

# TAIHEIYO CEMENT CORPORATION | Overview

## TAIHEIYO CEMENT CORPORATION : Transition-Linked Loan

### ■ Corporate Profile

Industry	Cement
Location	Japan
Business	Taiheiyō Cement Corp. accounts for more than 30% of the cement sales in Japan. Other business areas include construction materials, mineral resources, environmental business and so on.

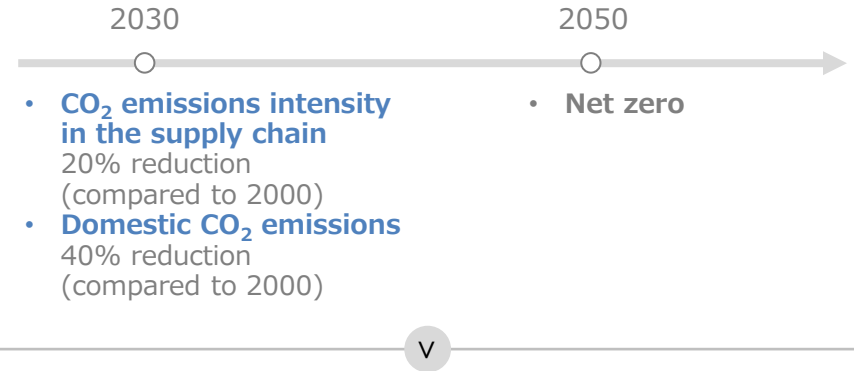
#### Alignment with the Four Elements in the Guideline\*

Element 1	<ul style="list-style-type: none"> <li>Strategy: Carbon Neutral Strategy 2050 has been set out in March 2022, with targets for 2030 and a roadmap of initiatives including R&amp;D to achieve carbon neutrality (CN).</li> <li>Governance: cross-departmental CSR Management Committee with president as a chair and a project team was established for the development of innovative technologies.</li> </ul>
Element 2	<ul style="list-style-type: none"> <li>Identified 22 key issues based on the level of interest and importance to stakeholders and the importance to Taiheiyō Cement.</li> <li>In the environmental field, realizing carbon neutrality and response to climate change have been identified as important issues.</li> </ul>
Element 3	<ul style="list-style-type: none"> <li>Given that current emissions reduction measures are mainly on manufacturing processes, the company's 2030 target for emission intensity is consistent with the energy intensity reduction in manufacturing processes outlined in METI's technology roadmap. Reduction target is set based on regionality (differences in cement standards between Japan and other countries).</li> </ul>
Element 4	<ul style="list-style-type: none"> <li>Investment plan has been set out in a mid-term management plan formulated in FY2021 which set out an investment of 100 billion yen in carbon neutrality-related areas by FY2030, while investing 20 billion yen in capital investment for energy saving until FY2023.</li> </ul>

### ■ Loan Outline

Borrower	Taiheiyō Cement Corporation
Financier	Development Bank of Japan Inc.
Evaluation Agency	Japan Credit Rating Agency, Ltd.
Amount borrowed	NA
Contract Date	March 2023

#### KPIs/SPTs and Alignment with Sustainability Link Loan Principles



SPTs are set in line with the company's emissions reduction targets. Emission intensity is consistent with the energy intensity reduction in manufacturing processes (approx. 5.7% compared to FY2019) set out in METI's technology roadmap.

#### KPI/SPT:

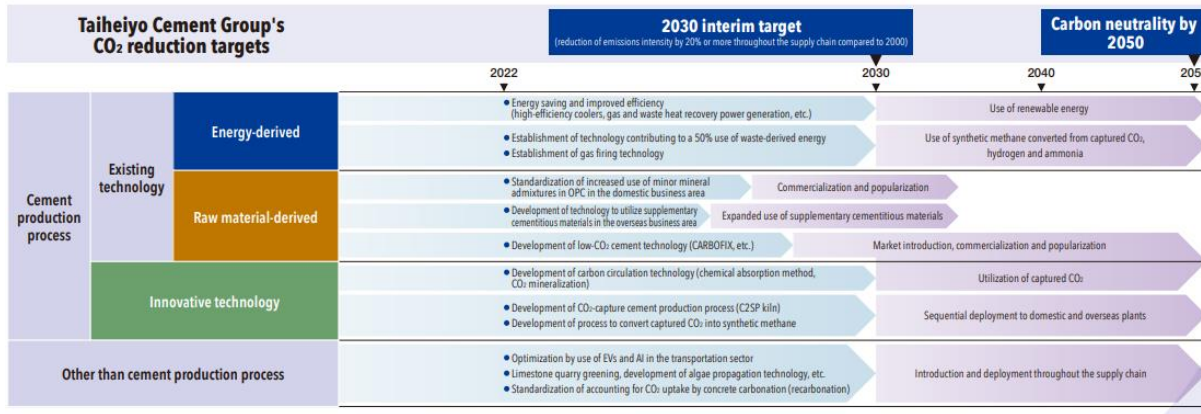
- CO<sub>2</sub> emissions intensity in the supply chain:** 20% reduction (compared to 2000)
- Domestic CO<sub>2</sub> emissions:** 40% reduction (compared to 2000)

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## Transition Strategy and Governance (Element 1)

### Taiheiyo Cement's Transition Strategy

- The mid-term management plan announced in May 2021 sets forth the Carbon Neutral Strategy 2050 which outlines specific measures for decarbonizing the entire supply chain.



#### Maximum use of existing technologies

- Energy saving
  - Maximum use of low CO<sub>2</sub> energy/cement
- #### Completion of innovative technology development

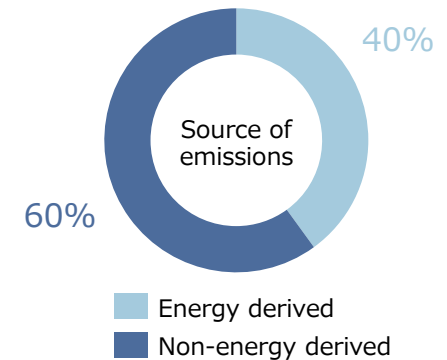
- CO<sub>2</sub> capture and utilization

2030

#### Deployment of innovative technologies

### Sources of Emissions in the Cement Sector

- 60% of emissions in the cement sector are of non-energy origin, generated when limestone is sintered to obtain clinker. The remaining 40% originates from the high temperatures used in clinker firing and the energy used in other manufacturing processes.
- Reducing emissions from non-energy sources requires innovative technology, and it is important to **develop technologies for reducing emissions** while promoting **steady decarbonization, including energy saving in the near term**.



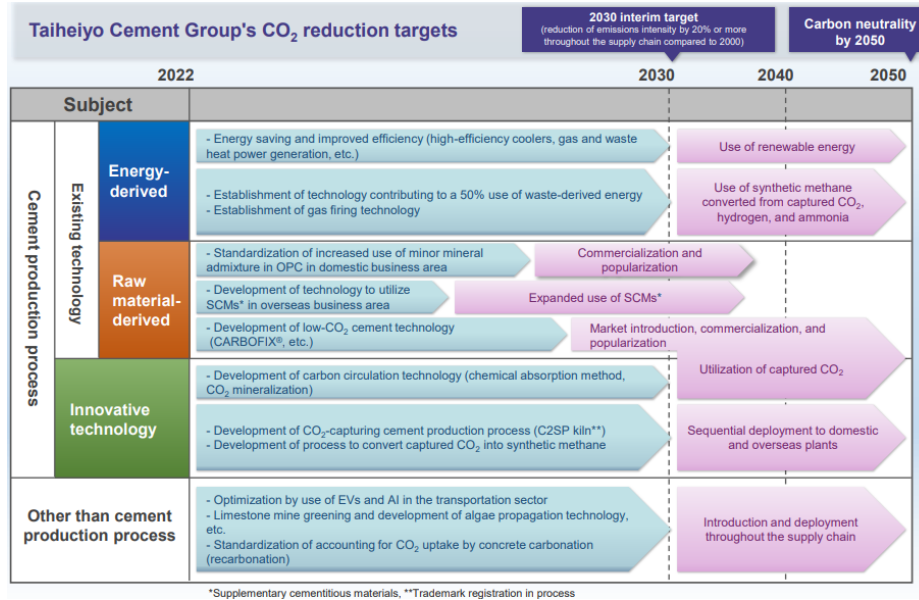
### Key Points

- Despite the absence of practical technologies for decarbonization in the cement sector, to decarbonize the supply chain Taiheiyo Cement has been working on to develop innovative technologies.
- Along with such development, they have been promoting steady decarbonization by maximizing the use of existing technologies, such as energy saving.

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## Science-based Targets and Pathways (Element 3)

Taiheiyo Cement Carbon Neutral Strategy 2050

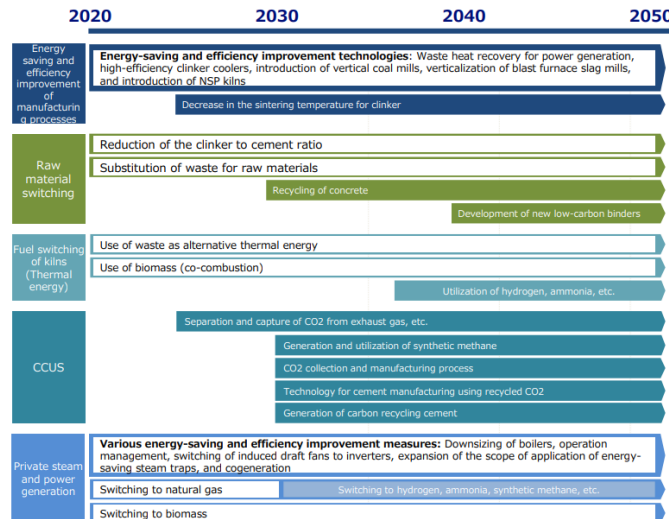


### Initiatives aligned with METI's technology roadmap in Cement Sector

- Energy saving and efficiency improvement of manufacturing processes
- Energy conversion
- Raw material conversion (low CO<sub>2</sub> cement)
- CCUS

Technology Roadmap for Cement Sector

METI



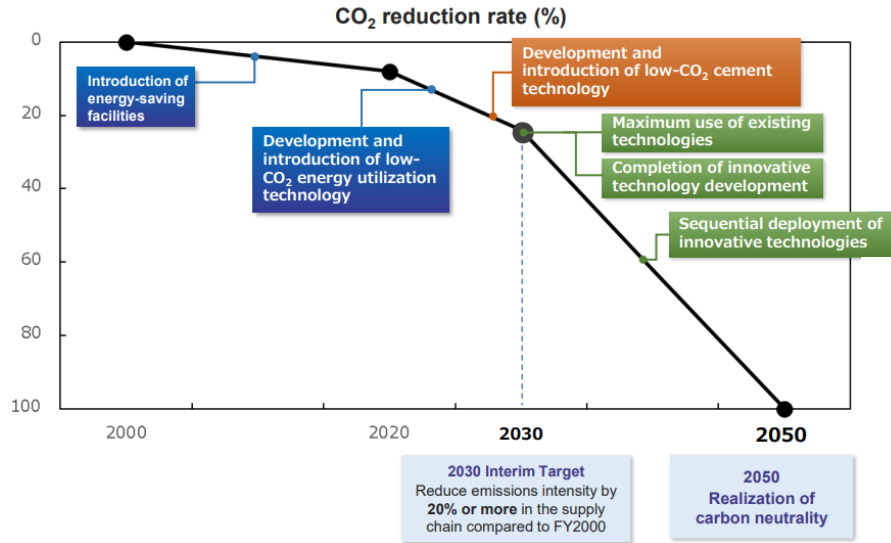
### Key Points

- Taiheiyo Cement's transition strategy has been set, considering GCCA's "The Net Zero Pathway", IEA's "World Energy Outlook" (WEO) and "Energy Technology Perspectives" (ETP), IPCC's "Fifth Assessment Report" (AR5), and others.
- Measures toward 2030 targets are also in line with the METI's technology roadmap, which considers Japan's regional characteristics.

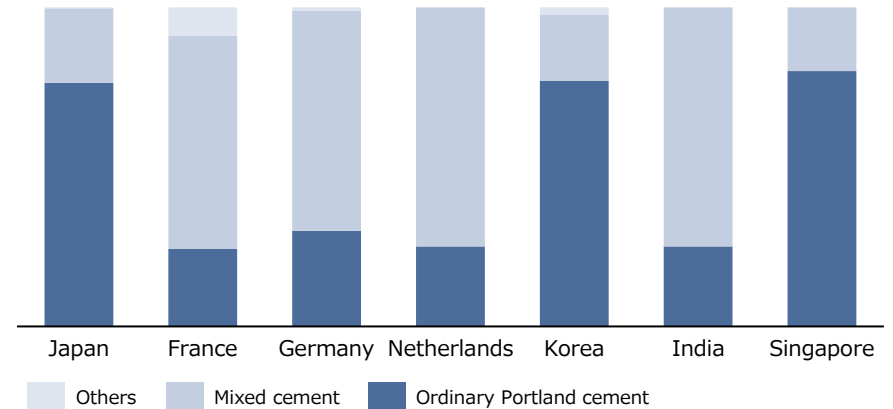
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## Science-based Targets and Pathways (Element 3)

Taiheiyo Cement's Roadmap



Distribution Ratio by Cement Type in Each Country<sup>5</sup>



Note 5: See 2015 "Survey on Measures to Promote and Expand Energy-Saving Manufacturing Processes in the Cement Industry"(Japanese only)

Comparison with international scenarios (Scope 1, 2)

	Domestic average <sup>2</sup>	Taiheiyo Cement <sup>2</sup>	European average <sup>2</sup>	GCCA	IEA <sup>3</sup>
2020 intensity <sup>1</sup>	0.76	0.68	0.59	-	0.58
2030 intensity target (compared to 2020)	-	approx. -12% <sup>4</sup>	-	-20%	-26%

Note 1: Tonnes of CO<sub>2</sub>/t-cementitious

Note 2: Domestic average is based on METI data, Taiheiyo Cement intensities are based on the company's published information, and European average intensity is based on TPI data of European companies.

Note 3: unit for IEA is tonnes of CO<sub>2</sub>/t-cement

Note 4: 2030 target including Scope 3; estimated value using 2020 results for comparison purpose

## Key Points

- Taiheiyo Cement intends to significantly reduce CO<sub>2</sub> emissions from 2030 through the introduction of innovative technologies. This is **in line with the assumed CO2 reduction pathway illustrated in METI's technology roadmap.**
- One characteristic of Japan's cement industry is the large volume of ordinary Portland cement. In Japan, there are stricter cement standards** than those in other countries **and a limited mixing ratio**, which results in the wide use of high-strength ordinary Portland cement.
- Ordinary Portland cement contains a large amount of clinker thus has high emissions. However, given the circumstances unique to Japan such as frequent earthquakes and the need for high strength and durability in structures, **the main measure that can be undertaken in the near term should be energy saving, and hence, targets and reduction ranges of Taiheiyo Cement are deemed appropriate based on the regional characteristics.**

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## Science-based Targets and Pathways (Element 3)

### Differences in Cement Standards Between Japan and Other Countries\*

- In Europe, a greater variety of mixed materials are allowed than in Japan and Korea, and the use of multiple mixtures is also allowed. In addition, the mixing ratio of mixed materials is higher than in Japan and Korea.
- Singapore bases its standards on those in Europe. However, mixed cement is expected to become more widely used in the future as subways, highways, and other infrastructures are developed.

		Japan (JIS Standards)	Europe (EN 197-1 standard)	Korea (KS-L standard)	Singapore (SS-EN 197-1 standard)
Acceptable mixed materials		Blast furnace slag, silica, fly ash	Blast furnace slag, silica, fly ash, shale, pozzolan, limestone	Blast furnace slag, fly ash	Blast furnace slag, silica, fly ash, shale, pozzolan, limestone
Use of multiple mixtures		Not possible	Possible	Not possible	
Mixing ratio	Blast furnace slag	5~70%	6~95%	5-70%	Based on European standards (cites EN 197-1)
	Silica	5~30%	6~35% However, mixing ratio can be up to 55% in total when mixed with pozzolan and fly ash	-	
	Fly ash	5~30%	6~35% However, mixing ratio can be up to 55% in total when mixed with silica and pozzolan	5~30%	

\*See 2015 "Survey on Measures to Promote and Expand Energy-Saving Manufacturing Processes in the Cement Industry", etc.

## TAIHEIYO CEMENT CORPORATION: Transition Finance

**RESULTS:**

## Approved for Climate Innovation Finance Promotion Grants Scheme

## Main Opinions

## Transition Strategy

- The cement sector has a role to play in building a recycling-oriented society, by effectively using waste as a heat source or as raw material. As decarbonization is extremely challenging in this sector, Taiheiyo Cement's energy-saving measures are seen to be appropriate as a near term measurements.
- In the absence of existing technologies for achieving net zero, the company has set their decarbonization strategy taking future uncertainties in account.

## Others

- Other measures including the use of LNG, along with future fuel conversion to hydrogen and ammonia, are also expected to be studied.
- Taiheiyo Cement is a major cement operator in Japan and is expected to continue R&D while paying attention to the sustainability of limestone and other factors.
- For the linked loan, whose 2030 targets have been set, it is recommended that milestones also be set and disclosed on a regular basis, even if they are not in the form of KPIs, so that the progress can be shared between borrowers and lenders.