5 Metrics and Targets

By setting clear climate indicators and short-, medium-, and long-term goals, TCC quantifies the results of its sustainable transformation and incorporates them into daily operations and strategic management. These serve as key references for decision-making, resource allocation, and performance review, ensuring a robust and forward-looking transformation process.

5.1_ Greenhouse Gas Emissions Metrics and Targets

Climate Related Metrics and Targets

Items	Scopes	Performance		Target	
		2024	2025	2030	2050
Greenhouse Gas Management Base Year 2016 Units: ton of CO_2e/ton of cementitious material	Taiwan and Mainland China (Weighted Average)	0.655	0.645	0.552	Setting in Progress
	CIMPOR	0.664	-	0.538	0.033
	OYAK CEMENT	0.690	-	0.610	0.033
Water Resource Management - Fresh Water Withdrawal Intensity (OYAK CEMENT currently has no targets for this item)	Taiwan and Mainland China (Weighted Average) Base Year 2023 Units: Million liters/ton of cementitious material	0.000377	-	0.000248	-
	CIMPOR Units: Million liters/ton of cementitious material	0.00020	0.00020	0.00020	-
Thermal Substitution Rate of Alternative Fuel	Taiwan and Mainland China (Weighted Average)	15.4%	25%	35%	50%
	CIMPOR	33.8%	60%	70%	-
	OYAK CEMENT	24.5%	30.5%	58%	-
	Only for gray cement; if including white cement, the target is to reach 52% by 2030				
Alternative Raw Material Ratio	Taiwan and Mainland China (Weighted Average)	17.4%	21%	22%	25%
	CIMPOR	3.6%	4%	5%	-
	OYAK CEMENT	1.86%	2.09%	5%	-
Clinker-to-Cement Ratio	Taiwan and Mainland China (Weighted Average)	0.789	0.796	0.780	0.570
	CIMPOR	0.80	0.67	0.625	-
	OYAK CEMENT	0.80	0.79	0.73	-
Renewable Energy Unit: MW	TCC Group	203MW	235MW	400MW	750MW
Carbon Capture Unit: ton	Taiwan and Mainland China	Prioritize the adoption of oxy-fuel combustion technology that can achieve short-term carbon emission reductions.		100,000 Tonnes/Year	1.6 Million Tonnes/Year
Valid Data of Carbon Emission Collection from Critical Tier 1 Suppliers	Taiwan	91%	90%	90%	-
		Implementation of the third-party carbon review program for raw material suppliers in Taiwan in 2024			

Note 1: Items that have not achieved their targets will continue to be monitored for improvement. For details on climate actions, please refer to Chapter 3.
Note 2: After the acquisition of CIMPOR & OYAK CEMENT in 2024, in order to standardize the water management indicators within the Group, the water management metric has been changed from water intensity reduction to fresh water withdrawal intensity.
Note 3: The thermal substitution rate of alternative Fuel is subject to regional regulations: in Taiwan, it must comply with CNS 61 standards; in Mainland China, it must comply with the chloride ion limits specified in GB 175 standards.
Note 4: BACT stands for Best Available Control Technology.

Greenhouse Gas Emissions

Absolute GHG emissions Over the Past Four Years | unit:tCO_2e

Construction Materials

		2021	2022	2023	2024
Scope 1	**Taiwan**	4,798,945	4,314,312	3,463,663	3,311,817
	Mainland China	25,867,678	20,715,305	17,418,591	20,300,454
	Subtotal	30,666,623	25,029,617	20,882,254	23,612,271
	CIMPOR & OYAK CEMENT	-	-	-	9,183,229
	Total	30,666,623	25,029,617	20,882,254	32,795,500
Scope 2 (Market-based)	**Taiwan**	220,392	218,480	195,702	208,671
	Mainland China	1,094,397	846,574	656,627	682,879
	Subtotal	1,314,789	1,065,054	852,329	891,550
	CIMPOR & OYAK CEMENT	-	-	-	537,745
	Total	1,314,789	1,065,054	852,329	1,429,295
Scope 1 and Scope 2 Combined	**Taiwan**	5,019,337	4,532,792	3,659,365	3,520,448
	Mainland China	26,962,075	21,561,879	18,075,218	20,983,333
	Subtotal	31,981,412	26,094,671	21,734,583	24,503,781
	CIMPOR & OYAK CEMENT	-	-	-	9,720,974
	Total	31,981,412	26,094,671	21,734,583	34,224,755
Scope 3	**Taiwan**	28,761	17,428	6,277,977	6,473,285
	Mainland China	-	-	-	963,241
	Subtotal	28,761	17,428	6,277,977	7,436,526
	CIMPOR & OYAK CEMENT	-	-	-	1,867,000
	Total	28,761	17,428	6,277,977	9,303,526

Absolute GHG emissions for the past four years

Cement Plant

Items		2021	2022	2023	2024
Total Scope 1 and Scope 2 Emissions Unit：tCO_2e ton of cementitious material	**Taiwan**	0.806	0.803	0.769	0.761
	Mainland China	0.709	0.690	0.671	0.661
	Subtotal	-	-	-	0.656
	CIMPOR & OYAK CEMENT	0.724	0.709	0.686	0.668
	Total	0.806	0.803	0.769	0.761

Note 1: Greenhouse gas emissions are calculated using the operational control approach for inventory. The calculation method is: Activity Data x Emission Factor x GWP Value. For Taiwan, emission factors are cited from the Ministry of Environment's GHG Emission Factor Table.. This table uses the greenhouse gas GWP values from IPCC AR6 for calculation.
Note 2: Scope 3 greenhouse gas emissions encompass all 15 categories as defined by the GHG Protocol Scope 3, and obtained third-party verification. The calculation follows the GHG Protocol - Corporate Value Chain (Scope 3) Accounting and Reporting Standard (WRI & WBCSD).
Note 3: Based on the 2024 cementitious material production of 4,598,399 tons in Taiwan, the 2024 carbon emission intensity (cement plant Scope 1 and Scope 2) is 0.761 (tons CO_2e/ton of cementitious material). In Mainland China, with a 2024 cementitious material production of 25,613,238 tons, the 2024 carbon emission intensity (cement plant Scope 1 and Scope 2) is 0.661 (tons CO_2e/ton of cementitious material).
Note 4: Based on the 2024 clinker production of 4,224,284 tons in Taiwan, the 2024 carbon emission intensity (cement plant Scope 1 and Scope 2) is 0.828 (tons CO_2e/ton of clinker). In Mainland China, with a 2024 clinker production of 25,613,238 tons, the 2024 carbon emission intensity (cement plant Scope 1 and Scope 2) is 0.819 (tons CO_2e/ton of clinker).
Note 5: The newly disclosed scope in 2024 includes Longshan, Huaihua, and Liaoning cement plants; Fuzhou and Liuzhou grinding plants; Feng Sheng Enterprise Company, 123 Environmental Protection Technology Co., Ltd., Beijing TCC Environmental Technology Co., Ltd., TCC (Guangdong) Renewable Resources Technology Company Limited. CIMPOR, OYAK CEMENT, and the European Operations Headquarters.
Note 6: CIMPOR & OYAK CEMENT were formally incorporated into the Company's consolidated financial statements starting from March 2024; therefore, the table only includes their greenhouse gas emissions from March to December 2024..

Absolute GHG emissions for the past four years | unit:tCO2e

Social Aspect of Energy Transition business

Items	2021	2022	2023	2024
Scope 1	7,530,599	7,380,815	7,995,242	6,936,330
Scope 2	333	750	1	2,787
Total Scope 1 and Scope 2	7,530,932	7,381,565	7,995,243	6,939,117

5.2_ Other Climate-related Key Indicators

Energy Usage

Energy Usage for the Past Four Years | Construction Materials

Energy Usage (Unit: GJ)		2021	2022	2023	2024
Direct Energy Usage	**Taiwan**	17,688,678	17,093,101	12,958,316	12,722,861
coals, diesel fuel,	**Mainland China**	104,106,338	83,708,071	73,953,649	67,104,919
gasoline,	**Subtotal**	121,795,016	100,801,172	86,911,965	79,836,780
natural gas	**CIMPOR & OYAK CEMENT**	-	-	-	11,416,087
and alternative fuel	**Total**	121,795,016	100,801,172	86,911,965	91,252,867
Indirect Energy Usage	**Taiwan**	1,641,978	1,603,108	1,500,701	1,549,637
renewable energy	**Mainland China**	8,179,002	5,766,802	4,949,919	7,327,388
and purchased electricity	**Subtotal**	9,820,980	7,369,910	6,450,620	8,877,025
	CIMPOR & OYAK CEMENT	-	-	-	7,512,445
	Total	9,820,980	7,369,710	6,450,620	16,389,470
Energy Recovery	**Taiwan**	497,725	388,800	228,780	286,155
and Utilization	**Mainland China**	3,723,552	2,919,600	2,565,800	3,088,559
waste heat to power	**Subtotal**	4,221,277	3,308,400	2,794,580	3,374,714
	CIMPOR & OYAK CEMENT	-	-	-	301,356
	Total	4,221,277	3,308,400	2,794,580	3,636,070
Total	**Taiwan**	19,828,381	19,085,009	14,687,797	14,567,873
	Mainland China	116,008,892	92,394,473	81,469,368	77,529,866
	Subtotal	135,837,273	111,479,482	96,157,165	92,097,739
	CIMPOR & OYAK CEMENT	-	-	-	19,229,888
	Total	135,837,273	111,479,482	96,157,165	111,327,627

Note 1: The newly disclosed scope in 2024 includes Longshan, Huaihua, and Liaoning cement plants; Fuzhou and Liuzhou grinding plants; Feng Sheng Enterprise Company, 123 Environmental Protection Technology Co., Ltd., Beijing TCC Environmental Technology Co., Ltd., TCC (Guangdong) Renewable Resources Technology Company Limited., CIMPOR(not including cement plant in Cameroon, OYAK CEMENT.
Note 2: For cement plants in Taiwan, coal calorific values are converted according to each plant's settings: Suao Plant coal calorific value conversion factor: 5,532.69 kcal/kg, Hoping Plant coal calorific value conversion factor: 5,570.14 kcal/kg. Other items are converted based on the calorific values provided in the emission factor table announced on the Bureau of Energy website: coal at 5,512.66 kcal/kg, diesel at 8,400 (kcal/l), gasoline at 7,800 (kcal/l), electricity at 3,600 (GJ/million kWh), and natural gas at 8,000 (kcal/m3). The calorific value calculations for Mainland China, CIMPOR, and OYAK CEMENT are conducted in accordance with relevant local practices and regulations.
Note 3: Energy consumption is based on data reported to the Bureau of Energy.
Note 4: Due to scheduling arrangements, the coal and natural gas consumption data for CIMPOR and OYAK Cement will be disclosed in the ESG section of the TCC corporate website.

Energy Usage for the latest Year | Social Aspect of Energy Transition business

Energy Usage (Unit: GJ)	2024
Coals	69,716,746
Diesel fuel	303,557
Gasoline	224
Purchased electricity	20,312
Renewable energy	2,909
Total	70,043,748

Water Resources Usage

Water Resources Usage for the Past Four Years | Construction Materials

Water Resource Usage (Unit: million liters)		2021	2022	2023	2024
Freshwater	**Taiwan**	2,463	2,301	2,828	2,878
	Mainland China	14,109	9,645	10,062	13,511
	Subtotal	16,572	11,946	12,890	16,389
	CIMPOR & OYAK CEMENT	-	-	-	8,702
	Total	16,572	11,946	12,890	25,091
Seawater	**Taiwan**	-	-	-	-
	Mainland China	-	-	-	-
	Subtotal	-	-	-	-
	CIMPOR & OYAK CEMENT	-	-	-	19,929
	Total	-	-	-	19,929
Recycled water from manufacturing process	**Taiwan**	102	113	73	89
	Mainland China	-	-	-	-
	Subtotal	102	113	73	89
	CIMPOR & OYAK CEMENT	-	-	-	9
	Total	102	113	73	98
Total	**Taiwan**	2,566	2,414	2,900	2,968
	Mainland China	14,109	9,645	10,062	13,511
	Subtotal	16,675	12,059	12,962	16,479
	CIMPOR & OYAK CEMENT	-	-	-	28,641
	Total	16,675	12,059	12,962	45,120
Process Recycled water	**Taiwan**	91,218	88,394	62,485	5,864
	Mainland China	11,773	9,610	9,779	758
	Subtotal	102,991	98,004	72,264	6,622
	CIMPOR & OYAK CEMENT	-	-	-	1,921
	Total	102,991	98,004	72,264	8,543
Other Recycled Water	**Taiwan**	-	-	54	175
	Mainland China	-	-	-	292
	Subtotal	-	-	54	467
	CIMPOR & OYAK CEMENT	-	-	-	-
	Total	-	-	54	467

Note 1: TCC assessed future water supply using the WRI Aqueduct Water Risk Atlas. The results indicate that only Guangan Plant and Huaying Plant in Sichuan and the Anshun Plant in Guizhou are located in high water stress areas in Mainland China. All other locations in Taiwan and Mainland China are not situated in water-stressed regions.
Note 2: In 2024, wastewater discharge volume from cement plants in Taiwan was 494 million liters, while the wastewater discharge volume from cement plants in Mainland China was 118 million liters, the wastewater discharge volume from cement plants in CIMPOR & OYAK CEMENT was 25,410 million liters. Total wastewater discharge from cement plants was 26,022 million liters. Water consumption at cement plants in Taiwan and Mainland China was 2,474 million liters and 13,391 million liters, respectively. Water consumption at cement plants in CIMPOR & OYAK CEMENT was 3,231 million liters. Total water consumption at cement plants was 19,096 million liters.

Water Resources Usage for the Past Four Years | Social Aspect of Energy Transition business

Water Resource Usage (Unit: million liters)	2021	2022	2023	2024
Freshwater	1,543	1,558	1,697	1,564
Seawater	1,209,710	1,231,339	1,274,384	1,219,195
Recycled water from manufacturing process	247	230	194	139
Total	1,211,500	1,233,127	1,276,275	1,220,898
Process Recycled water	147,510	167,255	141,238	77,465
Other Recycled Water	99,507	62,921	52,557	61,197

5.3_ Seven Cross-Industry Indicators

Metrics and Targets	Description	Corresponding Sections
Greenhouse Gas Emissions	Organizations should disclose their total absolute greenhouse gas emissions for Scope 1, Scope 2, and Scope 3 during the reporting period, expressed in metric tons of carbon dioxide equivalent, and disclose their methodology for measuring greenhouse gas emissions	CH5 Metrics and Targets
Transformation Risks	Amount and Percentage of Assets or Business Activities Vulnerable to Climate-Related Transition Risks	CH3 Strategy CH5 Metrics and Targets
Physical Risks	Amount and Percentage of Assets or Business Activities Vulnerable to Climate-Related Physical Risks	CH3 Strategy
Climate-related Opportunities	Amount and Percentage of Assets or Business Activities Aligned with Climate-Related Opportunities	CH3 Strategy
Capital Deployment	Amount of Capital Expenditure, Financing, or Investment Deployed toward Climate-Related Risks and Opportunities	CH3 Strategy CH4 Green Sustainable Finance
Internal Carbon Pricing	Organizations should disclose: whether and how they apply carbon pricing in decision-making (e.g., investment decisions, transfer pricing, and scenario analysis), as well as the price per metric ton of greenhouse gas emissions used to assess the cost of their emissions	CH3 Strategy
Remuneration	Organizations should disclose: whether and how climate-related considerations are factored into executive remuneration, as well as the percentage of executive management remuneration recognized in the current period that is linked to such considerations	CH1 Governance