

TCC Group

# Investor Conference

—  
2023 1H





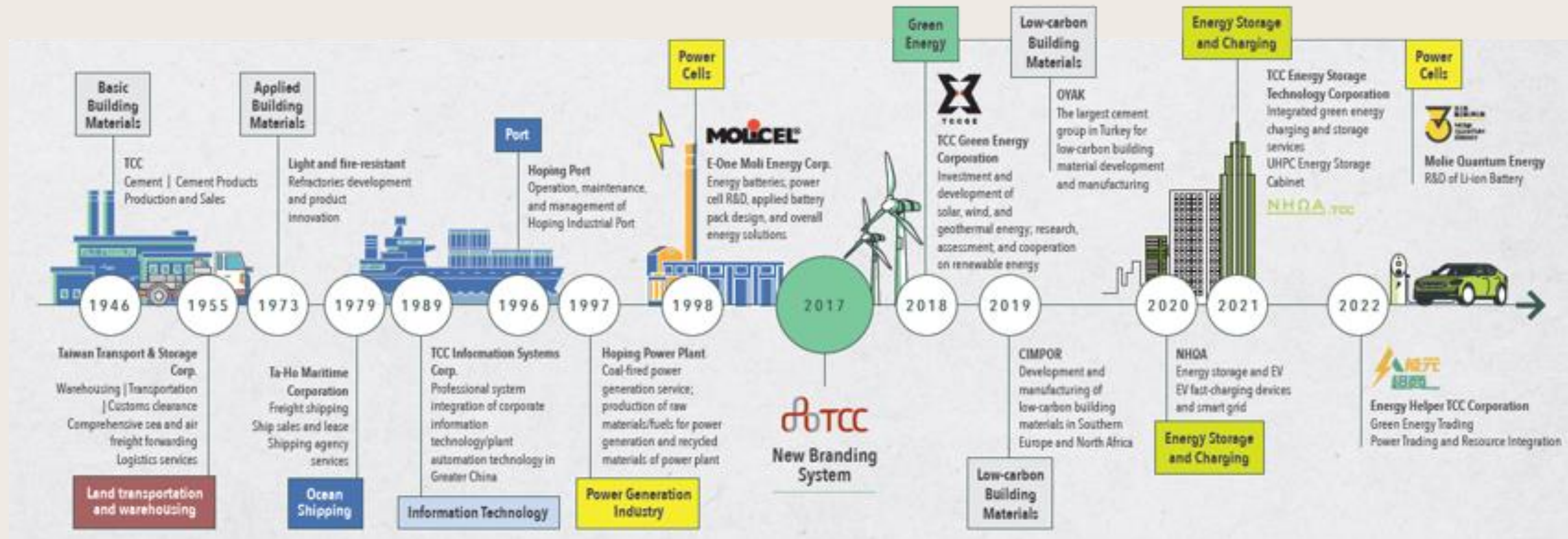
# 3 CORE BUSINESSES, 10 INDUSTRIAL SERVICES

## Becoming BEST EARTH HELPER



TCC undertook a full-scale overhaul in 2018, transforming our characteristics from cement manufacturing and sales into green environmental engineering, dedicated to the handling of the complex relationship between human civilization and Nature.

With the three development focuses, **Low-carbon Building Materials, Resource Recycling, Green Energy,** TCC strives to be an ECO-SOLUTION PROVIDER that actively addresses environmental issues and promotes the sustainability initiative EARTH HELPER.

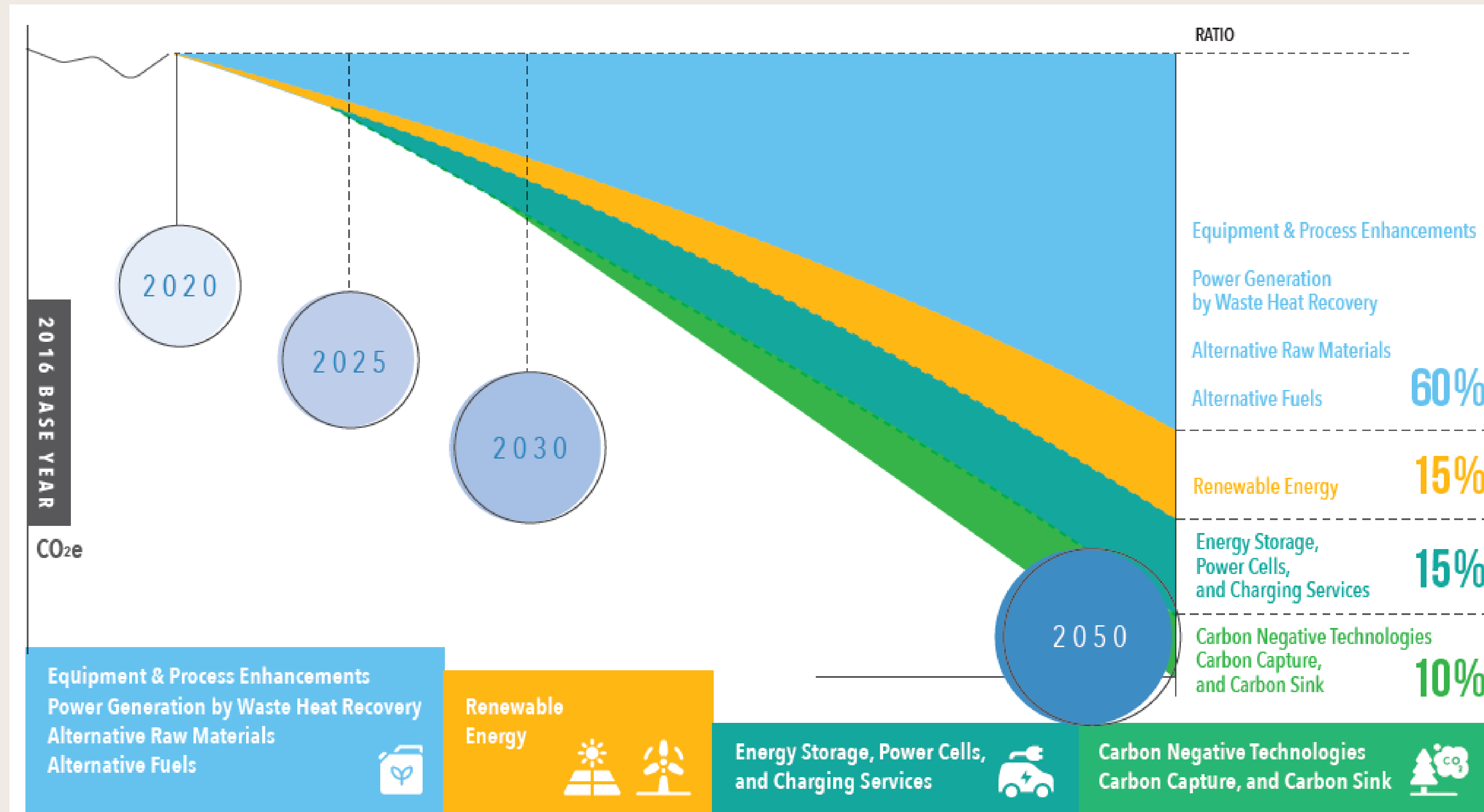




# Total Climate Commitment

## Aiming for Net Zero by 2050

Based on the SBTs and the targets of GCCA, TCC Group rolled out our Roadmap to Net Zero by 2050 with “Low-carbon Cement,” “Resource Recycling,” and “Green Energy.”



Note: Energy storage regulating grids can reduce the load of coal-fired power plant units and the use of diesel generators; extend equipment service life; and reduce overall carbon emissions. According to ENERGIES, take the scenario of Italy for 2030 for example, when the annual power supply from energy storage system reaches 10,000 GWh, the carbon footprints of electricity will be reduced by 53%.



# CARBON REDUCTION STRATEGY

TCC adopts **seven strategies**, together with an AI-powered carbon management platform for tracking, **to offer optimal carbon reduction recommendations for all business entities**

**60%**  
Equipment & Process Enhancements  
Power Generation by Waste Heat Recovery  
Alternative Raw Materials  
Alternative Fuels

**15%**  
Renewable Energy Installation

**15%**  
Energy Storage, Power Cells,  
and Charging Services

**10%**  
Carbon Negative Technologies:  
Carbon Capture, and Carbon Sink

## CARBON REDUCTION STRATEGY



**60%**

**Equipment & Process Enhancements** | As a member of EP100, TCC set the targets of 50% energy efficiency improvement by 2040, equipment and process enhancements, ISO systems introduction, and reductions of GHG emissions and carbon intensity of products.

**Power Generation by Waste Heat Recovery** | All cement plants are installed with the system of power generation by waste heat recovery. The flash distillation technology was introduced to raise the efficiencies in heat recovery and power generation, reducing 20-30% of purchased electricity.

**Alternative Raw Materials** | With the co-processing technology of cement kiln, TCC forms the ecosphere of circular economy with companies like fabs, steel factories, water treatment facilities, and public work companies. Assisting these companies to treat industrial wastes, TCC turns wastes into resources that are harmless and reusable so as to reduce both wastes and carbon.

**Alternative Fuels** | TCC actively reduces the usage of coal in cement manufacturing process, developing alternatives with heating values. Solid recovered fuel (SRF) like coal ash from power plant, wood chips, waste wood, waste oil, and waste fabrics as well as agricultural wastes like rice husks have become the key to carbon reduction.

1-2-3-4



**15%**

**Renewable Energy Installation** |

PV panels and energy storage systems are installed to the rooftops and idling spaces at the Headquarters, cement plants, and RMC plants to realize renewable energy installation for self-consumption. TCC Green Energy Corporation also invests in solar energy and onshore wind energy. A variety of green energy like the first aquavoltaics in Taiwan as well as geothermal energy and OTEC were developed to meet the demands of SMEs regarding RE100.

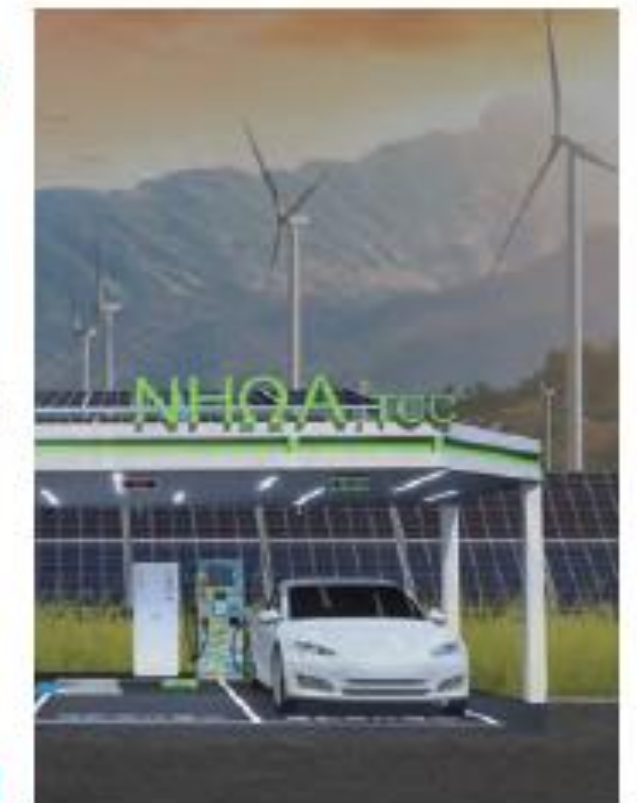
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**15%**

**Energy Storage, Power Cells, and Charging Services** |

Renewable energy requires stable storage owing to intermittency. Energy storage system becomes the pivot to stabilize green energy and regulate the grids in the energy transition process. With green energy, charging, and storage integrated, and EMS, TCC effectively saves energy and lowers the load of coal-fired units and the use of diesel generators, reducing the carbon emissions relatively.

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**10%**

**Carbon Negative Technologies-Carbon Capture, and Carbon Sink** | Carbon capture is hailed as the key technology for climate action. TCC has been working with ITRI since 2011 to develop and verify research in calcium-looping CO<sub>2</sub> capture technology. After verification and with a solid basis of practical experience, TCC started to work on the next-generation carbon capture technology - oxy-fuel combustion. The technology can optimize the carbon capture process complexity and reduce the energy consumed. Natural carbon sink is the foundation for carbon sequestration on Earth. Aside from mine ecology restoration, TCC initiated the "Ho-Ping Ark Ecological Program" to undertake long-term data monitoring and carbon decomposition experiments on soils and biodiversity that facilitate 50% of the carbon sink on Earth.

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# SUSTAINABILITY TARGETS AND PERFORMANCE TRACKING

		PERFORMANCES IN 2022		2025-TARGET	2030-TARGET	2050-TARGET
ITEM	PROGRESS ACHIEVED					
★ GHG Management   Taiwan	ACHIEVED 97%	0.803	0.758 (SBT -11%)	0.585 (-31%)	Carbon Neutrality for Concrete	
★ GHG Management   Mainland China	🟢	0.690	0.651 (-11%)	0.585 (-20%)		
GHG Management   Taiwan & Mainland China (Weighted Average)	▲	0.707	0.663	0.585		
Base year 2016   Unit metric tons of CO <sub>2</sub> e/metric ton of cementitious materials						
★ Water Management-WWI Reduction   Taiwan	ACHIEVED 99%	0.000293	0.000264	0.000240	0.000192	
★ Water Management-WWI Reduction   Mainland China	🟢	0.000308	0.000263	0.000245	0.000192	
Base year 2016   Formula million liters/metric ton of cementitious materials						
★ Thermal Substitution Rate of Alternative Fuels   Taiwan	▲	4%	35%	45%	50%	
★ Thermal Substitution Rate of Alternative Fuels   Mainland China	▲	8%	35%	45%	50%	
★ Ratio of Alternative Raw Materials   Taiwan	▲	23%	28%	35%	40%	
★ Ratio of Alternative Raw Materials   Mainland China	▲	25%	30%	40%	45%	
Air Pollution Management   Taiwan	🟢	1,025 (-31%)	-50%	-70%	BACT <sup>1</sup> Minimum	
NO <sub>x</sub>	🟢	12 (-40%)	-30%	BACT <sup>1</sup> Minimum		
TSP	🟢	30 (-63%)	-50%	BACT <sup>1</sup> Minimum		
Air Pollution Management   Mainland China	🟢	320 (-45%)	-50%	-70%	BACT <sup>1</sup> Minimum	
NO <sub>x</sub>	🟢	43 (-54%)	-60%	-70%		
TSP	🟢	12 (-74%)	-60%	BACT <sup>1</sup> Minimum		
Base year 2016   Unit grams of emissions/metric ton of clinker						
Renewable Energy Taiwan & Mainland China (UNIT MW)	198 MW under constitution (by the end of 2024)	500MW under Management	700MW under Management	1GW under Management		
Carbon Capture R&D Budget (since 2011   Unit NT\$)	🟡 Cumulative investment of NT\$165 million	Cumulative investment of NT\$1.3 billion	—	—		
Carbon Capture (Unit metric ton)	Planning for the scale up verification of carbon capture technology		100,000 metric tons/year	1.6 million metric tons/year		
Conservation of Plant Species (Endangered Plants included)(Unit Taxa)	🟢	34,154	≥35,000	≥40,000	≥45,000	
Mine Restoration Biodiversity (BMP <sup>2</sup> )	🟢	88.88%	—	90%	95%	
Ratio of Indigenous species of Mine Taiwan						
TCC Community Engagement (CEM <sup>3</sup> )(since 2022   Unit NT\$)	🟢	NT\$215 million	Cumulative investment of NT\$800 million	Cumulative investment of NT\$1.8 billion	Cumulative investment of NT\$5.8 billion	
Education Investment (since 2022   Unit NT\$)	🟢	NT\$9.5 million	Cumulative investment of NT\$33.5 million	Cumulative investment of NT\$73.5 million	Cumulative investment of NT\$230 million	
Employee Education & Training (since 2020   Unit: NT\$)	🟢	Cumulative investment of NT\$45 million	Cumulative investment of NT\$125 million	Cumulative investment of NT\$250 million	Cumulative investment of NT\$750 million	
★ Valid Data of Carbon Emissions Collected from Critical Tier-1 Suppliers	▲	64.6%	—	90%	—	

<sup>1</sup>BACT : BEST AVAILABLE CONTROL TECHNOLOGY | <sup>2</sup>BMP : BIODIVERSITY MANAGEMENT PLAN | <sup>3</sup>CEM : COMMUNITY ENGAGEMENT MANAGEMENT ★ CLIMATE-RELATED MANAGEMENT INDICATORS AND GOAL ▲ NEW INDICATORS

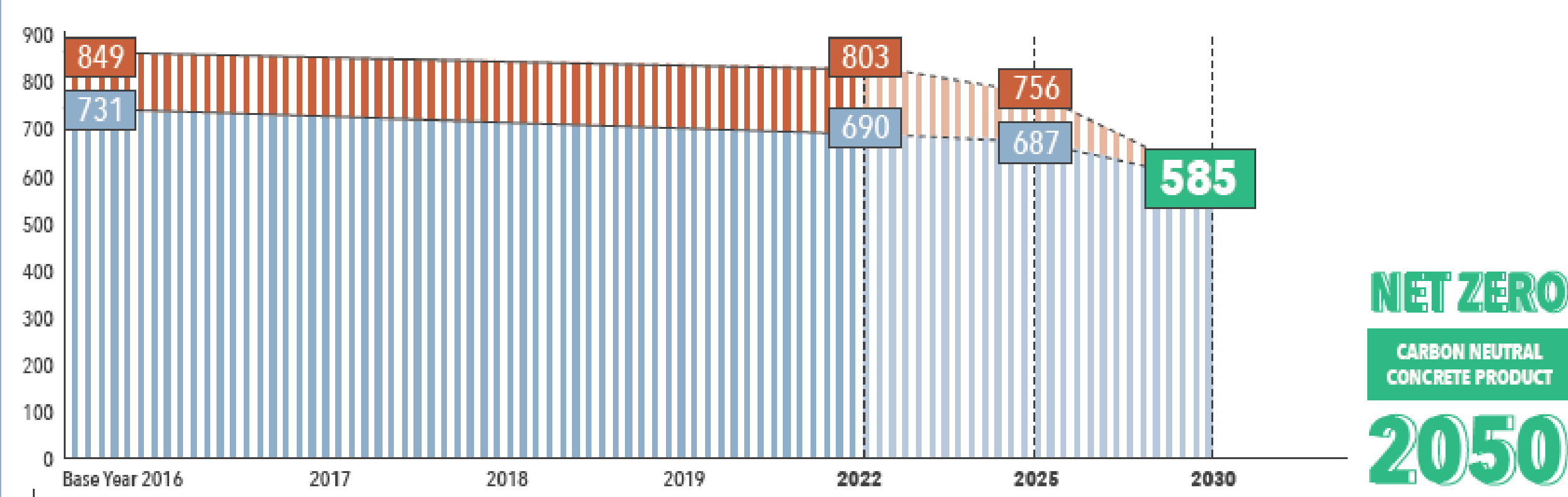


# Carbon-Neutrality Pathway & 2022 Highlights



## TARGETS

### TCC Cement and Concrete Carbon Neutrality



Unit: kg CO<sub>2</sub>e/Metric Ton of Cementitious Material

## 2022 PERFORMANCE HIGHLIGHTS

### GHG Emissions

**Carbon Emission Intensity  
Cement Plants -5.40%**

0.8033 tCO<sub>2</sub>e/Metric Ton of Cementitious Materials  
| Base Year 2016 | Scope 1, 2

**Total Emissions  
RMC Plants -13.70%**

7,905.2859 tCO<sub>2</sub>e  
| Base Year 2020 | Scope 1, 2

**Operation Headquarters**

9.68 tCO<sub>2</sub>e/person

### Energy

#### EP100 Commitment

**Cement Plants  
Energy Productivity** | Base Year 2016  
**+59.6%** 0.522 Thousand/GJ

**Power Generation  
by Waste Heat Recovery  
Recovery Efficiency**  
| Compared to 2018

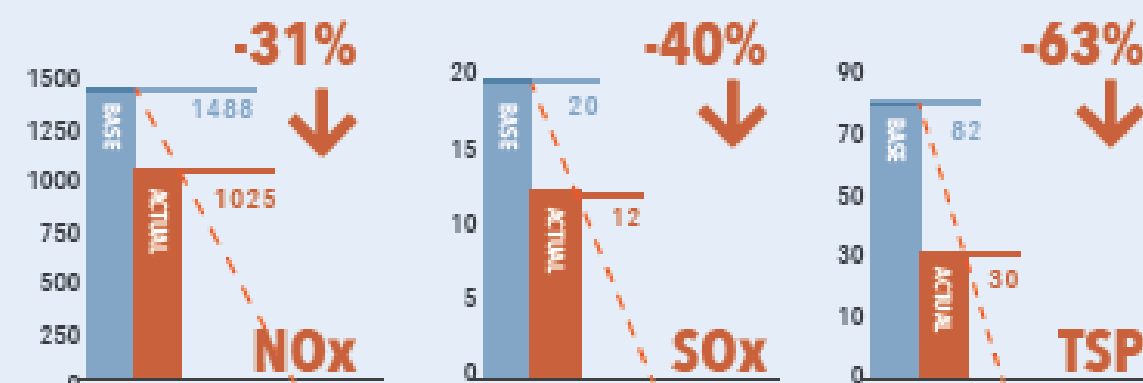
**+45.48%**

**Renewable Energy  
Generation  
for Self-consumption**  
| Compared to 2021

**+10%**

### Air Pollution Emission Intensity

| g/t Clinker  
| Base Year 2016



### Water Resource

| Base Year 2016

**Cement Plant  
Water Withdrawal Intensity**  
**-38.54%**

0.0029 Metric Liters/  
Metric Ton of Cementitious Materials

**RMC Plant  
Water Withdrawal Intensity**

**0.00013** Metric Liters/ m<sup>3</sup>  
of Concrete

**Membrane Bioreactor (MBR)  
Domestic Sewage 100% Reuse**  
Equivalent to water withdrawal  
volume from June to December 2022

**-5.9%**



# International ESG Ratings

## 2022 S&P Global ESG

Top 10% & Industry Mover



## MSCI ESG RATINGS A

Upgraded for 4 consecutive years, 2019-2022



## Sustainalytics ESG Industry Top-Rated

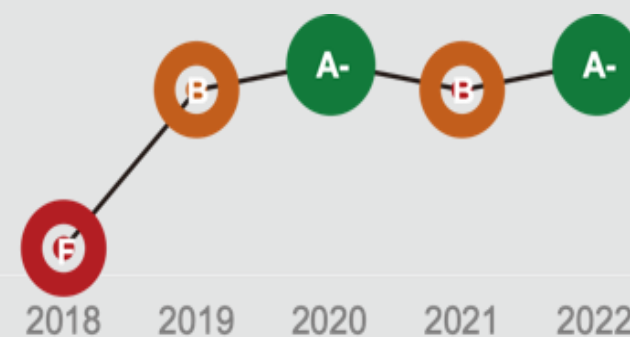
The highest rating for 4 consecutive years



## 2022 CDP Climate Change A-



Leadership Status (A-) in Climate Change



## Greater China Business Sustainability Index “Pace-setter”



ESG Investing

Nominated for Best Sustainability Reporting



FTSE4Good  
TIP Taiwan ESG Index

FTSE4Good TIP Taiwan ESG Index



# Financial Highlights – 1H 2023

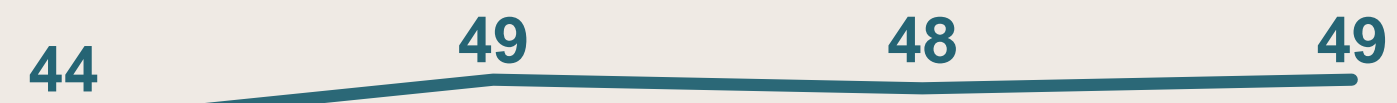
(NT\$m)	2Q 22	2Q 23	YoY	1H 22	1H 23	YoY
<b>Operating Revenue</b>	<b>25,178</b>	<b>27,668</b>	<b>10%</b>	<b>48,151</b>	<b>53,964</b>	<b>12%</b>
Operating Costs	25,046	21,683	-13%	45,933	45,510	-1%
<b>Gross Profit</b>	<b>132</b>	<b>5,985</b>	<b>4,450%</b>	<b>2,218</b>	<b>8,454</b>	<b>281%</b>
Operating Expenses	2,139	2,617	22%	4,018	4,920	22%
<b>Operating Profit</b>	<b>(2,008)</b>	<b>3,368</b>	<b>268%</b>	<b>(1,800)</b>	<b>3,534</b>	<b>296%</b>
Non-operating Profit	1,573	2,414	53%	2,537	3,728	47%
Income Before Tax	(435)	5,782	1,430%	737	7,263	885%
Income Tax Expense	506	1,575	211%	822	2,050	150%
<b>Net Income</b>	<b>(941)</b>	<b>4,207</b>	<b>547%</b>	<b>(84)</b>	<b>5,212</b>	<b>6,290%</b>
<b>Net Income Attributable to Owners of Parent</b>	<b>204</b>	<b>3,542</b>	<b>1,636%</b>	<b>1,408</b>	<b>4,949</b>	<b>251%</b>
<b>Basic EPS (NT\$/share)</b>	<b>(0.02)</b>	<b>0.45</b>		<b>0.16</b>	<b>0.64</b>	
Gross margin	0.5%	21.6%		4.6%	15.7%	
Operating margin	(8.0%)	12.2%		(3.7%)	6.5%	
Net margin	0.8%	12.8%		2.9%	9.2%	





# Major Financial Ratios

### Debt Ratio(%)



2020 2021 2022 2023 1H

### Net Interest-Bearing Debt/Asset (%)



2020 2021 2022 2023 1H

### Current Ratio



2020 2021 2022 2023 1H

### Book Value per Share (NTD)



2020 2021 2022 2023 1H

# DISCLAIMER

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