Compared to products made with blast furnaces using the method of basic oxygen steelmaking, our products are more environmentally competitive than products made with blast furnaces because of their low-carbon characteristics.

The steel materials for electric furnaces are low-carbon, recycled materials. Their primary material, steel scrap, is a valuable recycled resource from what is called the "urban mine." A large quantity of steel scrap is collected from different parts of Taiwan for smelting and refining into steel. Compared to the steel materials produced by blast furnaces, each ton of crude steel produced can reduce emissions by approximately 1.5 ton-CO2e. To achieve the goal of zero emissions, in addition to actively promoting the contributions to society of the expansion of low-carbon recyclable steel, we will continue to introduce the latest practical technologies to significantly reduce carbon emissions to become the leader in the global industry of electric furnaces.

Currently, most rebar makers need to reheat steel billets for rolling and forming. In 2006, we invested a large amount of resources to improve the production process. In 2010, the Taoyuan Works was established and became the first steelmaker in Taiwan to adopt new processes using electric furnaces. By integrating refining with the modern rolling process, the Taoyuan Works adopted the direct rolling process without using reheating furnaces to become Taiwan's first rebar maker without using reheating furnaces.

When no reheating furnace is required, no fuel such as crude oil or natural gas will be consumed for heating. Compared to traditional processes, this process can significantly reduce energy consumption and air pollution. The low-energy consumption and near-zero pollution performance of the production processes of the Taoyuan Works is a new milestone in the steelmaking industry. The method of direct rolling without reheating furnaces has been adopted and introduced by many domestic and foreign steelmakers.

Benefits of non-use of reheating furnaces (direct rolling) compared with those of a traditional rolling process

Energy consumption	Particulate matters	Carbon emissions	NOx · SOx
Reduced by 85%	Reduced by 100%	Reduced by 60%	Reduced by 100%

Compared with a rolling mill, a direct rolling process without reheating furnaces can save approximately 29.8 (liters – heavy oil/ton – rebar) in energy consumption and reduce the consumption of heavy oil by 23,840,000 liters annually, equivalent to the annual energy consumption of 22,495 cars (15,000km/year at 12km/liter per car).

According to the statistics of the Bureau of Energy, Ministry of Economic Affairs, the annual amount of CO_2 absorbed by the Daan Park is 389 tons.

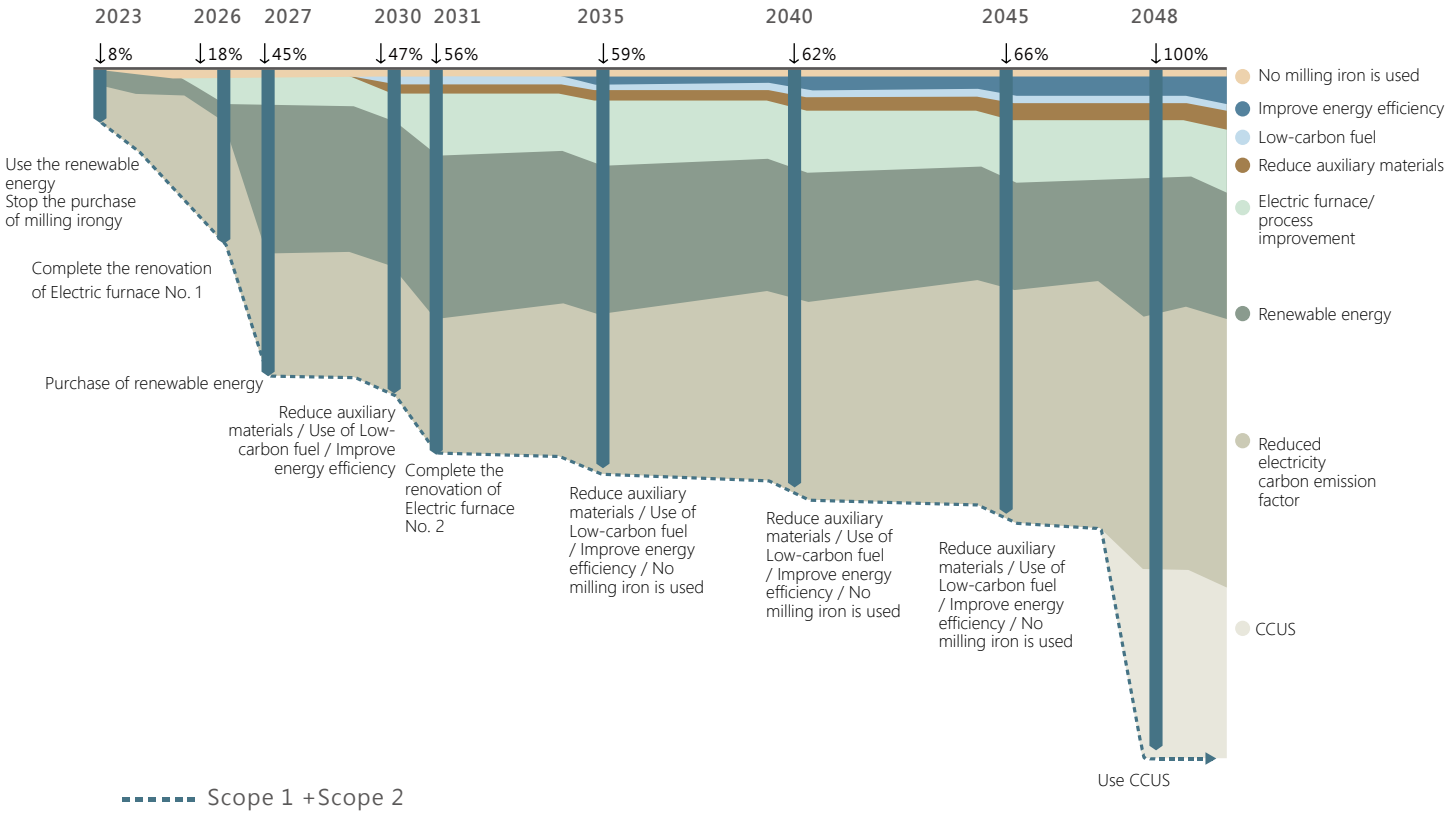
Note: The data in the table above is based on the comparison between the performance values of the Taoyuan Works and the Bade Works (the old Taoyuan Works), and calculated at an annual production of 800,000 tons of rebar.

Low-emission R&D Investment Projects	Percentage of Low-emission R&D Investments Among the Amount of all R&D Projects	Description of Low-emission R&D Investment
"Miaoli Works Carbon Capture and Reuse Feasibility Study" project commissioned to the Green Energy and Environment Research Labs, ITRI.	The low-emission R&D investment in 2022 was over NT$8 million, accounting for 17.7% of the total amount of all R&D projects.	Project Objectives: (1) Feasibility study of using calcium looping in carbon capture for the heating furnace and EAFs of Miaoli Works. (2) Study of the reuse of captured CO_2. (3) Study of the Stabilization and Lightweight Carbonate Production of Reducing Slag (4) Proposing technology and economical feasible solutions for the reference of building new works.
"Hydrogen Generation Key Components and Assessment of Technology for the Control and Integration Hydrogen Energy Storage System: THS Miaoli Works Hydrogen Source Assessment" commissioned to the Green Energy and Environment Research Labs, ITRI.	The R&D investment in 2022 was over NT$7 million, accounting for 16.3% of the total amount of all R&D projects.	Project objectives: (1) Site-based assessment of the plan for the construction and integration of the system for regrouping hydrogen with natural gas. (2) Site-based assessment of hydrogen generation with residual renewables in solar PV plants and electricity use scenarios and assessment of optimal energy management in coordination with battery energy storage. (3) Site-based and electricity-spec-based assessment of the options for electrolysis hydrogen generation systems and optimal integrated solutions for hydrogen energy storage systems. (4) Proposing technology and economical feasible solutions for the reference of building new works.
"Industrial Big Data Energy Management System Construction" project commissioned to the Green Energy and Environment Research Labs, ITRI.	The R&D investment in 2023 will be NT$2.6 million (excluding labor cost), accounting for 5.4% of the total amount of all R&D projects.	Reducing carbon emissions by enhancing energy efficiency with digital management technology through building smart energy management systems and using smart energy monitoring systems.

8. 1.5°C low-carbon transition plan

When drawing up the 1.5°C low-carbon transition plan with 2005 as the base year, we first plan carbon reduction pathways for electricity-using items with a higher percentage of GHG emissions before achieving the net-zero emission target with carbon capture, utilization, and storage (CCUS) technologies. The following are our carbon reduction pathways and estimated targets of carbon reduction in the current stage:

▲ Tung Ho Steel Carbon Reduction Pathway



Scope 1 +Scope 2

Base year 2005 : Emissions : 830,000 tCO_2 · Steel billet production : 1,380,000 tons
Reporting year 2022 : Emissions : 810,000 tCO_2 · Steel billet production : 1,910,000 tons

Carbon Reduction Pathway		Carbon Reduction Target	Description
Reduction of electricity consumption	Decarbonization Technologies and Equipment Modification– EAF Modification	↓ 5%	Modifying EAFs into scrap preheating EAFs can reduce carbon emissions. With scrap preheating EAFs, the estimated electricity for steel smelting will be reduced by 100–120 kWh/m.t. This carbon reduction target is set upon the assumption that EAF modification in Miaoli Works and Taoyuan Works is completed by the end of 2025 and 2030 respectively.
	Procurement of Renewables	↓ 18%	The estimated electricity supply from Tung Kang Wind Power in 2023 is 26 GWh /year, and the estimated solar power wheeling starts in 2023 H2 to supply electricity at 25 GWh/ year. Completion of purchasing renewables at 30% of the company' s total electricity consumption by 2030.
	Lowered electricity carbon emission factor	↓ 39%	Based on the assumptions of percentage of the renewables at 60–70% and that the electricity carbon emission factor becomes lower in 2050.
Execution of energy efficiency and carbon reduction plans	Increasing energy efficiency	↓ 4%	Increasing energy efficiency: High-performance energy efficient motors, control of frequency variation, recycling of residual heat, etc.
	Improving processes	↓ 4%	Smart combustion control of reheating furnaces, introduction of combustors for reheating furnaces, an oxygen-enriched combustion system for the preheaters of ladles, etc.
Utilization of low-carbon fuels		↓ 1%	Such as the use of low-carbon fuels including CH_4, CO_2-free fuels, and hydrogen.
Reduced use of coke and other recarburizer		↓ 3%	Such as the use of waste synthetic resin and biofuel.
Stop using milling iron		↓ 1%	Zero use of milling iron as materials.
Technology of carbon capture, utilization and storage (CCUS)		↓ 25%	Tung Ho Steel plans to introduce the technology of carbon capture, utilization, and storage (CCUS) to achieve the remaining carbon reduction target of 25%. The CCUS technology will be introduced in an incremental and phased manner, including a preliminary research project, the construction of an experimental works, and the final establishment and operation of the works.

Note: Carbon emissions from water procurement and waste disposal in 2022 were less than 0.1% and excluded from the reduction target.

Tung Ho Steel is closely following the trend of global climate change and the direction of global responses, and has included climate change as a material issue in corporate sustainable development and one of the key material risks. We have continued to conduct analysis and maintain control, and have been committed to carrying out activities for the adaptation and mitigation of greenhouse gases. In April 2022, we set up the Tung Ho Steel Task Force for Energy Efficiency and Carbon Reduction. The task force has compiled a preliminary list of around 20 energy efficiency and carbon reduction plans for assessment, and the execution of these plans will be the focus in the next stage. We hope to actively meet the expectations of all stakeholders through concrete actions to ensure the sustainable management of Tung Ho Steel. We will explain the 1.5°C low-carbon transition plan to shareholders at the 2024 AGM and ask for their opinions.

9.Future Outlook

▲ Climate-related engagement in supply chains

In February 2022, the Trading Division and the Materials Section distributed questionnaires to survey the current status of greenhouse gas inventory and verification conducted by suppliers. Statistics indicate that out of a total of 197 suppliers, 9 have conducted a greenhouse gas inventory verified by a third party, accounting for 4.6%.

In March 2023, the Trading Division and the Materials Section revised the "Supplier Evaluation Criteria" to include "climate-related responsibilities" in the evaluation. Suppliers implementing GHG inventories and passing third-party verification will receive 10 marks (out of 100 marks). With such, we aim to encourage suppliers to implement GHG inventory and third-party verification as early as possible. Next, we will progressively increase the proportion of score and include the signing of the "Carbon Reduction Collaboration Agreement" in the evaluation.

In March 2023, we drafted the "Carbon Reduction Collaboration Agreement" and distributed it to the supply chain in the form of a questionnaire. Recipients included upstream suppliers and downstream constructors and transporters. The aim was to investigate their willingness to sign the agreement. We distributed a total of 307 copies and collected 272 responses, with a response rate of 89%. A total of 257 suppliers are willing to sign the agreement, accounting for 84% of all suppliers. These suppliers included 167 upstream suppliers, 67 downstream distributors and constructors, and 23 transporters. We will prepare the standard version of the agreement and discuss the terms with suppliers willing to sign the agreement. Then, the execution will begin progressively in June 2023.

▲ Internal Carbon Pricing and Appropriation of Emissions Reduction Fund

To promote climate change adaptation and mitigation activities, we have been active in managing carbon risks and establishing operating procedures and regulations concerning climate-related financial disclosures and internal carbon pricing. For internal carbon pricing, we have adopted the price of the national carbon fee to help achieve the set targets of greenhouse gas reduction and promote clean energy transition.

To implement climate change adaptation and mitigation activities, in the 20th meeting in August 2022, the 24th term Board passed the establishment of the "Regulations for Appropriation and Utilization of Special Reserve for Climate Change Adaptation and Mitigation" and temporarily set the fund at NT$200/t$CO_2$e to appropriate the special reserve for addressing climate change adaptation and mitigation in respect of the total Scope 1 and 2 GHG emissions recorded in the annual internal inventory. The special reserve will be spent on projects and programs for climate change adaptation and mitigation, such as energy-efficient equipment, equipment performance improvement and replacement, the R&D of energy conservation technology, and the development of technology for low-emission products. The amount appropriated to the special reserve in 2022 was about NT$170 million.

▲ Carbon Reduction Assessment of the New Operational Location

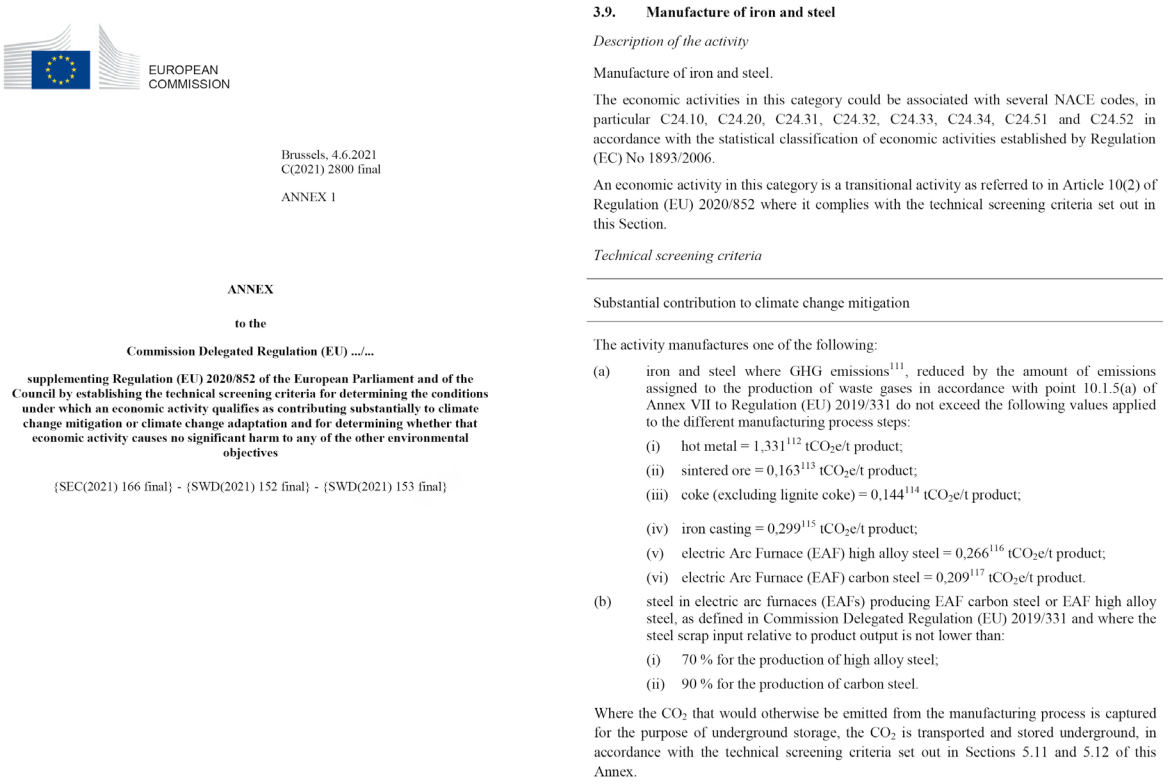
On August 30, 2022 we participated in the tendering held by the Kaohsiung District Court and won the bid covering the land, factory buildings, and equipment of Power Steel Co; Ltd. In January 2023 the competent authorities approved us to rename these facilities THS Kaohsiung Works. After planning the carbon reduction assessment of this new operational location, we plan to complete the heating furnace modification to replace crude oil with natural gas in fuel use to reduce GHG emissions by about 22% and energy consumption by about 6–10%.

To achieve Net Zero 2050, we have assessed the relevant climate change information, including the effectiveness of renewables and emissions reduction before engaging in EAF modification and energy storage system construction.

▲ Sustainable Finance Taxonomy

We received incentive interest rate for sustainability-linked loans from HSBC in 2022 and 2023. We hope to be included in the taxonomy continuously in the future.

Currently, our products comply with the taxonomy with substantiated contribution to climate change mitigation (use over 90% of scrap metal, our 2022 consumption was 95.9%) in the steel and iron industries as stipulated in the EU Sustainable Finance Taxonomy.



EUROPEAN COMMISSION

Brussels, 4.6.2021
C(2021) 2800 final

ANNEX 1

ANNEX

to the

Commission Delegated Regulation (EU) .../...

supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation and for determining whether that economic activity causes no significant harm to any of the other environmental objectives

{SEC(2021) 166 final} - {SWD(2021) 152 final} - {SWD(2021) 153 final}

3.9. Manufacture of iron and steel

Description of the activity

Manufacture of iron and steel.

The economic activities in this category could be associated with several NACE codes, in particular C24.10, C24.20, C24.31, C24.32, C24.33, C24.34, C24.51 and C24.52 in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006.

An economic activity in this category is a transitional activity as referred to in Article 10(2) of Regulation (EU) 2020/852 where it complies with the technical screening criteria set out in this Section.

Technical screening criteria

Substantial contribution to climate change mitigation

The activity manufactures one of the following:

(a) iron and steel where GHG emissions[111], reduced by the amount of emissions assigned to the production of waste gases in accordance with point 10.1.5(a) of Annex VII to Regulation (EU) 2019/331 do not exceed the following values applied to the different manufacturing process steps:
  (i) hot metal = 1,331[112] tCO_2e/t product;
  (ii) sintered ore = 0,163[113] tCO_2e/t product;
  (iii) coke (excluding lignite coke) = 0,144[114] tCO_2e/t product;
  (iv) iron casting = 0,299[115] tCO_2e/t product;
  (v) electric Arc Furnace (EAF) high alloy steel = 0,266[116] tCO_2e/t product;
  (vi) electric Arc Furnace (EAF) carbon steel = 0,209[117] tCO_2e/t product.

(b) steel in electric arc furnaces (EAFs) producing EAF carbon steel or EAF high alloy steel, as defined in Commission Delegated Regulation (EU) 2019/331 and where the steel scrap input relative to product output is not lower than:
  (i) 70 % for the production of high alloy steel;
  (ii) 90 % for the production of carbon steel.

Where the CO_2 that would otherwise be emitted from the manufacturing process is captured for the purpose of underground storage, the CO_2 is transported and stored underground, in accordance with the technical screening criteria set out in Sections 5.11 and 5.12 of this Annex.

▲ Screening Criteria for the EU Sustainable Finance Taxonomy

Appendix 1: References

- IPCC (2021), Sixth Assessment Report of Intergovernmental Panel on Climate Change 2021: The Physical Science Basis
- Report on abstract of key scientific points in IPCC's 6th assessment report on climate change and updated analysis of climate change in Taiwan
- Taiwan's Pathway to Net-Zero Emissions in 2050

Appendix 2: TCFD Disclosures and Corresponding Chapters

Aspect	TCFD-recommended Disclosure	Corresponding Chapter in This Report	Page
Governance	• Describe the board' s oversight of climate-related risks and opportunities.	2. Climate Change-Related Governance	8
	• Describe management' s role in assessing and managing climate-related risks and opportunities.	The representative of climate change issues under the Board	11
Strategy	• Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term.	Result of identification of climate-related risks and opportunities	18
	• Describe the impact of climate-related risks and opportunities on the organization' s business, strategy and financial planning.	Assessment of climate-related material risks and strategies	20
	• Describe the resilience of the organization' s strategy, taking into consideration different climate-related scenarios (including a 2° C or lower scenario).	4. Climate Change-Related Strategy	16
Risk Management	• Describe the organization' s processes for identifying and assessing climate-related risks.	The Process for Identification, Assessment and Response of Climate-related Risks and Opportunities	14
	• Describe the organization' s processes for managing climate-related risks.	The process for management of climate-related risks and opportunities	13
	• Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organization' s overall risk management system.	3. Management of Climate Change-Related Risks and Opportunities	13
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 Change-Related Metrics and Targets	33
	• Disclose Scope 1, Scope 2, and Scope 3 (if appropriate) greenhouse gas emissions, and the related risks.	5. Climate Change-Related Metrics and Targets	33
	• Describe the targets used by the organization to manage climate-related risks and opportunities and its performance in achieving the targets.	2. Climate Change-Related Governance 5. Climate Change-Related Metrics and Targets	33

Appendix 3: Statement of External Verification

bsi.

By Royal Charter

Conformity Statement

Climate related Financial Disclosure

This is to conform that

Tung Ho Steel Enterprise Corporation
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東和鋼鐵企業股份有限公司
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中山區
長安東路一段 9 號
6 樓
104003

Holds Statement Number CFD 788146

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

- Tung Ho Steel Enterprise Corporation follows Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) for the Non-Financial Groups 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.
- 依據 TCFD 準則(含非金融產業補充指引)規範要求及東和鋼鐵企業股份有限公司氣候相關財務揭露報告書，進行符合性及成熟度查核其結果分析展示如下：
- 東和鋼鐵企業股份有限公司遵循氣候相關財務揭露（TCFD）相關建議與要求，揭露與氣候相關的財務訊息，這些訊息在風險和機會及其財務影響方面清晰，可比較且一致。揭露內容涵蓋四個核心要素，並已根據有效揭露的七個原則進行了準備。
- The maturity model for the Climate-related Financial Disclosures is **Level-5+: Excellence** grade.
- 與氣候相關的財務揭露的成熟度模型為[**第五級 Plus：優秀**]等級。

For and on behalf of BSI

Managing Director BSI Taiwan, Peter Pu

Latest issue: 2023-06-12 Expiry date: 2024-06-11

...making excellence a habit.™

Statement number: CFD 788146

Location:	**Conformity Check Overall Result:**
Tung Ho Steel Enterprise Corporation 6F. No. 9, Sec. 1, Chang-an E. Rd. Zhongshan Dist. Taipei City, 104003 Taiwan 東和鋼鐵企業股份有限公司 臺灣 台北市 中山區 長安東路一段 9 號 6 樓 104003	The maturity model for the Climate-related Financial Disclosures is **Level-5+: Excellence** grade. 與氣候相關的財務揭露的成熟度模型為**[第五級 Plus：優秀]**等級。

Latest issue: 2023-06-12 Expiry date: 2024-06-11

東和鋼鐵企業股份有限公司
TUNG HO STEEL ENTERPRISE CORP.