4 Green Sustainable Finance

4.1_ Green Investment and Financing

Since launching its transformation roadmap in 2018, TCC has steadily built a robust operational foundation and achieved resilient growth. TCC's consolidated revenue in 2024 grew by 41% compared to 2023, demonstrating the strong growth momentum and operational resilience brought by its transformation strategy. International credit rating agencies, S&P Global Ratings and Fitch Ratings, have both highly recognized TCC's transformation performance and financial stability, awarding the Company an Investment Grade BBB– credit rating with a Stable outlook. This rating reflects TCC's leadership position in major cement markets including Taiwan, Portugal, and Türkiye. The Company's stable profitability and cash flow performance, as well as the competitive advantages and sustainable development potential gradually established during its green transformation process, laying a solid foundation for its continued future growth.

In response to global push for the 2050 net-zero emissions goal, industrial competition has fully entered a new era defined by green transformation and scaling collaboration. With a long-term strategic perspective, TCC continues to invest in low-carbon building materials, resource circulation, and green energy deployment. These efforts not only deliver significant carbon reduction results. but also open new market opportunities, enhance future innovation capabilities and carbon competitiveness, and solidify the Company's sustainable leadership position in the net-zero transformation era.

Green/Sustainable Financial Instruments	Raised Fund Amount	Fundraising Description
Sustainable and Green Credits	Sustainable and green financing lines of approximately NT$129.4 billion	⊙ By the end of 2024, the obtained green or sustainable financing loan facility amount reached NT$129.4 billion. ⊙ Fund usage includes but is not limited to: – Carbon reduction and emission control: Reduce greenhouse gas emissions and air pollution – Resource recycling and waste reduction – Renewable energy development – Installation and operation of energy storage equipment and charging stations – Clean transportation: Procurement of electric vehicles, use of low-sulfur fuel for ships, implementation of shore power systems, and production of new energy lithium batteries for vehicles. – Green building construction – Protection of terrestrial and aquatic biodiversity

Green/Sustainable Financial Instruments	Raised Fund Amount	Fundraising Description
Sustainability-linked convertible bonds	NT$8 billion	⊙ In December 2024, TCC issued NT$8 billion in Sustainability-Linked Convertible Bonds (SLCB), a type of sustainable development bond that attracted both domestic and international investors. This was Taiwan's first SLCB issuance and the largest of its kind in the market, with the total issuance amount resulting in an increased cash inflow of NT$8 billion from financing activities. Based on the Sustainability Performance Target (SPT), greenhouse gas reduction goals were established using 2016 as the base year, with targets set for 2027. The combined Scope 1 and Scope 2 emission intensity from cement plants in Taiwan and Mainland China will be reduced by 14.9%.
Green Euro Convertible Bonds (Green ECB)	US$350 million	⊙ In March 2025, TCC issued US$350 million in Green Euro Convertible Bonds (Green ECB). The raised funds will primarily be used to increase capital investment in TCC Dutch Holdings B.V., strengthening the capital reserves for low-carbon cement and green energy projects in Türkiye and Europe. ⊙ According to TCC's latest published Green Financing Framework, which received a Second Party Opinion from the third-party institution ISS Corporate. The funds are allocated to promoting carbon emission reduction, increasing the proportion of renewable energy, and improving resource recycling efficiency, all aimed at solidifying TCC's long-term strategy to achieve net-zero emissions by 2050.
Green Bank Loans	€500 million	⊙ TCC's Dutch subsidiary signed a five-year, €500 million Green Loan with the underwriting banking syndicate in June 2025, and the loan has been successfully disbursed. The funds support key initiatives such as carbon emission reduction, development of new green energy, increasing the proportion of renewable energy, and enhancing resource recycling efficiency, aligning with TCC's long-term strategy of steadily progressing towards net-zero emissions by 2050. All funds will be invested in projects that meet international green finance standards, covering TCC's low-carbon cement production line upgrades and new energy project development in Türkiye, Portugal, and Africa, as well as the construction of "integrated charging and storage" smart energy stations in France, Italy, Portugal, and Spain. ⊙ This green loan was planned in alignment with TCC's latest Green Financing Framework and received a Second Party Opinion from the third-party institution ISS Corporate, ensuring full compliance with the Green Bond Principles established by the International Capital Market Association (ICMA) and the Green Loan Principles jointly promoted by the Loan Market Association (LMA) and other organizations.

As of the end of June 2025, sustainable and green credit facilities and corporate bond financing totaled NT$155.6 billion, accounting for over 35% of the Group's total facilities. These funds were primarily used to support the Group's sustainability-related and low-carbon transition economic activities.

4.2_ Financial Impacts arising from the climate risks and opportunities

Risk R1 Carbon Trading/Carbon Fees/Carbon Tax for Cap and Trade

Traditional cement manufacturing processes and coal-fired power generation emit large amounts of greenhouse gases. Without effective emission reductions, the Company may face increasing pressure from stringent carbon regulations, such as carbon trading, carbon tax, or carbon fees. TCC's cement plants and RMC plants actively promote process equipment upgrades and energy-saving modifications, systematically optimizing energy efficiency and carbon reduction through the adoption of high-efficiency motors, smart control systems, and low-carbon fuel adaptation equipment. These upgrades and modifications improve overall production efficiency and enhance resilience to future climate risks. However, they involve high upfront capital expenditures and increased procurement demands for high-efficiency equipment and low-carbon technologies. Furthermore, the global cement industry gradually moves toward the 2050 net-zero goal by implementing carbon reduction policies such as the EU's CBAM. International industry peers have actively invested in R&D and capital expenditure for low-carbon technologies, including alternative raw materials and fuels, clinker substitutes, and smart manufacturing processes. Market tenders are also requiring supply chain carbon footprint information and adherence to low-carbon standards for building materials. In addition to optimizing its production systems, TCC is expanding its carbon reduction actions to transportation, including launching eco-friendly cement carriers with energy-saving and emission-reduction benefits, implementing Phase 6 ready-mix concrete truck replacement plans, and introducing shore power facilities in port areas to reduce carbon emissions during berthing operations. By thoroughly planning its carbon reduction initiatives, TCC strengthens its competitive advantage and sustainable value in future low-carbon markets.

CURRENT IMPACT

Continuous equipment and technology upgrades, including improving the efficiency of gasifiers, preheaters, and cement mills; updating waste heat power generation systems; expanding alternative raw material and fuel storage areas; installing infrared scanning equipment, alternative fuel conveyor belts; adding smoke detectors to silos; increasing automatic sprinkler facilities to enhance fire control for alternative fuel storage; and investing in the DAKA Resource Recovery Center for treating municipal waste in cement kilns, resulted in capital expenditures of NT$8,136,756 thousand and NT$5,115,954 thousand in 2024 and 2023. These upgrades led to cash outflows and generated depreciation expenses of NT$1,619,572 thousand and NT$617,695 thousand, respectively.

Promoting transportation vehicle electrification by continuously converting official vehicles at various operational sites to electric vehicles and purchasing electric trucks and electric tractor units. The purchase of related electric vehicles resulted in capital expenditures of NT$18,693 thousand in 2024 and NT$44,088 thousand in 2023. The purchase led to cash outflows and generated depreciation expenses of NT$50,266 thousand in 2024 and NT$24,062 thousand in 2023, respectively.

EXPECTED IMPACT

Operational equipment upgrades or technology-related equipment investments will lead to increased capital expenditures and depreciation expenses, resulting in cash outflows.

To expand storage capacity for alternative raw material and fuel and comply with industrial zone building coverage requirements, the Board of Directors approved a capital expenditure project in August 2024 for the construction of storage facilities at the Company's Hoping Plant, with a total investment amount of approximately NT$1,636,000 thousand. The project will increase capital expenditure, resulting in cash outflows and depreciation expenses.

Moving forward, TCC plans to adopt electric vehicles as its official company vehicles, including additional purchases of electric trucks, tractor units, and mining trucks. This transition is expected to increase capital expenditures, resulting in corresponding cash outflows and depreciation expenses.

Unit: NT$ Thousand

Capital Expenditure and Related Cost Investment	2023	2024	Planned Investment for 2025
Equipment related to alternative raw materials and fuels usage	2,349,129	1,588,773	9,001,424
Energy saving and carbon reduction equipment	113,117	403,322	454,984
Equipment and process enhancements	2,191,219	5,156,060	6,120,049
Self-generated renewable energy equipment for self-use	506,502	82,070	3,308,400
Oxygen-enriched and oxey-fuel combustion technologies	3,878	19,722	170
Procurement of Phase 6 eco-friendly RMC trucks for RMC plants in Taiwan	5,100	21,560	-
Procurement of electric RMC trucks for RMC plants in Taiwan	-	-	17,700
Electrification of large transportation vehicles	-	46,900	233,320
Docking overhaul of cement carriers	26,098	153,512	96,125
Dock overhaul of bulk carrier fleet	-	39,688	25,309
Transformation of existing cement carriers (Installation of Alternative Maritime Power system)	4,885	5,868	47,789
Procurement of new eco-friendly cement carriers	-	471,687	728,548
Construction of Alternative Maritime Power systems	37,999	1,657	-
Subtotal	**5,237,927**	**7,990,819**	**20,123,818**

Risk R2 Strength of Support from Insurance and Financial Institutions for Investment and Financing

As global attention to climate change and net-zero emissions continues to grow, major international financial institutions are integrating corporate carbon emissions performance and climate risk responsiveness into their evaluation criteria for credit decisions and capital allocation. If high-carbon-emitting industries fail to demonstrate concrete low-carbon transition strategies, greenhouse gas management effectiveness, and comprehensive climate disclosure, they may risk losing support from financial markets. In the future, financial institutions may become less willing to extend credit to high-carbon-emitting industries or may raise financing costs due to factors such as risk management, alignment with internal ESG policies, or regulatory requirements, making it more challenging for companies to secure funding.

Cement and coal-fired power generation are both high-carbon-emitting industries. A lack of planning relevant low-carbon transition initiatives may seriously affect financial institutions' willingness to engage, leading to reduced investor interest and difficulties in financing and obtaining insurance coverage.
In response, TCC has incorporated Financial Institution Investment and Financing Support Intensity as a key element of climate transition risk, including it in climate scenario simulations to evaluate potential changes in financing conditions under evolving policies and climate pathways. TCC will continue to monitor changes in regional financial policies, climate disclosure regulations, and investor preferences. These efforts aim to strengthen the Group's awareness of climate risks in capital markets and incorporate relevant scenario analyses and assessment results into financial and operational decisions, enhancing resilience and competitive advantages during the net-zero transition.

CURRENT IMPACT

Insurance premiums for property and business interruption insurance increased by 34% and 11% for TCC operations and Ho-Ping Power Company, respectively, compared to the previous period, while coverage ratios maintained at 85% and 62%. For cement operations in Mainland China, premiums remained unchanged, with coverage ratio maintained at 100%;

EXPECTED IMPACT

Failure to achieve low-carbon transition goals may increase financial institutions' insurance exposure risk, potentially resulting in higher premiums and lower coverage ratios. This, in turn, would raise operating costs and lead to additional cash outflows.

Stricter climate policies in the future may lead to downgrading risk ratings for high-carbon industries by financial institutions, resulting in higher financing rates. This will not only raise capital costs but may also reduce cash inflows and decrease capital flexibility.

Expected Impact

As the financial industry accelerates its decarbonization efforts, investment and financing support for high-carbon industries is gradually tightening, resulting in reduced cash inflows for TCC.

Unit: NT$ Thousand

Capital Expenditure and Related Cost Investment	2023	2024	Planned Investment for 2025
TCC Taiwan Property and Business Interruption Insurance	57,514	86,329	115,328
Ho-Ping Power Company Property and Business Interruption Insurance	215,418	320,408	356,403
TCC Mainland China Property and Business Interruption Insurance	38,402	41,953	40,857
CIMPOR & OYAK CEMENT Property and Business Interruption Insurance	-	204,619	250,000
Subtotal	**311,334**	**653,309**	**717,588**

Risk R9 Frequency and Intensity of Extreme Precipitation Events

TCC's operating locations in Taiwan and South China are in subtropical and monsoon climate zones, where extreme weather events are becoming more frequent due to climate change. The local flood season occurs between April and September each year, with high-intensity rainfall events occurring frequently, and typhoons are more common during the summer. The extreme weather may cause multiple impacts on production and operations, including:

Infrastructure damage
Sudden heavy rainfall and typhoons may cause damage to plant equipment, such as power facilities, storage tanks, and conveyor systems, and could even force production line shutdowns

Operational interruption
Extreme weather may cause road closures, port shutdowns, and logistics delays, disrupting raw material deliveries and product shipments, which could result in order delays or contract breaches

Cost increase
Damages from extreme weather result in additional costs for repairs, alternative transportation, and inventory adjustments, increasing short-term financial pressure on the company

Risk transfer difficulty
With the rising frequency of extreme weather events, insurance companies are tightening their assessments of related disaster risks, which may lead to higher insurance premiums or more stringent claim restrictions

In response to these acute physical risks, TCC has not only established a Business Continuity Plan (BCP) but also regularly inventories climate-sensitive assets and regional risk hotspots, gradually strengthening the weather-resistant design of its production lines and infrastructure. At the same time, we actively coordinate contingency procedures with local governments and logistics partners to enhance overall supply chain resilience during climate-related disasters, ensuring stable operations and timely deliveries.

CURRENT IMPACT

TCC mitigates flood damage by installing water storage pools and implementing enlarged drainage outlet projects. Equipment additions totaled NT$23,709 thousand in 2024 and NT$50,162 thousand in 2023, leading to cash outflows from investment activities and generating depreciation expenses of NT$27,639 thousand and NT$16,928 thousand, respectively.

EXPECTED IMPACT

Extreme flooding events may disrupt product or raw material shipments and dispatching, requiring adjustments to transportation methods and resulting in higher transportation costs. Floods can also cause water damage to equipment and create a need for strengthened slope protection, leading to increased operating costs and cash outflows from operating activities.

Unit: NT$ Thousand

Capital Expenditure and Related Cost Investment	2023	2024	Planned Investment for 2025
Water recycling-related facilities	50,162	23,709	10,433
Climate resilience enhancing facilities	1,369	10,504	577,722
Typhoon additional insured	25,711	491,693	546,138
Subtotal	**77,242**	**525,906**	**1,134,293**

Opportunity 01 Installation of New Energy Project

TCC Group continues to deepen its energy transition by actively installing photovoltaic systems at major operational sites, following the principles of self-generation and self-consumption to reduce dependence on traditional energy sources and decrease carbon emissions. Additionally, TCC is not limited to passively procuring renewable energy, but also actively engages in the independent development of diverse renewable energy sources, including solar and wind power, further integrated with energy storage system construction to create a stable and reliable green energy supply model. This initiative not only helps meet the Group's own operational electricity needs but also provides local businesses with diverse green power and energy storage services, strengthening TCC's influence and role in the renewable energy market value chain.

In terms of international expansion, ATLANTE, the electric vehicle charging brand of the Group's subsidiary NHOA, is actively expanding into the European market and has successfully joined the EU-led SPARK ALLIANCE for electric vehicle infrastructure, further expanding its product market share and business territory. ATLANTE integrates renewable energy applications into EV fast-charging stations, combining independently developed Energy Management System (EMS) and battery health monitoring technology to continuously optimize battery performance and charging-discharging efficiency, extend energy storage system lifespan, and enhance overall energy dispatch effectiveness. Through developing smart charging and storage integration solutions, TCC not only helps users achieve higher energy self-sufficiency rates and grid stability but also further strengthens customer loyalty and brand competitiveness. In the future, TCC will continue to promote the widespread adoption of renewable energy and energy storage applications through innovative technology, advancing the objectives of green power localization and intelligentization while accelerating TCC's transformation into a resilient, low-carbon enterprise model.

CURRENT IMPACT

Energy storage and charging station products and services, renewable energy trading, and battery-related product services generated operating revenues of NT$15,453,386 thousand and NT$10,639,209 thousand in 2024 and 2023 respectively, resulting in increased cash inflow from operating activities and significant growth in diversified revenue.

EXPECTED IMPACT

The International Energy Agency (IEA) and international consulting research reports expect renewable energy to show rapid growth over the next five years, with the global battery energy storage system's market size expected to double in size . Renewable energy and energy storage power trading will become drivers for TCC's revenue increase and affect the increase in cash inflow from operating activities.

Unit: NT$ Thousand

Capital Expenditure and Related Cost Investment	2023	2024	Planned Investment 2025
Solar Power Projects sites	-	40,919	6,135
Fishery and electricity symbiosis project sites	777,515	106,645	390,961
Wind farms	285,322	123,224	-
Geothermal energy Development	251,624	242,065	71,508
Ocean Energy Development	23,755	8,085	9,373
Energy Storage Projects	8,242,171	810,748	1,009,111
Super battery factory construction project	2,186,616	3,229,583	223,977
Super Battery machinery and equipment	4,069,665	2,949,672	461,341
Battery R&D Investment	560,719	610,168	610,000
Energy Storage R&D Investment	205,491	209,052	209,000
Subtotal	**16,602,878**	**8,330,161**	**2,991,406**

Opportunity 02 Smart Low-Carbon Production and Waste Co-Processing

TCC Group has long been focused on climate policy trends, leading the industry in deploying carbon reduction technologies. We pioneered the use of alternative raw materials and fuels, accelerating coal reduction and decarbonization processes. Through AI-powered smart process control systems, we continuously enhance energy efficiency, lower carbon emissions and energy costs per unit of product, as well as strengthen operational resilience and overall efficiency. Furthermore, TCC actively promotes circular economy applications by utilizing the high-temperature cement kilns to co-process industrial and municipal waste. This not only effectively reduces dependence on fossil fuels and environmental impact but also creates economically valuable alternative fuel sources, balancing carbon reduction benefits with revenue contribution.

CURRENT IMPACT

The use of alternative fuels reduces coal consumption, decreasing operating costs by NT$2,600,780 thousand in 2024 and NT$1,190,466 thousand in 2023, respectively (the acquisition of OYAK CEMENT and Cimpor cement operations in 2024 contributed additional alternative fuel benefits of NT$1,346,472 thousand).

Engagement in industrial waste and municipal waste treatment services generated operating revenues of NT$466,509 thousand in 2024 and NT$748,807 thousand in 2023, respectively, resulting in increased cash inflow from operating activities.

EXPECTED IMPACT

The thermal substitution rate targets are set at 25% for 2025 and 35% for 2030. The expected increase in alternative fuel usage will further reduce the demand for purchased coal, lowering operating costs and contributing to positive cash flow.

Improvements in waste heat power generation efficiency will reduce reliance on purchased electricity. Additionally, TCC has joined EP100, setting a target to increase energy productivity by 50% by 2040 compared to 2016. These efforts are expected to lower future operating costs and contribute to positive cash flow generation.

The development project for high-calorific SRF co-firing and clean integration systems in cement kilns is set to receive government subsidies in 2025, which will boost government subsidy income and increase cash inflows from operating activities.

With the expansion of municipal waste treatment services, TCC DAKA Renewable Resource Recycling Center has a daily processing capacity of over 200 tons, while cement plants in Mainland China collectively process over 600 tons per day. This is expected to boost future operating revenue and enhance cash inflows from operating activities.

Unit: NT$ Thousand

Capital Expenditure and Related Cost Investment	2023	2024	Planned Investment for 2025
Efficient combustion project for alternative fuels	31,094	30,710	12,086

Opportunity O3 Market Expansion of Low-carbon Products and Services

With the accelerating global trend towards net-zero transition, the demand for low-carbon building materials in the construction and infrastructure industries is rising, becoming a key driver for industrial innovation. In response, TCC actively invests in low-carbon product R&D and process optimization. By introducing alternative raw materials and fuels, improving process energy efficiency, and implementing AI-powered control technology, TCC continues to reduce product carbon footprints and develops high-performance, environmentally friendly building materials, enhancing its market competitiveness and building momentum for sustainable profitability. Among these initiatives, the newly launched Ultra-High Performance Concrete (UHPC) is being promoted in both domestic and international markets. With its high strength, long lifespan, and exceptional durability, UHPC is especially suited for infrastructure and specialized structural engineering projects. This concrete effectively reduces material consumption and maintenance frequency, supporting TCC's carbon reduction goals throughout the product lifecycle. The implementation of carbon pricing mechanisms and stricter building regulations on environmental impact have heightened customer awareness of the carbon emissions of building materials, thereby driving demands for low-carbon construction materials.

TCC will continue to leverage its technological strengths and production flexibility to position itself in the future building materials market. In line with government policies and global carbon reduction trends, TCC aims to drive low-carbon transformation across its entire product line, delivering greater value to customers and promoting more sustainable construction solutions.

CURRENT IMPACT

Operational sites in Taiwan and Mainland China generated low-carbon product revenues of NT$32,672,421 thousand in 2024 and NT$39,279,069 thousand in 2023, respectively, according to the Company's definition. Following TCC's consolidation with OYAK CEMENT and Cimpor in March 2024 and based on their respective definitions of low-carbon cement and concrete, the consolidated revenue from low-carbon products between March and December 2024 totaled NT$39,599,537 thousand, generating cash inflow from operating activities.

EXPECTED IMPACT

Sales of Taiwan's low-carbon Portland Limestone Cement and Africa's ultra-low carbon cement, produced using low-carbon calcined clay as a substitute for traditional clinker, are expected to grow annually. This is projected to drive revenue growth and increase cash inflow from operating activities.

Unit: NT$ Thousand

Capital Expenditure and Related Cost Investment	2023	2024	Planned Investment for 2025
Construction of Ultra-High Performance Concrete (UHPC) Plants and Equipment	117,523	26,682	385,764
Research and Development Investment in Ultra-High Performance Concrete (UHPC)	187,587	15,714	15,361
Subtotal	**305,110**	**42,396**	**401,125**