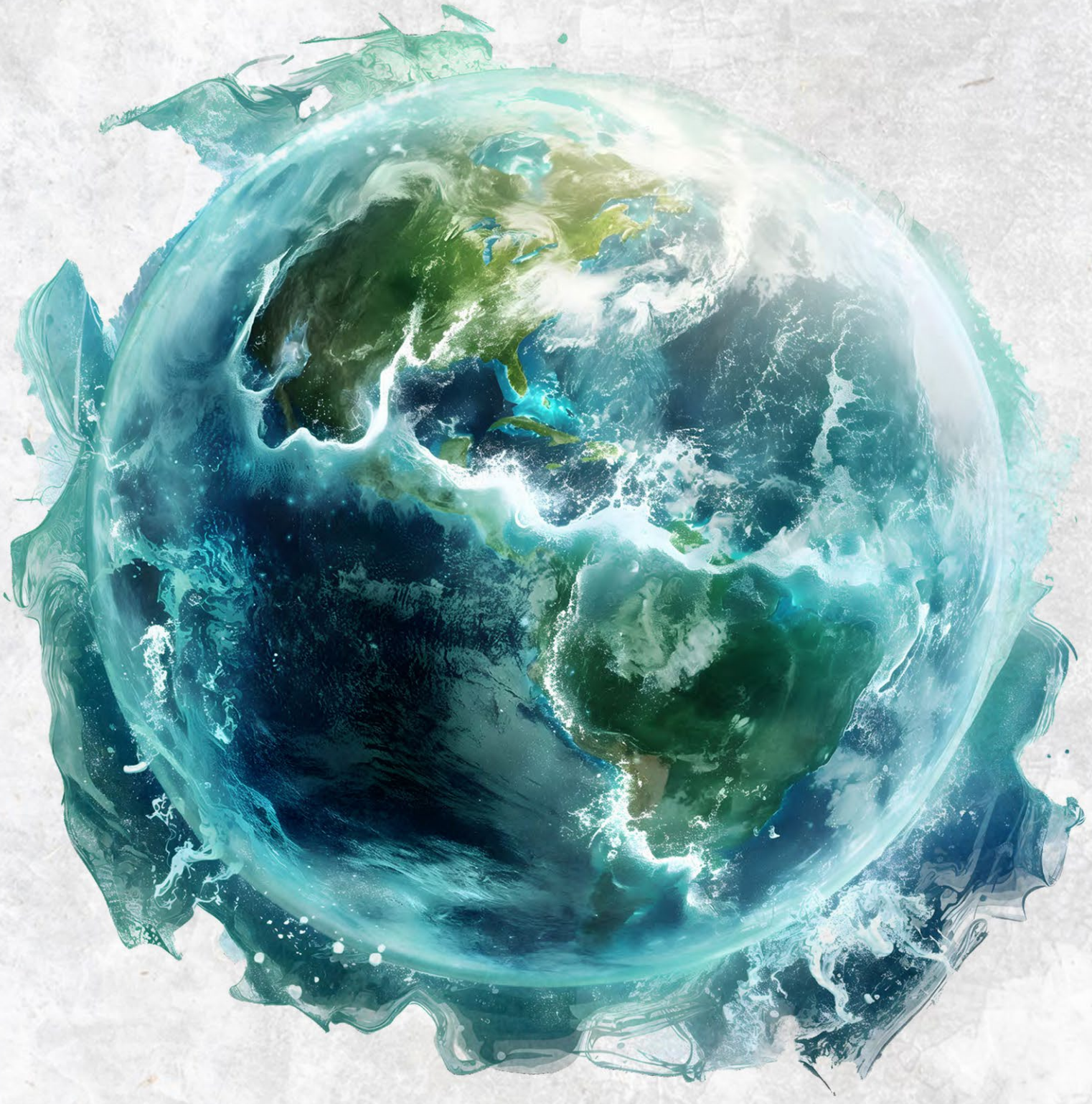




GROUP HOLDINGS



# 2023 ESG INSIGHT REPORT



# TCC Group Holdings

## Total Climate Commitment | Total Care Commitment

The shift of its English name from Taiwan Cement Corporation to TCC Group Holdings has been officially announced on May, 2024, symbolizing the transformation of TCC into a group holding company. This marks a significant leap into 11 industries, spreading its presence across 13 international markets. TCC has advanced itself to become a developer of low-carbon construction materials, resource recycling and green energy at the same time. TCC's Chairman, Nelson Chang pointed out that TCC has developed 4 main revenue pillars beyond Taiwan and Mainland China, including Europe, Africa, and new energy sectors.

**Low-carbon  
Construction Materials**  
Revenue Share  
**61.5%**

**Resource Recycling**  
Revenue Share  
**4.1%**

**Green Energy**  
Revenue Share  
**9.7%**

**Electricity**  
Revenue Share  
**24.7%**

## Key Environmental Goals and Achievement Rates

◆ Climate-related management indicators and targets ▲ New or adjusted indicators ■ weighted average

GHG Management ■	PROGRESS ACHIEVED	PERFORMANCE IN 2023	TARGETS		
			2025	2030	2050
Taiwan	✓	0.769	0.758 (SBT-11%)	0.585	Carbon Neutral Concrete
Mainland China	✓	0.671	0.651 (-11%)	0.585	
Taiwan & Mainland China ■	✓	0.686	0.675	0.585	

Base year 2016 | Unit: metric tons of CO<sub>2</sub>e / metric ton of cementitious materials

### Air Pollution Management (Taiwan & Mainland China)

NOx	✓	383	380	370	BACT <sup>1</sup> Minimum
SOx	✓	41	40	39	
TSP	✓	22	21	20	

Unit: grams emissions / metric ton of of clinker

NOx	6.40	-	-	-
SOx	0.68	-	-	-
TSP	0.37	-	-	-

Unit: metric tons of emissions / million USD

Mercury (Co-pressing)	▲	0.194	0.192	0.187	BACT <sup>1</sup> Minimum
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Note 1: Best Available Control Technology | Unit: ton

### Water Management (Taiwan & Mainland China ■)

WCI Reduction ◆	▲	0.000236	0.000233	0.000225	0.000220
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Base year 2023 | Unit: megaliter/metric ton of cementitious materials

### Energy Management (Taiwan & Mainland China ■)

Energy Efficiency ▲	▲	2.560	2.460	2.306	1.998
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Unit: GJ / t | Formula: Total petrochemical energy consumption / Cementitious materials output

### Renewable Energy & Carbon Capture (Taiwan & Mainland China)

Renewable Energy ▲	145 MW (Accumulated until end 2024)		235 MW	400 MW	750 MW
On-site Waste Management (Cement Plants) Proportion of Waste Converted into Renewable Resources and Energy ▲	▲	-	100%		
Carbon Capture R&D Budget	✓	Total 1.88 billion Invested	13 billion		

Budget Since 2011 | Unit: NT\$

Carbon Capture	Planning for the scale up verification of carbon capture technology		-	100,000	1.6 million
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Unit: metric tons / year

### Alternative Fuels & Materials (Taiwan & Mainland China ■)

Thermal Substitution Rate (TSR) of Alternative Fuel ◆	▲	13%	25%	35%	50%
Ratio of Alternative Raw Materials ◆	▲	19%	21%	22%	25%
Clinker Ratio ▲	▲	79.9%	79.6%	78.0%	57.0%

Biodiversity (Taiwan)	PROGRESS ACHIEVED	PERFORMANCE IN 2023	TARGETS		
			2025	2030	2050
<b>Conservation of Plant Species</b>	✓	34,646	≥ 35,000	≥ 40,000	≥ 45,000
Endangered Plants Included   Unit: taxa					
<b>BMP<sup>1</sup> Proportion of Native Species Maintenance in Mining Areas</b>	✓	85.55%	-	90%	

Note 1: Biodiversity Management Plan

### TCC Community Engagement

<b>Community Engagement Management (CEM)</b>	✓	532 million	800 million	1.8 billion	5.8 billion
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Since 2022 | Unit: NT\$ | Cumulative Investment of

### Employee Education & Training

<b>Education Investment</b>	✓	20.1 million	33.5 million	73.5 million	230 million
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Since 2022 | Unit: NT\$ | Cumulative Investment of

<b>Employee Education &amp; Training</b>	✓	86.62 million	125 million	250 million	750 million
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Since 2020 | Unit: NT\$ | Cumulative Investment of

### Carbon Emissions Collected from Suppliers

◆ Climate-related management indicators and targets

<b>Ratio Collected from Critical Tier-1 Suppliers◆</b>	✓	95.7%	-	90%	-
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In 2024, a third-party carbon audit program for raw material suppliers in Taiwan and Mainland China will launch

## Environmental Metrics

### Carbon Emissions (Taiwan & Mainland China)

	Unit	2020	2021	2022	2023
<b>Total Carbon Emissions</b>	Metric ton CO <sub>2</sub> e	<b>37,159,839</b>	<b>32,010,173</b>	<b>26,293,152</b>	<b>29,089,430</b>
Scope 1		35,668,918	30,666,623	25,029,617	20,868,742
Scope 2		1,468,494	1,314,789	1,065,054	837,928
Scope 3 <sup>Note</sup>		22,427	28,761	198,481	7,382,760

Note: For 2022 and prior, Scope 3 emissions accounted only for Upstream Transportation and Distribution. Starting 2023, TCC conducted inventory and verification on all 15 categories, resulting in an increase of Scope 3 emissions.

### Carbon Intensity (Taiwan & Mainland China)

<b>Specific CO<sub>2</sub> emissions - gross</b>	kg / ton of cementitious materials	<b>705</b>	<b>693</b>	<b>679</b>	<b>661</b>
<b>Specific CO<sub>2</sub> emissions - net</b>		<b>704</b>	<b>692</b>	<b>669</b>	<b>649</b>

Note 1: The GHG emissions were inventoried in terms of operational control. The formula used is emissions = activity data × emissions factor (EF) × global warming potential (GWP). The EF used for Taiwan is subject to the EPA GHG Emissions Factor Management Table (v. 6.0.4); the GWP for the Cement Plants is derived from the IPCC Fourth Assessment Report (2007); the GWP for RMC Plants and Operation Headquarters is derived from the IPCC Sixth Assessment Report (2021). The EF for Mainland China is subject to the Guidelines for Accounting and Reporting Greenhouse Gas Emissions: China Cement Production Enterprises (Trial), the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, and the 2019 Refinement, and the GWP is derived from the IPCC Sixth Assessment Report (2021).

Note 2: For the data of the Cement Plants in Taiwan in 2022, the Scope 1 draws reference from the EPA GHG Emissions Factor Management Table (v. 6.0.4); the Scope 2 draws reference from the electricity EF of 0.495 kg of CO<sub>2</sub>e/kWh from the Energy Administration, MOEA in 2022.

Note 3: Since 2018, the most important activity associated with Scope 3 emissions: Upstream Transportation and Distribution has been inventoried based on the GHG Protocol - Corporate Value Chain (Scope 3) Accounting and Reporting Standard (WRI & WBCSD), and it is verified by a third-party entity. In 2023, TCC conducted inventory and verification on all categories. Details please refer to ESG Section on TCC Corporate Website.

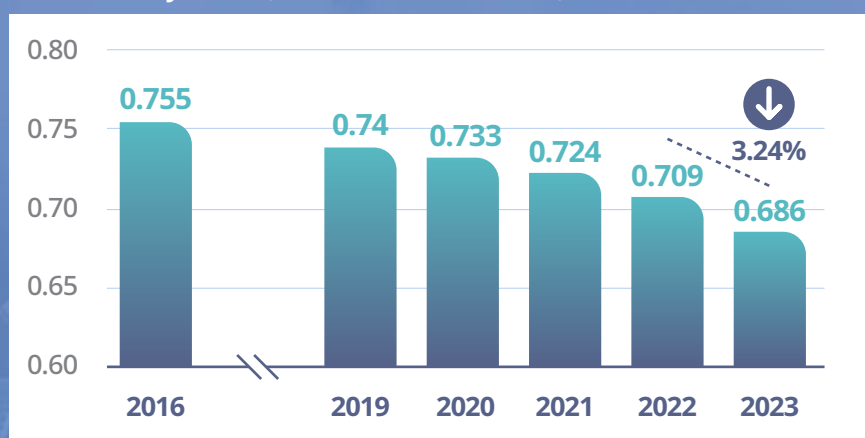
Note 4: In 2023, due to operational adjustments, the Liaoning and Huaihua Cement Plants, as well as the grinding plants in Mainland China, are excluded from the disclosure scope. New additions include "Distribution Stations" (excluding those under the jurisdiction of RMC Plants) and "Operations Offices in Mainland China." Cement Plants in Mainland China and Operations Offices in Taiwan have added "Scope 3" disclosures.

Note 5: The base year for the GHG inventory of Cement Plants is 2016, with emissions of 4,621,312 tCO<sub>2</sub>e for Scope 1 and Scope 2 in Taiwan and 32,523,195 tCO<sub>2</sub>e in Mainland China.

Note 6: From 2020 to 2023, TCC did not procure renewable energy or RECs, resulting in market-based Scope 2 emissions being the same as location-based Scope 2 emissions.

Note 7: The 2023 GHG emissions data for Cement Plants, RMC Plants, and Operations Offices have been verified under ISO 14064-1 verification. The data for RMC Plants includes emissions from Distribution Stations under their jurisdiction, as well as the Hualien Plant.

### GHG Intensity Trend (Taiwan & Mainland China)



Note: The data in this table is based on the Environmental Protection Administration's inventory guidelines (AR5), and therefore may slightly differ from the ISO 14064 database (AR6)



**Energy Management (Taiwan & Mainland China)** Unit

		2020	2021	2022	2023
<b>Total Energy Consumption</b>		<b>157,963,157</b>	<b>135,837,256</b>	<b>111,479,482</b>	<b>96,210,682</b>
Renewable Energy		286	982	4,310	60,600
Coal		141,179,773	119,989,265	93,922,278	76,556,061
Diesel		662,571	647,916	527,966	529,674
Gasoline		14,734	16,212	14,594	15,112
Natural Gas		251	139	58	58
Purchased Electricity		10,848,138	9,819,998	7,365,600	6,392,184
Power Generation by Waste Heat		5,048,625	4,221,277	3,308,400	2,794,580
Alternative Fuels		208,779	1,141,467	6,336,276	9,862,413
<b>Energy Consumption Intensity</b>	<b>MJ / metric ton of clinker</b>	<b>3,274,285</b>	<b>3,254,621</b>	<b>3,293,785</b>	<b>3,324,510</b>

Note 1: The heating values of coal for the Cement Plants in Taiwan are converted per the respective settings of the plants. The converted heating value of coal for the Suao Plant: 5,532.69 kcal/kg; the converted heating value of coal for the Heping Plant: 5,570.14 kcal/kg; the converted heating value of coal for other plants: 5,500 kcal/kg. The values for other items are converted based on the heating values in the Emissions Factor Management Table (v. 6.0.4) released on the Energy Administration's website. The values are 5,500 kcal/kg for coal, 8,400 kcal/l for diesel, 7,800 kcal/l for gasoline, 3,600 GJ/GWh for electricity, and 8,000 (kcal/m3) for natural gas. The scope 2 draws reference from the electricity EF of 0.495 kg of CO2e/kWh from the Energy Administration, MOEA in 2022.

Note 2: The data of energy use is subject to the reported data to the Energy Administration.

Note 3: The Cement Plants in Taiwan started collecting data on gasoline use in 2022, which were used all by corporate cars.

Note 4: Based on the 2023 cementitious materials yield of 4,736,970 metric tons in Taiwan, the energy consumption is 2.8007 GJ/metric ton of cementitious materials. In Mainland China, based on the 2023 cementitious materials yield of 26,811,285 tons, the energy consumption is 2.7182 GJ/metric ton of cementitious materials.

Note 5: In Taiwan, based on a 2023 clinker production of 4,399,442 tons, the electricity consumption for cement plants was 104.33 kWh/metric ton of clinker. In Mainland China, based on a 2023 clinker production of 21,652,988 tons, the electricity consumption for cement plants was 96.94 kWh/metric ton of clinker.

Note 6: Based on the 2023 concrete yield of 4,923,159.50 m3 in Taiwan, the energy consumption in concrete production is 0.01315 GJ/m3 of concrete.

Note 7: The purchased electricity includes the electricity consumed by the mining system; nevertheless, since the mining system is owned by the subsidiary, Ho Sheng Mining Co., Ltd., it is not included in the ISO 14064-1 GHG inventory data.

Note 8: In 2023, due to operational adjustments, the Liaoning and Huaihua Cement Plants, as well as the grinding plants in Mainland China, are excluded from the disclosure scope. New additions include "Distribution Stations" (excluding those under the jurisdiction of RMC Plants) and "Operations Offices in Mainland China."

Note 9: The data for the Operations Offices in Taiwan includes subsidiaries and affiliated companies located within the Operation Headquarters building, as well as the foundation.

Note 10: In 2023, the total internal energy consumption of Taiwan sites was 14,678,126 GJ. Of this, non-renewable energy consumption was 13,651,712 GJ, and renewable energy consumption was 1,026,414 GJ. The categories of non-renewable energy included coal, diesel, gasoline, natural gas, purchased electricity, power Generation by waste Heat recovery, and non-renewable alternative fuels, with non-renewable alternative fuels totaling 306,646 GJ. The categories of renewable energy included renewable biomass fuels and self-generated solar power. Renewable biomass fuels, converted at 4.186 kJ per kcal, amounted to approximately 1,016,321 GJ. Self-generated solar power, converted at 3.6 GJ/kWh, amounted to approximately 10,093 GJ.

**Toxic Emissions**

	Unit	2020	2021	2022	2023
<b>NOx</b>		<b>18,253</b>	<b>16,381</b>	<b>13,634</b>	<b>9,976</b>
<b>SOx</b>		<b>1,399</b>	<b>1,110</b>	<b>1,161</b>	<b>1,059</b>
<b>PM</b>		<b>1,076</b>	<b>783</b>	<b>475</b>	<b>570</b>
<b>VOC / THC (Plants in Taiwan for 2020-2022)</b>		<b>0.0042</b>	<b>0.0042</b>	<b>0.0043</b>	<b>0.7575</b>
<b>PCDD / F (Only plants in Taiwan)</b>		<b>0.0000002049</b>	<b>0.0000009657</b>	<b>0.0000007576</b>	<b>0.0000000311</b>
<b>Hg (Plants in Taiwan for 2020-2022)</b>		<b>0.2794</b>	<b>0.2793</b>	<b>0.2263</b>	<b>0.2010</b>
<b>HM1 (Only plants in Taiwan; only counts Cd)</b>		<b>0.0190</b>	<b>0.0295</b>	<b>0.0279</b>	<b>0.0211</b>
<b>HM2 (Only plants in Taiwan; only counts Pb, As, Cr6+)</b>		<b>0.5332</b>	<b>0.7047</b>	<b>0.6910</b>	<b>0.5652</b>

**Toxic Emissions Intensity**

<b>NOx</b>		<b>418</b>	<b>437</b>	<b>441</b>	<b>383</b>
<b>SOx</b>		<b>20</b>	<b>19</b>	<b>12</b>	<b>41</b>
<b>PM</b>		<b>46</b>	<b>36</b>	<b>30</b>	<b>22</b>
<b>VOC / THC</b>		<b>0.0008</b>	<b>0.0004</b>	<b>0.0008</b>	<b>0.0010</b>
<b>PCDD / F (Only plants in Taiwan)</b>		<b>0.00000004</b>	<b>0.00000016</b>	<b>0.00000014</b>	<b>0.00000017</b>
<b>Hg (Plants in Taiwan for 2020-2022)</b>		<b>0.0519</b>	<b>0.0315</b>	<b>0.0427</b>	<b>0.0483</b>
<b>HM1 (Only plants in Taiwan; only counts Cd)</b>		<b>0.0035</b>	<b>0.0044</b>	<b>0.0053</b>	<b>0.0062</b>
<b>HM2 (Only plants in Taiwan; only counts Pb, As, Cr6+)</b>		<b>0.0958</b>	<b>0.0842</b>	<b>0.1233</b>	<b>0.1479</b>

Note 1: The scope includes cement plants in Taiwan and Mainland China. In 2023, due to operational adjustments, the Liaoning and Huaihua Plants are excluded from the disclosure scope.

Note 2: Total volatile organic compound (VOC) emissions were previously covered for the Heping and Suao plants until 2022. From 2023, it extends to include the Gangnan Plant, with plans for further gradual expansion of the scope.

Note 3: Total mercury (Hg) emissions were previously covered for the Heping Port and Suao plants until 2022. From 2023, it extends to include co-processing plants in Taiwan and Mainland China.

## Water Resource Usage

	Unit	2020	2021	2022	2023
Water Usage	m <sup>3</sup>	-	8,798,576	8,839,610	11,523,452
Water Usage Intensity	liters / metric ton of Cementitious materials	-	-	301.47	352.47
Discharged Reclaimed Water	million liters	93.48	102.43	112.81	73.07

Note: Water usage data collection started in 2021, with complete coverage of all plants within the scope from 2022 onwards.

## Alternative Materials &amp; Fuels

Proportion of Alternative Fuels: the ratio of alternative fuels used in kilns (as the percentage in the thermal energy consumption)	%	-	1.20%	7.65%	12.60%
Proportion of Biofuels: the ratio of biofuels used in kilns (as the percentage in the thermal energy consumption)		-	0.54%	1.86%	2.49%
Clinker-to-cement Ratio: calculated in accordance with the GCCA's Cement CO <sub>2</sub> and Energy Protocol	Ratio (clinker to cement)	0.826	0.823	0.816	0.799

## Return on Environmental Investments (Taiwan &amp; Mainland China)

Total Expenses	NT\$	1,981,095,054	2,630,962,654	1,868,086,092	1,458,387,320
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Note: Total Expenses = Capital Investment + Operating Expenses

## Environmental Certifications

	Cement Plants	RMC Plants	Operation Headquarters
ISO 14001 – Environmental Management Systems	✓	✓	✓
ISO 14046 – Water Footprint Verification	✓	✓	
ISO 14064 – Greenhouse Gases	✓	✓	✓
ISO 14067 – Carbon Footprint of Products	✓	✓	
ISO 46001 – Water Efficiency Management System	✓	✓	
ISO 50001 – Energy Management System	✓	✓	✓
BS8001 – Circular Economy	✓	✓	
Alliance For Water Stewardship – Platinum Level	✓		
Clean Production System of Green Factory Certification	✓	✓	

## Net Zero Commitments

In 2024, TCC Group Holdings will adhere to the 1.5°C pathway in accordance with the COP26 Climate Summit resolutions, setting science-based carbon reduction targets (SBTs) for 2030, and committing to achieving net zero by 2050.

***The First Cement Company in East Asia to Commit to Net-zero by 2050,  
While Also Updating its 1.5°C SBT Goal.***

(Scope: A total of 14 cement plants in Taiwan and Mainland China)

**First Phase Achieved, Second Phase Targets Set:** In its latest sustainability report, TCC announced an 8.1% reduction in carbon emission intensity by 2023, compared to 2016, keeping it on track to meet its 2020-2025 SBT goals. As the first cement company in Greater China to align with SBT in 2020, TCC updated its 2024 targets to align with the Paris Agreement's 1.5°C pathway, committing to net zero by 2050 and joining the SBTi verification pilot to track progress.

## SBT 1.5°C 2030 NEAR TERM Target

- **Date submitted:** July 3rd, 2024
- **Date passed:** Q4 2024 expected
- **TCC Group Holdings has committed SBT 1.5°C target**

Base year: 2016. A target was set for the year 2030 (compared to the base year of 2016) to reduce Scope 1 carbon emission intensity by 23.9%, Scope 2 carbon emission intensity by 64.4%.

The combined reduction for Scope 1+2 by 26.8% (adjustments will be made according to the SBT validation results).

## 2050 NET-ZERO Commitment

- **Date submitted:** July 2nd, 2024
- **Commitment passed:** July 24th, 2024 (Received the official notification from SBTi)
- **Target Setting for NET-ZERO and Schedule**

Stage 1: Calculating Scope 3 emissions, TCC has completed 15 Scope 3 carbon inventories in Taiwan, and plan to expand to the Mainland China plants by the end of 2024.

Stage 2: Expected to pass the SBT expert panel by the end of March 2025.



### Target Setting for Subsidiaries of TCC Group Holdings

In March 2024, TCC announced the completion of the expansion of its investment in low-carbon cement in Europe (joint venture with Turkey's OYAK, 100% acquisition of Portugal's CIMPOR). The SBT goals for OYAK and CIMPOR are as follows:

	NEAR TERM	LONG TERM	NET-ZERO
<b>OYAK Cement</b>	1.5°C	1.5°C	2050
<b>CIMPOR</b>	COMMITTED		COMMITTED

### Scope 3 Inventory - Taiwan

TCC aims to become a climate solutions leader by reducing carbon emissions within its cement industry and promoting reductions across its value chain to achieve net-zero goals. In 2023, it launched a Scope 3 inventory in Taiwan, securing third-party verification.

Unit: tCO<sub>2</sub>e

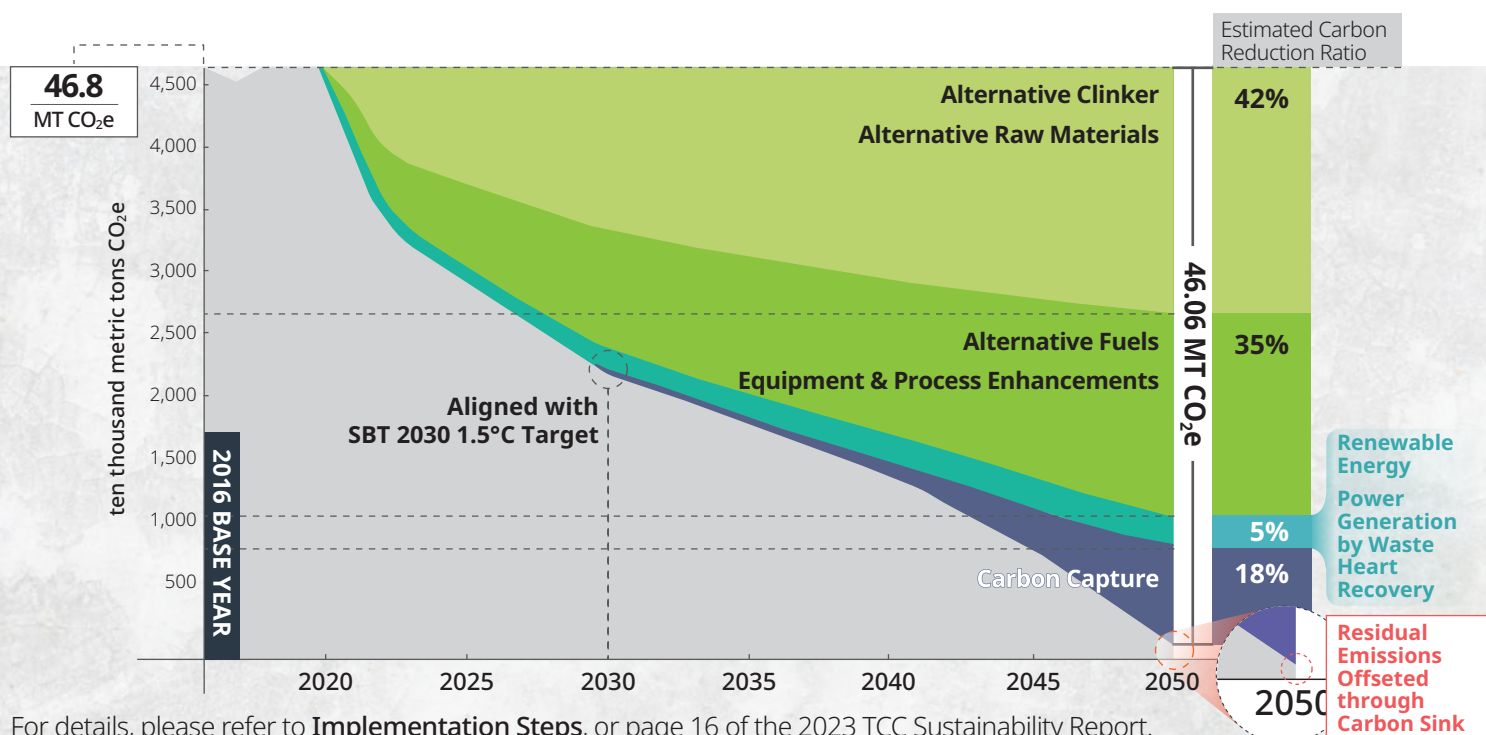
	Cement Plants	RMC Plants	Operation Headquarters <sup>1</sup>
<b>Total</b>	<b>551,000.8516</b>	<b>267,430.0380</b>	<b>5,499,460.1332</b>
Purchased Goods and Services	135,997.0404	94,281.9293	1,352.7027
Capital Goods	46,738.7781	261.5054	645.1093
Fuel- and Energy-Related Activities Not Included in Scope 1 or Scope 2	120,213.7865	1,884.3995	306.7983
Upstream Transportation and Distribution	83,014.8159	68,662.1969	1.0231
Waste Generated in Operations	20.6384	95.4969	19.9614
Business Travel	15.7637	95.7656	149.2656
Employee Commuting	555.2565	356.1993	96.9158
Upstream Leased Assets	17.7676	403.5988	4,413.9969
Downstream Transportation and Distribution	66,973.7580	15,861.6036	0.0000
Processing of Sold Products	27,736.7582	9,506.9559	0.0000
Use of Sold Products	0.0000	0.0000	0.0000
End-of-Life Treatment of Sold Products	69,448.3364	59,670.1330	0.0000
Downstream Leased Assets	268.1522	16,350.2538	670.0480
Franchises	0.0000	0.0000	0.0000
Investments	0.0000	0.0000	5,491,803.3121

Note 1: Including Low-carbon R&D Center.

### 2050 Net-zero Pathway for the Cement and Concrete Business Units Worldwide

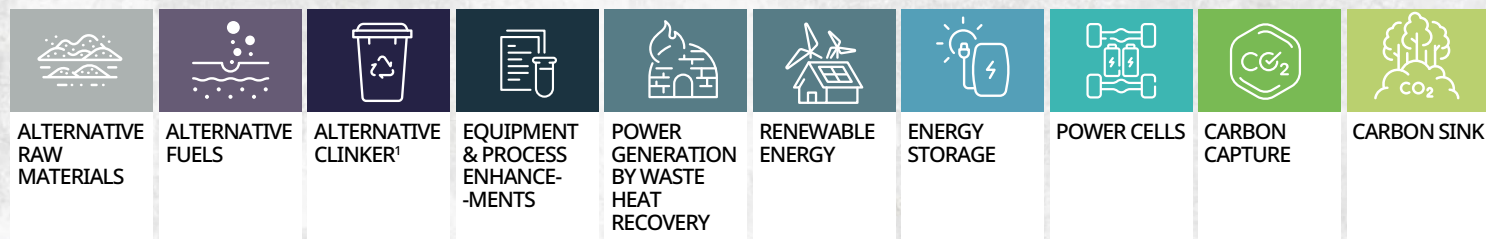
#### Methodology:

- SBTi's Sectoral Decarbonization Approach (SDA) for the cement sector's 1.5°C-aligned and net-zero SBTs.
- ISO Net Zero Guidelines (IWA 42); ISO 14064-1.
- MIT En-ROADS net-zero simulator's open-source formulas.
- International Energy Agency (IEA) Global Energy and Climate Model (GEC Model) logic and NZE Scenario parameters.



For details, please refer to [Implementation Steps](#), or page 16 of the 2023 TCC Sustainability Report.

## TCC 10 Decarbonization & Green Transition Strategies

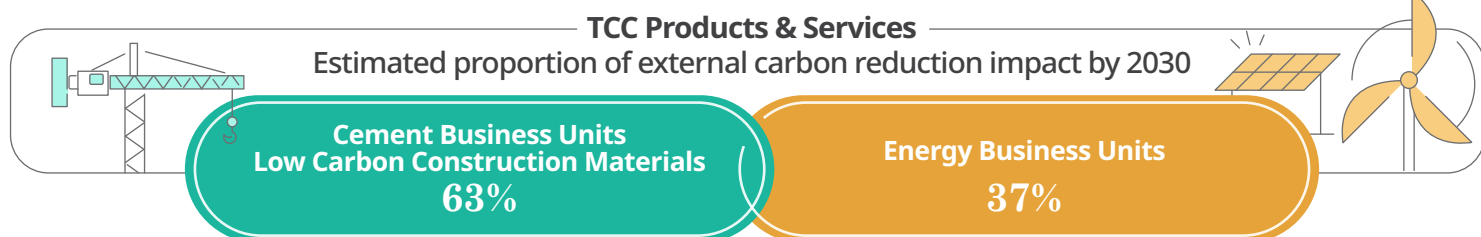


Note 1: New materials

Note 2: TCC will evaluate the progress of strategies and technological developments both domestically and internationally to neutralize residual emissions and/or further mitigate emissions beyond its value chain using carbon credits. These credits may be purchased from external or internationally verified sources, or from captured carbon in alignment with government policies for carbon credits

## Avoided Emissions of TCC Business Units Worldwide

### Low-carbon Construction Materials Combined With New Energy



Unit: CO<sub>2</sub>e

		2023 PERFORMANCE	2030 TARGET
<b>Low-carbon Construction Materials</b>	Assist construction industry	-1.09 million tons	-1.69 million tons
<b>Renewable energy</b>	Assist energy sector	-60,000 tons	-530,000 tons
<b>Energy Storage</b>	Stabilize grid	-75,000 tons	-160,000 tons
<b>Battery</b>	Assist power tool clients	-2,300 tons	Assist the aviation industry -320,000 tons

## Low-carbon Products

TCC has introduced the 'Total Climate' series, which offers low-carbon options without compromising on strength. TCC's low-carbon products account for 61.5% of TCC's revenue share and has expanded from Taiwan and Mainland China to Turkey and Portugal. In 2023, low-carbon products have reduced 1.09 million tons of CO<sub>2</sub>e, with a target of 1.69 million tons CO<sub>2</sub>e by 2030.



### Portland Limestone Type II Cement Concrete

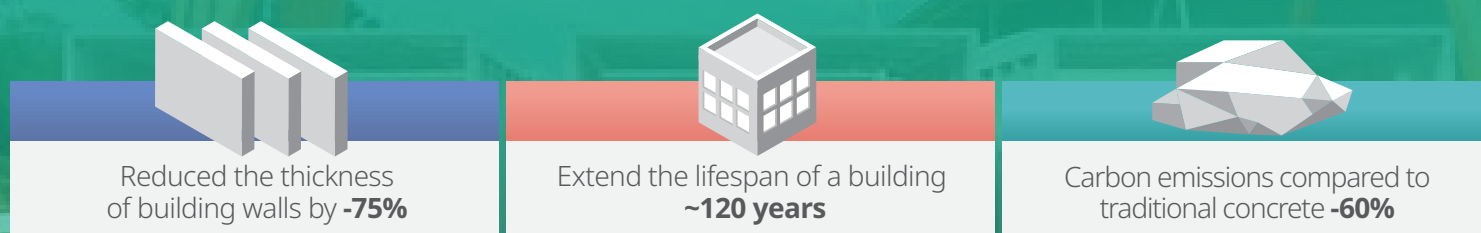


- Carbon reduced by 15.4% compared to Portland Type I (base year: 2016)
- Lower carbon, stronger early strength for general construction and engineering
- Capable of completely replacing the traditional Portland Type I
- Production in line with CNS 15286

***Portland Limestone Type II Cement Concrete is Set to  
100% Replace Portland Type I Cement by 2026***

### UHPC Construction Material

Ultra-High Performance Concrete (UHPC) stands out for its exceptional durability, strength, and adaptability. It surpasses traditional materials, enabling innovative designs and adding artistic appeal to modern architecture.

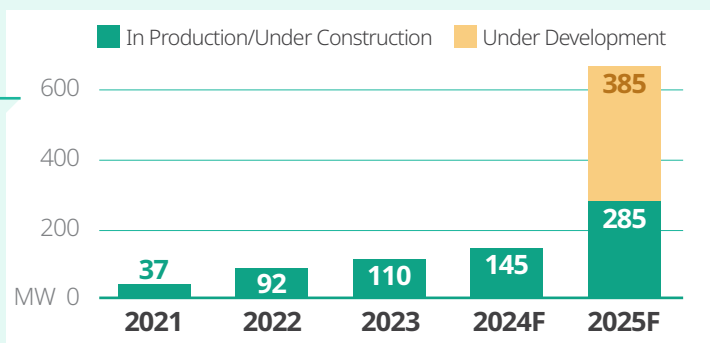


## Green Energy

### Energy Creation

TCC not only generates renewable energy for self-use but also installs PV panels at its Taiwan and Mainland China sites to reduce grey energy use. Moreover, by investing in diverse renewable sources like wind, solar, geothermal, and marine energy, TCC supports Taiwan's energy transition.

*Target of 235 MW managed by 2025*



### NHQA.TCC Energy Storage & Energy Supply

#### Energy Storage

In 2020, TCC founded TCC Energy Storage Technology Corporation and, in 2021, acquired and rebranded Engie EPS as NHQA. The merger formed NHQA.TCC, making TCC the world's fourth-largest energy storage provider, per BNEF.

#### 2023 Globally

2,263 MWh  
Energy Storage Capacity

#### 2024 Taiwan

9 Energy Storage Project Sites  
(including scheduled 2024)  
217.3 MW / 655 MWh



*Target of Energy Storage Installed Capacity of 840.44 MWh (Taiwan), and 2.5 GWh (Global) by 2025*

#### Energy Supply

NHQA.TCC has developed EV charging stations integrating solar power, energy storage, and charging to buffer the grid. By storing energy during off-peak hours and discharging it during peak times, they reduce grid strain and ensure stable fast charging. As of 2023, there are 20 NHQA.TCC charging stations in Taiwan, with a combined global 4,337 charging points between NHQA.TCC and partners.

*Target of 40 charging stations by 2025*

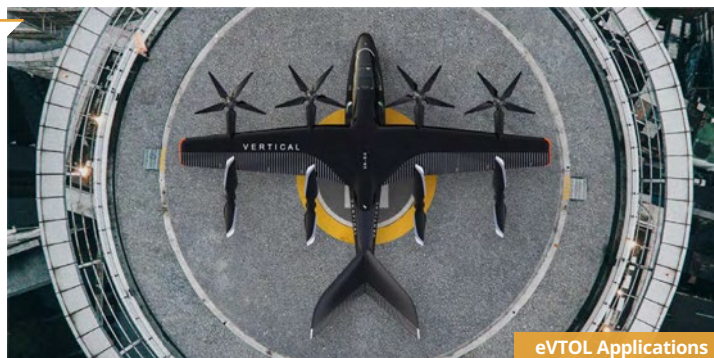


Tainan Yawan Station

#### Energy Transmission - Power Cells

MOLICEL (TCC subsidiary), develops next-generation high-performance ternary lithium-ion batteries with superior energy density and discharge power. Serving high-end markets like eVTOL aircraft, electric supercars, and motorcycles, it has become a leader in ultra-high power cells. With its Xiaogang Plant in Kaohsiung operational in 2023, MOLICEL aims for an annual production capacity of 3.4 GWh. As of 2023, production capacity of power cells is 1.6 GWh per year.

*Target of 3.4 GWh per year by 2024*



eVTOL Applications

#### Energy Transition Solution

In late 2022, TCC launched Energy Helper TCC Corporation to introduce the "Green Energy Trading Platform" (ETP). This platform provides green energy wheeling and procurement services, helping SMEs without strong market leverage access renewable energy. It commits to supplying a set percentage of green energy annually, supporting Taiwan's SMEs in achieving RE100 targets.

#### ETP Membership

378 (+153)

#### ETP Green Electricity Sold

> 40 million kWh  
(87.5% non-affiliated clients)

#### Electricity Trading Services Total Capacity

205.2 MW  
(20% market share, #1 in Taiwan)

#### Online Green Energy Consultant

1,000+ Accesses



# Waste, Alternative Raw Materials, and Waste Co-processing

## Waste Management

TCC aims to achieve "Zero Waste" by minimizing waste output and maximizing resource recovery and reuse. In 2024, its cement plants set a goal to convert 100% of waste into renewable resources, following practices of "innocuous treatment and resource utilization."

*All waste from TCC's plants is non-hazardous*

TCC adheres to ISO 14001 standards, implementing waste management protocols at all operational sites. All waste from its plants is non-hazardous and treated safely in accordance with regulations. The company also invests in innovation and R&D to reduce waste generation. From 2020 to 2023, TCC invested over 27.99 million in food waste treatment initiatives at its Yingde and Hoping plants.

## Treatment Process



### General/Industrial Waste

Recycled through high-temperature rotary kiln processes or treated by certified vendors.

### Valuable Industrial Waste

Recovered by qualified third-party agencies.

## Waste Disposal | Unit: metric tons

	2020	2021	2022	2023
<b>Total waste recycled / reused</b>	<b>3,338.61</b>	<b>3,881.23</b>	<b>9,673.86</b>	<b>7,811.95</b>
<b>Total waste disposed</b>	<b>9,231.89</b>	<b>13,843.49</b>	<b>11,565.38</b>	<b>9,397.22</b>
Waste landfilled	0	0	0	0
Waste incinerated with energy recovery	0	0	0	0
Waste incinerated without energy recovery	875.78	1,091.74	212.71	1,686.68
Waste sent to recycle/reuse	8,356.11	12,751.75	11,352.67	7,710.54

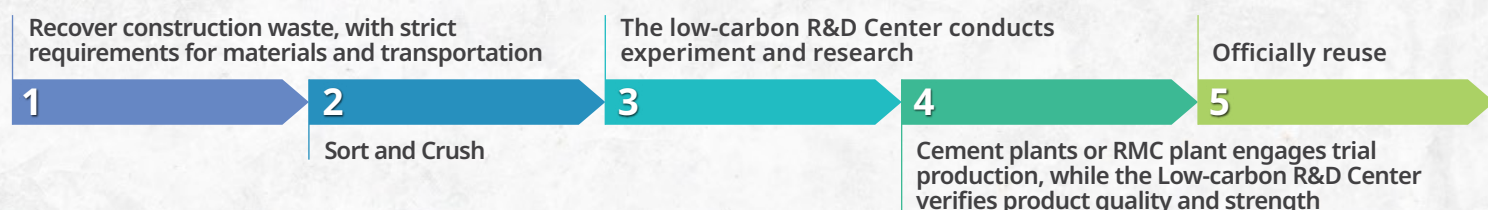
## Construction Waste Solutions

In 2023, TCC invested in recycling construction waste for reuse as alternative raw materials or fuels in cement and concrete production. It also continued developing new sources of alternative materials, such as calcium silicate boards.

## Construction Waste Recycling Material



- Construction waste can be used as filler for graded aggregate, fine aggregate or admixture for concrete, and alternative clay for cement.
- The remainders are sorted as alternative fuels for the cement plant.



## Alternative Fuels

TCC continues developing waste-to-fuel sources like wood, plastics, textiles, and non-hazardous oily sludge, requiring extensive testing for stable use. In October 2023, TCC and ITRI completed a high-heating-value SRF co-firing system for cement kilns, with performance verification underway. The system aims to enhance alternative fuel efficiency.

## Alternative Fuels in-use 2023

Waste Textiles	Waste Paper	Waste Plastics	Waste Wood
Construction Waste	Rubber Sheet	Waste Wood Chips (White Popinac)	Non-hazardous Oily Sludge <sup>1</sup>

Note 1: Non-hazardous oily sludge individual reuse application approved.

### Co-processing of Domestic Waste – TCC DAKA RRRC

TCC established the TCC DAKA Renewable Resource Recycling Center (RRRC) to process Hualien's domestic waste and use the generated energy to reduce coal, waste, and carbon emissions. As Taiwan's first facility to co-process local waste in cement kilns, the RRRC has a daily capacity of 200 metric tons, helping reduce methane emissions and the carbon footprint of waste transport.

The RRRC obtained the Candidate Green Building Certificate in 2023 and obtained the Low Carbon Building Certification during the architectural drawing stage in February 2024.



**13,762 metric tons of waste processed in 2023**  
Equivalent to 40.09% of Hualien's total waste

## Water Management

TCC's cement and RMC plants in Taiwan and Mainland China are fully ISO 14046 certified, with Taiwan's plants also meeting ISO 46001 standards. In May 2024, the Hoping and Suao plants achieved AWS Platinum-level recognition for water stewardship. A water footprint management platform monitors real-time water usage, reclamation, and discharge, enabling industry comparisons. In 2023, Taiwan's cement plants qualified for preferential water conservation charges due to superior water reclamation rates.



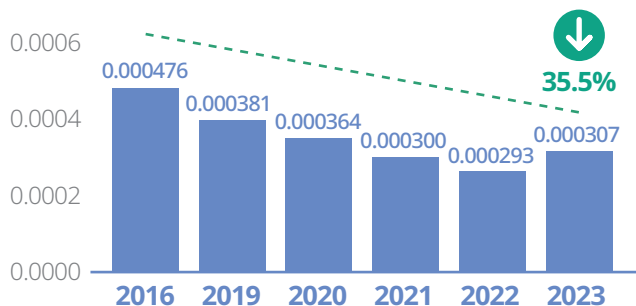
**100% Cement Plants in Taiwan & Mainland China and RMC Plants obtain ISO14046 Certification**  
**100% Cement Plants in Taiwan and RMC Plants obtain ISO46001 Certification**

### Water Withdrawal Intensity

#### TAIWAN

##### Water Withdrawal Intensity

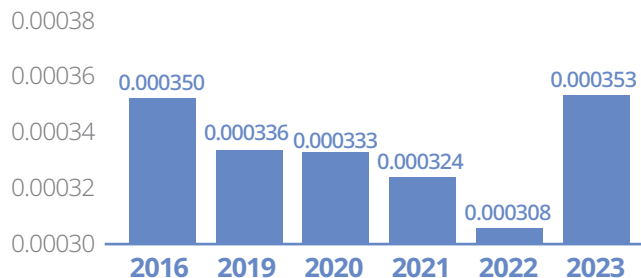
Million Liters / Metric Ton of Cementitious Materials



#### MAINLAND CHINA

##### Water Withdrawal Intensity

Million Liters / Metric Ton of Cementitious Materials



Note: In 2023, due to the enhancement of dust suppression and control, the addition of desulfurization towers, and vegetation greening, the water withdrawal increased.

## Green Logistics

Electric Fleet

Autonomous Mining

Green Logistics Services

Maritime Optimization

### Electric Fleet - 32% Emissions Reduction

Transportation accounts for 12.8% of total GHG emissions, with heavy trucks and tractors contributing 18.31%. TCC became Taiwan's first to use electric tractors for cement transport, reducing carbon emissions by 32% and improving the carbon footprint of its low-carbon cement. TTS (TCC subsidiary) helps corporate clients achieve measurable Scope 3 emission reductions, while NHOA.TCC has installed fast chargers at TCC's RMC plants, enhancing vehicle efficiency and ensuring timely deliveries.

### Autonomous Mining Equipment

The Jurong Plant (Jiangsu) replaced fuel trucks with 14 autonomous electric ones. Employing "centrally-controlled route planning," "remote smart dispatching," "automatic parking and unloading," and "artificially-simulated driving," it significantly cut operational risks.

### Autonomous Expansion Underway

Yingde & Chongqing Plant	Finished digital mine's first phase
Hoping Plant	Begun equipment evaluation & talks with local authorities





### Green Logistics Services as Part of the Tech Sector's Supply Chains

TTS launched Taiwan's first 26-ton electric truck and introduced green logistics services for IKEA Taiwan in 2023. TTS installed dedicated charging stations at IKEA locations and optimized charging plans to ease range anxiety. In 2023, three stations supplied 72,435 kWh, cutting carbon emissions by 42.8 metric tons. By 2024, TTS expanded into the tech sector, with its electric trucks serving as key vehicles in green supply chains.



TTS electric trucks vs. traditional 10.5-ton diesel trucks Carbon emissions per trip in average

**-18% CO<sub>2</sub>e**

### Optimized Maritime Routes AMPs to Reduce Carbon Emissions in Port Berthing

Ta-Ho Maritime, a TCC Group subsidiary, operates two eco-friendly carriers. In 2023, it introduced the "NAPA Voyage Optimization" system for real-time fleet tracking, integrating weather, sea conditions, and port schedules for efficient routing. It also implemented SEEMP PART III to reduce vessel carbon intensity. Ta-Ho's vessels, TAHO AFRICA and TAHO OCEANIA, along with TCC's Hoping EcoPort and the Ports of Taichung and Kaohsiung, installed Alternative Maritime Power (AMP) systems in 2023.

Average Fleet Age	6 Years
New Carriers, Daily Fuel Consumption (to launch 2025 Q1)	-7.8%
Average Carbon Intensity Indicator (CII)	-50%
AMPs utilized by Own Ships and Ports utilized AMP	2,213.7 hours   -710.3 metric tons CO <sub>2</sub> e
Optimal routes varying with weather conditions carbon reduction	4-5%



## Nature Action

TCC follows international standards for nature assessments, adopting the TNFD framework in 2023 as an Early Adopter and aligning with the SBTN for sustainable management. It also applies WBCSD's Net Impact Assessment for the cement sector. Through Business for Nature's "It's Now for Nature" initiative, TCC commits to reversing nature loss by 2030, supporting the global 30x30 conservation goal, and fostering a Nature Positive future. For more details, please refer to the TCC 2023 TNFD Report.



**TCC 2023 TNFD Report**

### Targets

#### Net Positive Impact (NPI)

- **Quarry Rehabilitation Plan (QRP)** - 90% for The Percentage of Indigenous Species by 2030 (Hoping & Suao)
- **Ho-Ping Ark Ecological Program**

#### Soil Carbon Sequestration

- **Increase Rehabilitation Area by 60%** by 2035 (compared with 2023)

#### Environmental Education

- **Hoping EcoPort Courses** - 12 Sessions Annually
- **TCC DAKA** (Now EPA Environmental Education Facility Certified)

#### Other Initiatives

- **Dr. Cecilia Koo Botanic Conservation Center by 2030** – 40,000 Plant Species Conservation (Including Endangered Species)
- **Promoting Other Effective Area-based Conservation Measures (OECMs)** in The Hoping Mining and Hoping Eco- Port Areas

### 2023 Performance

Mining Areas			Hoping EcoPort
100% Coverage rate of the BMP (High-Risk Mining Areas)	88% Native Species Preservation Ratio (Hoping Mining Area)	1.3 times increase for Proportion of Soil Organic Matter (2021-2023)	1,001 corals cultivated cumulatively (Coral Rehabilitation Project)
100% QRP Coverage	90% Taibai Mountains Mining Area	31.2 tons per hectare Organic Carbon Levels (2023)	<ul style="list-style-type: none"> <li>• OCA Class-A Water</li> <li>• 3-time PERS-certified</li> <li>• GPAS-certified</li> <li>• EPA Environmental Education Facility certified</li> </ul>

### No Deforestation Commitment

Aligned with the COP26 zero-deforestation pledge and the UN's SDGs 13 (Climate Action) and 15 (Life on Land), TCC Group Holdings has made a No Deforestation Commitment, approved by executive management. This applies to its operations, suppliers, and partners, who are required to comply through cooperation agreements. TCC implements the following management approaches:

- 100% operation sites not in the nationally protected areas
- 100% zero deforestation beyond the mining areas and commitment to the recovery and restoration in mining areas, contributing to the target of no net deforestation by 2040
- Sharing knowledge about the importance of forest conservation with stakeholders, including employees, customers, suppliers, and partners.



### SBTN's Action Framework (AR3T) for Nature Positive

<b>AVOID</b>	<ul style="list-style-type: none"> <li>• 100% TCC-owned quarries have passed EIA and avoid mining in protected areas.</li> <li>• Cement plants boost reclaimed water use, enhance water efficiency and avoid freshwater withdrawal.</li> </ul>
<b>REDUCE</b>	<ul style="list-style-type: none"> <li>• Implement MBR to reduce wastewater pollution. Set up slope protection mesh to mitigate soil erosion.</li> <li>• Remove White Popinac to reduce the ecological threat .</li> <li>• Plant streetlights automatically adjust to sunrise times to minimize light pollution, and silencers are installed on equipment to lower noise.</li> <li>• Adopt vertical shaft system to convey limestone to reduce GHG emissions, noise and dust.</li> </ul>
<b>REGENERATE / RESTORE</b>	<ul style="list-style-type: none"> <li>• Prioritize native plants and select species fit for the area.</li> <li>• Install nesting boxes to provide habitats for bird reproduction.</li> <li>• Using natural organic compost to enhance soil's physical and chemical qualities.</li> </ul>
<b>TRANSFORM</b>	<ul style="list-style-type: none"> <li>• Transform the ceased mine into a hiking trail and flood detention park.</li> <li>• Shift to a circular economy, reusing waste as resources to replace the raw materials/fuels for cement.</li> <li>• Engage with tribes and communities, offering economic opportunities, scholarships, emergency funds, and educational support.</li> </ul>

## Social Aspect

TCC puts people first and believes in the value of being a people-oriented enterprise, employees are the cornerstone of corporate sustainable development. TCC complies with relevant regulations and holds quarterly labor-management meetings, strengthening employee identification towards the company.

*100% of employees are covered by collective bargaining agreements*

### Social Metrics

#### Diversified Workforce (Taiwan)

	Unit	2020	2021	2022	2023
Share of Employees with Disabilities	%	1.50	1.70	1.50	1.80
Share of Employees with Indigenous Background		6.10	6.40	7.50	12.20
Gender Equality – Female Employees		17.5	18.9	19.65	19.39
All Management Positions		23.5	26.2	26.98	18.9
Junior Management Positions		23.35	26.88	27.98	18.3
Top Management Positions		25.00	20.00	18.18	16.2
Management in Revenue-Generating Functions		3.83	4.37	4.65	21.6
Women in STEM-Related Positions		34.41	35.20	36.55	20.6

#### Diversified Workforce (Mainland China)

Share of Employees with Indigenous Background	%	-	-	-	15.5
Gender Equality - Female Employees		23.35	23.54	23.54	20.98



**Employment (Taiwan)**

	Unit	2020	2021	2022	2023
Turnover Rate	%	6.3	8.1	5.9	9.08
Open Positions Filled by Internal Candidates		18.85	22.90	18.30	78.6
Employee Engagement Rate		94.30	94.30	98.20	97.00

**Employment (Mainland China)**

Employee Engagement Rate	%	97.50	97.50	97.30	94.50
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**Training & Education (Taiwan & Mainland China)**

Total Training Hours	Hours	177,574	211,752	282,816	228,842
Average Hours of Trainings		20.2	23.1	31.1	31.9
Average Amount Spent on Training	NT\$	2,928	3,152	3,256	4,273

**Employee Health & Safety (Taiwan & Mainland China)**

Lost Time Incident Rate (LTIR)	%	0.12	0.11	0.20	0.16
Total Recordable Incident Rate (TRIR)		0.12	0.11	0.20	0.16

**Contractor Health & Safety (Taiwan & Mainland China)**

Lost Time Incident Rate (LTIR)	%	-	0.00	0.15	0.12
Total Recordable Incident Rate (TRIR)		-	0.07	0.15	0.23

**Frequency-Severity Index (FSI) in Taiwan**

Category	2022			2023		
	Disabling Injury Frequency Rate (FR) Per 1 Million Hours Worked	Disabling Injury Severity Rate Per 1 Million Hours Worked	Frequency-Severity Index (FSI)	Disabling Injury Frequency Rate (FR) Per 1 Million Hours Worked	Disabling Injury Severity Rate Per 1 Million Hours Worked	Frequency-Severity Index (FSI)
Employee	1.65	81	0.36	0.81	25	0.14
Contractor	1.72	14	0.15	1.70	6,810	3.40

## Salary and Bonus

In 2023, 100% of employees (except those in their first three months) were assessed. TCC's remuneration policy is based on performance and job responsibilities, regardless of gender, race, age, or other factors. All employees receive monthly salaries, year-end, quarterly, and performance bonuses, along with other variable compensation.

**100% of Employees in TCC Group Holdings Enjoy Quarterly and Performance Bonuses**

**Employee Bonuses – Linked to ESG****Performance Bonuses**

Employee appraisals include risk and sustainable management indicators, linking results to the Company's governance, operations, and sustainable development.	TCC's quarterly bonus system rewards employees, and factors in progress on carbon emission intensity targets towards the 2050 Carbon Neutrality commitment, integrating sustainability performance into corporate operations.			
Criteria include topics such as:				
• Operation Safety and Health	• Carbon emissions reduction	• Information security	• Anti-bribery	
• Environmental protection	• Governance Quality	• Anti-corruption	• Among others.	

**Executive Pay – Linked to ESG Performance**

**TCC ties senior management compensation to ESG performance targets**, incentivizing continuous improvement in environmental protection, social responsibility, and corporate governance. Specific sustainability targets are also set for the CFO, Chief Procurement Officer, and the procurement department, aligning their compensation with key sustainability indicators.

## Gender Pay Equality - Ratio of Basic Salary and Remuneration (Women to Men)

Employee Type	Taiwan		Mainland China	
	Base Salary	Annual Remuneration	Base Salary	Annual Remuneration
Top management	99:100	122:100	100:100	101:100
Management level	103:100	101:100	97:100	99:100
Non-management level	99:100	94:100	87:100	85:100

Note 1: Management level: Assistant Vice President and above; Mid-level managers: Section Specialist to Senior Manager; General staff: Direct Employees, Specialists, Engineers, Researchers.  
 Note 2: Base salary: Monthly salary (including year-end bonus); Annual remuneration: Base salary and variable bonuses.  
 Note 3: The scope of TCC's significant locations of operation is consistent with the scope of disclosure in 2023 TCC Sustainability Report.

## Occupational Health and Safety

TCC is dedicated to providing a top-tier health and safety workplace. Its "Internal Control Policies for Occupational Safety and Health Management" apply to all employees, on-site outsourced workers, and contractors. Safety management includes the "Occupational Safety and Health Management Regulations," "Plan," and "Code of Practice."



**100% Cement plants, RMC plants and Operation Headquarters obtained ISO 45001 Certification**

### Occupational Safety and Health Committee

A safety management system is established, with the Labor Safety and Health Office (LSH Office) at each location handling safety matters. This office organizes quarterly labor safety and health committee meetings, tracks project progression, assesses improvements, and reports to the Operation Headquarters.

Composition of Occupational Safety and Health Committee	Operation Headquarters	Cement Plants	RMC Plants
Convener	1	2	3
Number of Supervisors and Professionals	5	21	28
Number of Labor Representatives	3	15	17
Percentage of Labor Representatives	33%	39%	35%

### Safety Management of Contractors

To ensure safety, TCC enforces the "Contractor OSH and Environmental Management Rules," requiring contractors to sign an HSE Letter, complete OHS training, and adhere to the Workplace Environmental Hazards Notice. **The target of zero occupational injuries among contractors is set at TCC.**

## Employee Diversity

Following Diversity, Equity, and Inclusion (DEI) principles, TCC focuses on employee needs and tackles talent diversity by promoting gender equality, intergenerational cooperation, and ethnic inclusion, aiming for a fair and vibrant workplace culture.

### Fostering Talent

#### Internship Program

TCC offers a flexible internship program tailored to students' schedules. It includes various courses, field visits, and career mentors who guide, appraise, and brainstorm with interns. A steady proportion of internships are maintained to support youth in understanding the industry, exploring career interests, and gaining practical experience.

#### Industry-Academia Collaboration Program

TCC's alliance with National Dong Hwa University (NDHU) introduces the "Electrical Engineering Talents Program" at Szu-Wei High School in Hualien, providing local students with exam-free admission, support for professional certification, and a focus on new energy careers, prioritizing TCC job applications.

#### Key Talent Development Program

Designed for low-to-mid-level managers to enhance their management capabilities. The program utilizes Business Weekly resources to develop technical, managerial, and various soft skills. The program offers personalized training, including one-on-one English conversation practice, and cultural knowledge for global roles, aiming to nurture international, generalist, and technical specialists.

### Gender Equality

TCC's construction materials business attracts more male applicants for physical labor roles. Recruitment ads use gender-neutral language, and the "Anti-Discrimination and Anti-Harassment Policy" is promoted internally. An online Care Platform provides anonymous feedback to ensure a supportive, safe workplace.



**Target for 17% female senior management by 2025**





## STEM Female Scholarships

In 2023, NHQA has achieved 50% female management. To eliminate gender disparities and cultivate future female STEM talents, NHQA has participated in the "Girls@Polimi Grants" at the Polytechnic University of Milan since 2021. Recipients receive an annual €8,000 grant for three years, plus training and mentoring. The goal is to increase the proportion of female engineers tenfold by 2025.



## Female Representation 2025 Goals

	2022	2023	2025 Targets
Total Workforce	19.65%	23.7%	22%
All Management Positions	26.98%	18.9%	19%
Junior Management Positions	27.98%	18.3%	19%
Top Management Positions	18.18%	16.2%	17%
Management Positions in Revenue-Generating Functions	4.65%	21.6%	5%
STEM-Related Positions	36.55%	20.6%	20%

Reason for Adjusted 2025 Targets: Workforce growth in the cement sector is stable, with no anticipated demand increase, so targets are slightly raised to maintain current levels.

Reason for Higher 2022 Performance Compared to 2023: 1. In 2022, only TCC Taiwan was included in the scope, while 2023 expanded to include "TCC Mainland China, He Sheng Mining, E.G.C. Cement, MOLICEL, and NHQA," diluting results and lowering 2023 data; 2. Definitions for operating and STEM units were adjusted in early 2024.

## Human Capital Development (Taiwan & Mainland China)

As talent is the bedrock for a sustainable corporate operation, TCC aims to develop our employees' potential through diverse training programs and evaluate the effectiveness through performance assessments.

*2025 Target of a cumulative investment of NT\$ 125 million in employee education and training in 2025 (since 2020)*

	2019	2020	2021	2022	2023
Education Investment (NT\$)	2,800,000	20,555,109	23,428,225	21,838,716	30,608,294
Average Hours of Trainings (Hours)	115.97	81.04	70.90	73.10	31.86
Average Amount Spent on Training (NT\$)	27,525	18,997	20,659	18,908	4,272

## ESG Education & Training

"Sustainability focus" is not just a requirement for TCC employees but central to talent selection. Recognizing talent as the foundation of sustainable operations, TCC develops employee potential through diverse training programs, with effectiveness measured via performance assessments. The company also supports employees' career growth, ensuring a fair transition during this process.

### Sustainable Learning Action Program



All Employees in Taiwan-based Operations  
**95.1% Curriculum Satisfaction**

Content:

- **Diversity & Inclusion:** Cross-cultural communication and management, Strong generation/psychology book club.
- **Sustainability trends:** Lectures by external experts, sharing low-carbon architecture trends & applications, challenges and opportunities of corporate carbon sink, etc.
- **Development:** Positive communication skills Sustainable Action Proposal Competition: Proposals for energy-saving measures in the workplace.

### TCC Carbon Academy



All Employees  
**96.2% Curriculum Satisfaction**

Content:

- **Trends and regulations in GHG inventory, practical training, case studies, and written examination.**
- **Engineering carbon footprint:** introduction on ISO 14067 and LEBR, case study exercise in groups.
- **Low-carbon product consensus camp, calculation on construction, low-carbon construction materials applications.**

### Human Rights Policy Education and Trainings

TCC mandates annual education and training for all employees on significant policies such as Human Rights Policy, Statement of Integrity and Ethical Conduct, and Sexual Harassment Prevention Policy. These policies are included in the mandatory courses and all personnel must complete the tests after reading the policy documents. 100% of all new recruits sign the Statement of Integrity and Ethical Conduct.

*For 2023 Human rights education training hours totaled 1,886.5 hours.  
Average engagement score was 4.648/5*


[Due Diligence Report](#)

## Human Rights and Environmental Due Diligence

In response to the EU's Corporate Sustainability Due Diligence Directive (CSDDD) passed on April 24, 2024, TCC Group Holdings proactively reviews its value chain impacts, incorporating stakeholder feedback from customers and community residents into decision-making and communication.

### Scope of Investigation & Effective Response Rate

Employees	Suppliers (Contractors included)	Community	Indigenous Peoples	Customers
94%	96%	84%	86%	81%

TCC's due diligence approach is guided by the UN Guiding Principles on Business and Human Rights, the EU CSDDD and its Annex, the OECD Due Diligence Guidance, and the OECD Guidelines for Multinational Enterprises.

TCC reviews human rights risks at least every three years. 2024 marks the first execution of human rights and environmental due diligence, with regular follow-ups planned.

## Employee Stock Option Program (ESOP)

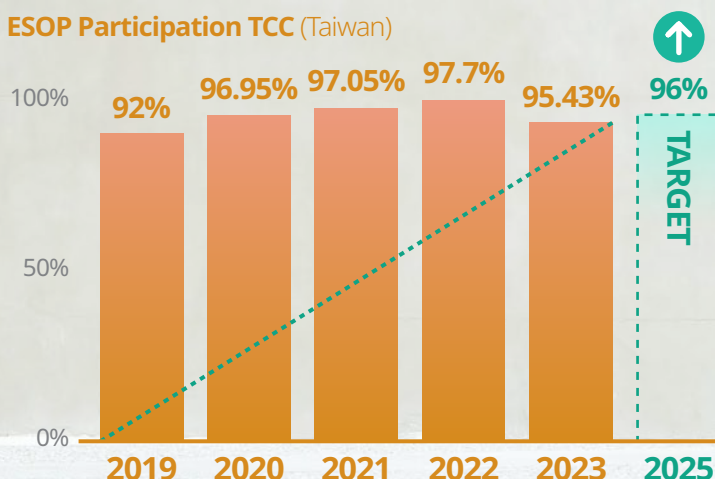
In 2019, TCC launched the ESOP program, open to all employees of TCC and its affiliates. Both TCC and employees contribute to a fund at a 1:1 ratio, deposited into a trust account monthly. Employees can make additional contributions in June and December, with TCC adding 10% to individual accounts. Employees eligible for retirement at 60 can contribute further, helping retain talent and support wealth accumulation for life after retirement.

### Treasury Shares Program

**69% of employees of Taiwan-based operations with outstanding performance are entitled to Treasury Shares Program**

Established as a long-term motivational incentive, and linking performance assessment metrics with sustainable development goals. Performance metrics such as the implementation effectiveness of carbon reduction strategies and outstanding performance at both Taiwan and overseas subsidiaries will qualify employees to participate.

### ESOP Participation TCC (Taiwan)



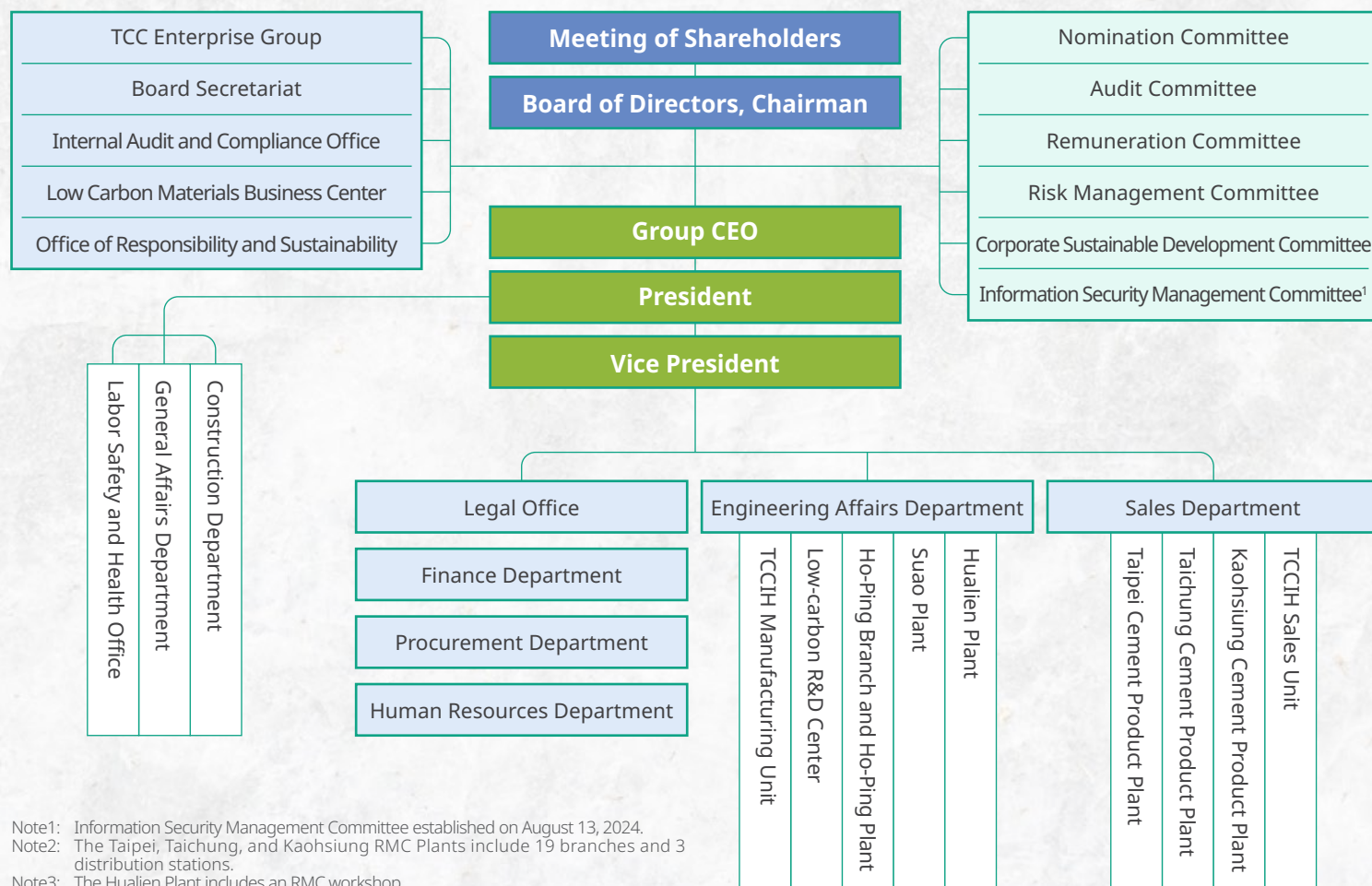
*100% of the employees are eligible for ESOP.*





# Governance

## Organizational Framework



Note1: Information Security Management Committee established on August 13, 2024.

Note2: The Taipei, Taichung, and Kaohsiung RMC Plants include 19 branches and 3 distribution stations.

Note3: The Hualien Plant includes an RMC workshop.

Note4: TCC International Holdings Ltd. (TCCIH) and its subsidiaries..

## Governance Performance Highlights

### Female Board Representation

**26.66%**

### Board Independence

**33%**

### Functional Committees<sup>Note</sup>

**6**

### Corporate Governance Evaluation

**Top 5%**

### Total Hours of Integrity & Ethics Trainings (All TCC Employees)

**3,904.2 hours**

### Information Security Trainings (1,600 participants)

**1,800 hours**



Note: TCC established Information Security Management Committee as a functional committee to enhance cybersecurity risk management, protect assets, strengthen governance, and bolster board functions. The Committee was established according to Article 27 of the Corporate Governance Best Practice Principles for TWSE/TPEx-Listed Companies. On August 13, 2024, the 25<sup>th</sup> Board, at its 5<sup>th</sup> meeting, approved the committee's formation and appointed three independent directors.



## Board of Directors

*The TCC Board of Directors of the Company Consists of*  
**15 Directors** (5 Independent Directors Included)  
 with an average **89% Board Meeting Attendance** (Presence by Proxy included)

As of May 21, 2024	Gender	Age			Functional Committees				
		31-50	51-70	> 71	Audit Committee	Remuneration Committee	Risk Management Committee	Corporate Sustainability Development Committee	Nomination Committee
An-ping (Nelson) Chang	MALE			✓				<b>Convener</b>	Member
Roman Cheng	MALE		✓					Member	
Kenneth C.M. Lo	MALE			✓					Member
Yu-Cheng Chiao	MALE		✓			<b>Convener</b>			
Eric CHEN Sun Te	MALE		✓						
Kang-Lung (Jason) Chang	MALE		✓						
Por-Yuan Wang	MALE			✓					
Kung-Yi Koo	MALE	✓							
Chien Wen	MALE			✓					
Liz WANG	FEMALE		✓				Member	Member	
Victor Wang	MALE			✓	<b>Convener</b>	Member	Member	Member	
Lynette Ling-Tai Chou	FEMALE		✓		Member	Member	Member	Member	Member
Sherry S. L. Lin	FEMALE			✓	Member	Member	<b>Convener</b>	Member	Member
Ruu-Tian Chang	FEMALE		✓		Member		Member		

 Director
  Independent Director

## Functional Committees and Responsibilities

### Audit

#### 100% Attendance

Stipulation and amendment to the internal control system and protocols for significant financial and business activities, auditing of marketable securities, financial statements, and matters involving Director's conflict of interest, etc.

**100%**  
Independent

**60%**  
Females

**Committee Charter**

### Remuneration

#### 100% Attendance

Formulation and review of policies concerning the performance evaluations of Directors and managers as well as their compensation; evaluation and stipulation of the compensation for Directors and managers on a regular basis.

**100%**  
Independent

**60%**  
Females

**Committee Charter**

### Risk Management

#### 100% Attendance

Execution of the risk management decisions approved by the Board of Directors and supervision of the establishment of TCC's risk management mechanisms; oversight of the execution and coordination of the overall risk management.

**100%**  
Independent

**67%**  
Females

**Committee Charter**

### Corporate Sustainable Development<sup>1</sup>

#### 100% Attendance

A decision-making and supervisory body over the Company's efforts in sustainable development, contribute to environmental conservation, and exercise social responsibilities for the BOD to fulfill its responsibilities in the protection of the tinterests of the Company as well as the employees, shareholders, and stakeholders thereof.

**60%**  
Independent

**40%**  
Females

**Committee Charter**

### Nomination

#### 100% Attendance

Regular stipulation and review of Director elections (Independent Directors included), senior management appointments, ESG Professional Development Program for Directors, Director performance, BOD member evaluations, and senior management succession planning.

**60%**  
Independent

**40%**  
Females

**Committee Charter**

Note1: Attendance rates include presence by proxy, attendance data for FY2023.

## External Evaluation of the Board of Directors – Excellent

TCC has implemented the "Rules of Performance Evaluation of Board of Directors" for regular assessments, including annual internal evaluations and external reviews by experts every three years. The evaluations cover five areas: corporate engagement, decision-making quality, board composition and structure, member election and development, and internal controls. An external entity conducted the 2023 Board Performance Evaluation, presenting its report as "Excellent" on Jan 31, 2024, which was then submitted to the Board on Feb 27, 2024.



**Evaluation Report**

## Director ESG Training

In 2023, TCC commissioned the Taiwan Corporate Governance Association to organize courses on "Risk Trends under Climate Change - Nature, Water, and Human Rights" and "Compliance with Laws and Regulations - Concerted Actions and Related Party Transactions", among others. For details on individual directors' training records, please refer to section 3.3.3 of the Company's annual report.

## Ethical Management

### Ethical Management Governance

TCC has established an "Anti-Corruption and Anti-Bribery Promotion Team" led by the President, with the Legal Office overseeing. Department supervisors monitor daily corruption and bribery risks, reporting to the Audit Committee and Board of Directors at least annually. Employee performance appraisals incorporate ethical management indicators, including anti-corruption, anti-bribery, and legal compliance. In 2023, TCC updated "Business Partner Corruption Risk Assessment and Due Diligence Procedures" to include countermeasures for non-compliant suppliers, contractors, and customers. TCC will also develop a digital business partner risk assessment procedure. **The implementation of the Ethical Management system is reported to the Board of Directors at least once a year.**

*Board-level Audit Committee responsible for overseeing ethical management system goals.*

### ISO 37001 Anti-bribery Management Systems – Annually Reviewed

TCC prioritizes professional ethics, legal compliance, and integrity principles. "Anti-Corruption and Anti-Bribery Policy," "Procedures for Anti-corruption and Anti-bribery Management," and "Anti-corruption and Anti-bribery System Management Manual" have been stipulated. With ISO 37001 introduced, TCC is Taiwan's first enterprise certified by a third-party entity.



### Ethical Management Training

In 2023, 17,592 individuals including Directors, business partners, employees, new recruits, and interns completed ISO 37001 training, with the General Administration Division achieving a 100% completion rate.

Topic	Completion (No. of People)	Training Hours
Ethical Management Trainings & Tests	15,684	784.2
ISO37001 Education and Training	921	767.5
Legal Compliance Training Course on the Fair Trade Act	313	626
ISO 37001 Education and Training- Promotion Team Members	21	31.5
Introduction of Related Party Transaction Management	264	528
Interests of insider Trading	389	1,167
<b>Total</b>	<b>17,592</b>	<b>3,904.2</b>

Education and training expanded to contractors; as of Q1 2024, 22 contractors have been trained, totaling 18.7 hours cumulatively.

## Reporting System & Whistleblower Protection Mechanism

*Possibility for anonymous reporting,  
TCC is committed to ensuring the confidentiality protection for whistleblowers*

TCC promotes reporting of misconduct by anyone connected to the Company through its "Reporting Mechanism for Violation of Code of Conduct," which outlines procedures and channels like email, written, and on-site reports. Reports can be made anonymously or with identification, but anonymous reports require full information and documents to prevent misuse. Whistleblower identities and report details are kept confidential with restricted access. TCC ensures whistleblower protection against retaliation. If a report concerns senior management, it can also be directed to the Company's Audit Committee, in addition to the aforementioned channels.

### Reports and Grievances in 2023

Reporting and Grievance Channel	Number of Cases
Reporting Mailbox	16
Audit Committee Mailbox	4
Employee Grievance Mailbox	15
Cases involving ethical management violation	13
Cases involving discrimination or harassment	0



## Data Protection and Privacy

TCC Group aims to protect important information systems and the privacy, comprehensiveness and usability of data. The Information Security Management Committee was established following the ISO 27001 Information Security Management to set up data security standards and assessments. TCC Group Information Security Policy was stipulated in 2022. The administrative review and examination of the information security policy and relevant regulations in every December ensure an effective implementation of information security protection.

**ISO 27001 Information Security Management System obtained in January, 2021. Passed external recertification audits continually (2021/12 & 2023/01).** In 2023, our 6 information security members and 20 support team members held 40 weekly, 6 monthly, and 3 quarterly information security meetings. TCC also encouraged obtaining international information security certifications, including ISO 27001 and EC-Council Certified Incident Handler (ECIH).



Information Security Policy

*No critical information security incident reported in 2023*

## Stakeholder Engagement Policy

*Regular and consistent engagements with all stakeholders on ESG topics  
Including semi-annual conference exchanges, bi-weekly industry seminars, shareholder engagements, etc.*

The purpose of the stakeholder engagement policy is to offer an overall framework for TCC to engage in communication and interaction with stakeholders across all the activities of TCC. Using frameworks and referencing standards such as: GRI Standards, AA1000 SES, SASB Standards, Dow Jones Sustainability Index.

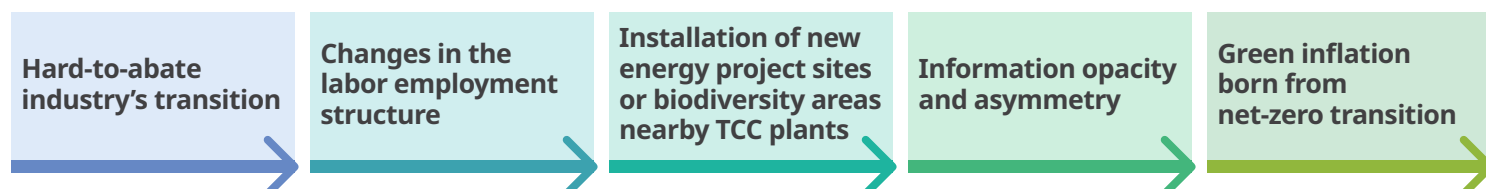
-  1 Respond and protect the legal rights and interests of stakeholders.
-  2 Encourage stakeholders to participate in the corporate businesses and the communities the Company operates in to bring about shared sustainable values for all.
-  3 Strengthen the bilateral communication with stakeholders, build the sense of trust, and establish long-term, stable, and firm relationships via various channels.
-  4 Improve stakeholders' level of identity with the sustainable development and ESG of the Company, including items pertaining to professional development diversity
-  5 Maintain sustainable actions in different countries and industries through the above-mentioned framework.



## Regular Stakeholder Engagement for Environmental Issues – Net Zero

In pursuing net-zero goals, TCC's just transition strategy aligns with Taiwan's "Pathway to Net-Zero Emissions in 2050" to address impacts on employees and stakeholders, ensuring a fair shift to a sustainable economy. The strategy promotes inclusivity, justice, and community rights, with regular impact disclosures. Supporting SDG 8, TCC creates jobs in climate mitigation, adaptation, and social transition, empowering employees for change. TCC also aligns industry and sustainability associations with its just transition policy, addressing discrepancies at the vice president's meeting, with potential withdrawal from associations if unresolved.

### Impacted Facets



### Coping Strategy

<b>Support the industrial transition of cement industry</b>	<ul style="list-style-type: none"> <li>Actively engage with agencies like MOEA, MOI, Public Construction Commission, and MOE, participating in amending construction regulations for low-carbon products, including the roles of public construction, chloride ion, and commodity tax.</li> <li>Launch the Total Solutions for low-carbon and new energy buildings, strengthen the application and promotion of low-carbon construction material products.</li> <li>Provide GHG inventory courses to suppliers and set up "the supplier and client program" TCC Carbon Academy in 2024.</li> </ul>
<b>Participate in industrial/sustainability associations for more communication</b>	<ul style="list-style-type: none"> <li>Partake in the GCCA meeting to formulate net-zero pathway solutions with peers.</li> <li>Participate in associations like Taiwan BIM Alliance of NTU and the Low Carbon Building Alliance, capturing processes and perspectives of civil engineering talent development and enhance product applications.</li> <li>Advocate and discuss Taiwan's construction industry's carbon competitiveness and trends at major sustainability events and at Operation Headquarters.</li> </ul>
<b>Avoid impact on employees' rights and interests</b>	<ul style="list-style-type: none"> <li>TCC provides the "Sustainable Learning Passport" and "Carbon Academy" to enhance employee sustainability awareness and foster carbon management expertise.</li> <li>Provide professional skills training and helps in acquiring licenses/certificates for new roles emerging from the transition.</li> <li>Organize "Hoping Plant Cement Workshop" to develop new potential from employees.</li> </ul>
<b>Ensure the rights and interests of communities near TCC plants</b>	<ul style="list-style-type: none"> <li>Applied for tribal consultations and consent to protect local residents' rights and interests.</li> <li>Open the Electrical Engineering Talents Program at Szu-Wei Senior High School, Hualien. Offer local students exam-free entry and aid in certification attainment.</li> <li>Establish DAKA Market as the local startup incubator.</li> </ul>
<b>Expand communication to reduce transition risks</b>	<ul style="list-style-type: none"> <li>Publish Stakeholder Engagement Policy.</li> <li>Periodically update stakeholders through the corporate website, Sustainability Reports, and social media to improve engagement and communication.</li> <li>Promote the "Carbon Reduction Parent-Child Bankbook" to simulate carbon currency transactions.</li> <li>Establish communication venues such as TCC DAKA Open Eco-Factory and Hanben Ocean Station.</li> </ul>
<b>Assist in reducing costs in switching to green lifestyle</b>	<ul style="list-style-type: none"> <li>Provide employees with subsidies for green transport, negotiate discounts with electric motorcycle brands, and offer on-site promotions and sales.</li> <li>Promote "EARTH HELPER, the Carbon Reduction Sustainability Action" campaign for a lifestyle transformation. Install smart recycling machines and eco-friendly laundry/dishwashing refill stations at TCC DAKA, offering discounts to travelers using eco-friendly utensils.</li> </ul>

## Non-Voting Shares

Approximately over 5% of TCC shareholders are domestic institutions abstaining from director elections. As of publication, key shareholders with abstention policies include:

Shareholder	Voting Policy	S/H of TCC
Insurance Companies	Insurance Act Article 146-1	~ 1.98%
Government Funds (e.g. Bureau of Labor Funds)	BoLF Stewardship Report	~ 4.33%
<b>Total Non-Voting Shares for Board Elections</b>		<b>&gt; 5%</b>