

TCFD-Based Information Disclosure

In August 2021, we endorsed the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) established by the Financial Stability Board (FSB), and disclose information in accordance with the TCFD framework.

Governance (P.48)

To promote the Group's efforts to address sustainability issues, including climate change, we established our Sustainability Committee, which is chaired by the President, together with its dedicated subcommittee, the Carbon Neutral and Environment Subcommittee, both of which meet regularly. The Board of Directors regularly receives reports from this committee and subcommittee on all proceedings, and then deliberates on important matters, thereby overseeing and working in tandem with management to address sustainability issues.

Metrics and Targets (P.50-51)

In December 2020, we formulated SOCN2050, which outlines our path toward achieving carbon neutrality by 2050 and sets specific medium-term targets. We are challenging ourselves to make the Group's corporate activities carbon neutral by 2050 through all possible measures, while also advancing initiatives that contribute to the overall decarbonization of society through our supply chain.

Under SOCN2050, we have set an interim CO₂ emissions reduction target for fiscal 2030 of decreasing our cement manufacturing energy-related CO₂ emissions intensity by 30%, compared with fiscal 2005 levels (equivalent to a 45% reduction in emissions volume), and are working to achieve this goal. We are also currently revising SOCN2050 in response to changes in the external environment.

Strategies (P.49)

■ Scenario analysis (P.59, P.60-61)

We conducted an analysis of the impact of climate change on all businesses of the Group, assuming a date of 2030, with reference to scenarios drawn up by bodies such as the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA). The risks posed by climate change can be categorized as risks associated with a transition to a low-carbon society (transition risks), and risks associated with physical impact (physical risks). We identified items deemed to have a significant impact in terms of the respective risks and opportunities under scenarios in which the global average temperature rises by 1.5°C*¹ or 4°C*² compared with pre-industrial levels. Based on this scenario analysis, we have evaluated the scale and degree of severity of the financial impact of the assumed risks and opportunities as of 2030.

In addition, with regard to carbon-neutral investments aimed at reducing fossil fuel energy consumption in cement production by fiscal 2030, we have quantitatively evaluated our investment plans and their anticipated returns, and have incorporated the associated financial impact into our SOC Vision 2035 and our current FY2023-25 Medium-term Management Plan.

■ Responding to a wide range of rule-making activities (P.62-63)

In cooperation with relevant government ministries and industry associations, we have submitted our opinions through the Japan Cement Association, an industry organization, regarding the government's proposals for the emissions trading scheme (GX-ETS), set to begin in fiscal 2026. Additionally, the Japan Cement Association has been pushing for revisions to the Japanese Industrial Standards (JIS) to reduce the clinker ratio in cement and to raise the proportion of minor mixed ingredients such as limestone. As these revised standards are expected to become effective within fiscal 2025, we are proceeding with building a production framework that aligns with these changes. Furthermore, we have established a company-wide Standardization Strategy Committee focused primarily on the cement and concrete fields, creating a structure to gather and analyze information on relevant standards and system designs.

■ R&D and collaboration with companies in other industries (P.52-57)

We have been making carbon-neutral investments aimed at reducing energy-related CO₂ emissions from the cement manufacturing process by fiscal 2030. However, reducing process-related CO₂ emissions from limestone—which account for approximately 60% of the CO₂ emissions from cement manufacturing—requires technological innovation. In terms of CCU-related technological developments for reducing process-related CO₂ emissions, we can count CO₂ recycling artificial limestone, which is one of our priorities and is the result of research related to the NEDO Green Innovation Fund project. In fiscal 2025, we constructed a pilot-scale manufacturing test facility for CO₂ recycling artificial limestone within the grounds of the Tochigi Plant site (Sano City, Tochigi Prefecture).

We are also conducting research and development in collaboration with other industries to utilize CO₂ recycling artificial limestone as a raw material for a wide range of products. We will pursue technological development aimed at societal implementation starting in fiscal 2030 by using our test facilities to establish efficient operating methods, conducting various demonstration tests, and proceeding with research and development on raw material utilization.

*1 Scenarios used: IEA "World Energy Outlook 2022" and "NZE2050 (Net Zero Emissions by 2050)"
*2 Scenarios used: IPCC "Fifth Assessment Report RCP8.5 Scenario," etc.

Risk Management (P.48)

The Group drafts its plans for reducing CO₂ emissions through the Sustainability Committee's Carbon Neutral and Environment Subcommittee, with progress being managed across the Group. To identify and assess the impact of climate change on the Group's business, we extract and analyze the climate change risks and opportunities, and take appropriate action through the Sustainability Committee and Board of Directors, as necessary.

Financial Implications of the Risks and Opportunities Identified through Scenario Analysis

The challenge we have undertaken of accomplishing our Group's Carbon Neutral Vision for 2050, SOCN2050, includes targets for reducing energy-related CO₂ emissions in the cement manufacturing process by 2030 (→ P.51). To achieve those targets, we are focusing on reducing the use of fossil fuels, such as coal, and replacing them with alternative thermal energy sources, such as waste materials, thereby reducing CO₂ emissions, lowering costs, and growing revenue from recycling activities.

The intensifying competition in terms of the collection of waste plastics and waste oil due to the greater utilization of recycling of fossil fuel sources to generate thermal energy, including by other industries, has become a more obvious challenge. In response, by gradually making environmental investments, such as upgrading our salt-removal facilities at cement plants, and installing waste plastic pretreatment facilities, as well as by realizing the benefits of these investments, we aim to ensure the achievement of our vision by securing the collection and use of quantities of waste, including waste that has traditionally been difficult to process. We have calculated the scale and returns on these carbon-neutral investments through fiscal 2030 as follows.

Financial Impact with Respect to the Risks and Opportunities Identified through Scenario Analysis

Risks	
● Capital investment for the 2030 reduction target in the "SOCN2050" Carbon Neutral Vision for 2050	Approx. ¥40.0 billion through 2030 2020-2022 ¥9.9 billion 2023-2025 ¥17.0 billion 2026-2028 ¥8.0 billion 2029-2030 ¥6.0 billion
● Decrease in costs due to lower coal consumption Effects will be realized in accordance with progress in capital investment to increased acceptance of waste plastics, etc., resulting in a decrease in consumption of 200,000 tons per year from 2026 onward. Impact amount assuming coal price of \$200/t	¥6.0 billion to ¥7.5 billion/year from FY2026 onward (Cumulative effect of ¥39.0 billion from 2020 to 2030)
● Increase in recycling revenue due to increase in alternative raw materials and thermal energy resulting from lower coal consumption, etc. Impact amount calculated at a unit price that takes into account the difficulty of procurement in the future	Approx. ¥1.0 billion/year from FY2026 onward (Cumulative effect of ¥8.0 billion from 2020 to 2030)

Capital Investment Amount and Effect for 2030 Reduction Target in the "SOCN2050" Carbon Neutral Vision for 2050

(Billions of yen)						
	FY2020-2022	FY2023-2025	FY2026-2028	FY2029-2030	Total	
Carbon-neutral investments	9.9	17.0	8.0	6.0	Approx. 40.0	
Investment effect	Depreciation	(1.9)	(10.0)	(7.0)	(32.0)	
	Coal reduction	+0.4	+4.5	+19.0	+15.0	+39.0
	Recycling increase	+0.1	+2.5	+3.0	+2.0	Approx. +8.0
	Total	(1.3)	(3.0)	+9.0	+10.0	Approx. +15.0

Note: Capital investments and effects are consistent with "SOC Vision 2035" and the FY2023-25 Medium-term Management Plan.

Our Medium- to Long-term Vision for 2035, SOC Vision 2035, sets a capital investment target of ¥100 billion in relation to carbon neutrality between fiscal 2023 and fiscal 2035 (→ P.15). Of this, the capital investment of approximately ¥30 billion, aimed at reducing CO₂ emissions from fossil energy sources, as mentioned above, is also incorporated

into our current FY2023-25 Medium-term Management Plan. Furthermore, we plan to invest approximately ¥70 billion in CCU and energy conversion technologies aimed at reducing process-related CO₂ emissions from limestone, the primary raw material accounting for about 60% of cement manufacturing CO₂ emissions, starting in fiscal 2030.

Sumitomo Osaka Cement Group's Internal Carbon Pricing (ICP) System	• Internal carbon price: ¥5,000/ton-CO ₂ • Target of the ICP System: Capital investment that would result in either an increase or a decrease in CO ₂ emissions. • Operation method: The internal carbon price is applied to the CO ₂ emissions associated with the target capital investment plan, and the converted cost is used as a reference for investment decisions.
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Scenario Analysis and Impact Evaluation Related to Climate Change

We evaluated the size of the financial impact of anticipated risks and opportunities as of 2030, based on the scenario analysis conducted on the impact of climate change for all the Group's businesses, and evaluated the level of impact.

Classification		Risks	Opportunities	1.5°C scenario		4°C scenario	
				Negative	Positive	Negative	Positive
Transition Risks	Government policies and regulations	Carbon tax hike, regulations on GHG emissions and fossil energy - As an industry consuming enormous amounts of energy, the cement industry is expected to see higher energy costs due to a rise in the price of fossil fuel energy. - Retail electricity business can be downsized or discontinued if the electrical power plant owned by the Group falls under a non-efficient coal-fired power plant. Purchase of electricity used in plants from retail electricity suppliers as a result of decommissioning of the electric power plant is expected to increase electricity costs.	- The Company's commitment to promoting of the use of coal alternatives (waste plastic, biomass fuel) is expected to help boost revenue in the waste collection business. - With the possibility of using idle owned lands, such as sites where a factory previously stood, for building new electricity generation plants, including those to generate renewable energy power, new business is expected to be created with the concept of addressing climate change issues through green electricity and green carbon.	High	Medium	Medium	
	Technologies	New technology development R&D expenses for new technology and capital investment to realize carbon neutrality is expected to increase.	- CO₂ emissions reduction technologies are expected to help bring in revenues. (Carbonate mineralization technology, artificial photosynthesis hydrogen production technology, ammonia/hydrogen utilization technology.) - With advances in technologies that allow effective use of CO₂, along with the application of such technologies, a large amount of CO₂ can be stably immobilized, and expansion of new businesses is expected. (Methane, methanol, plastic material.) - Owned unused patents can be used in new markets.	Low	High		Low
	Market	Change in user activity - It is expected that the usage amount of mixed cement will increase and production volumes of clinker will decrease. - An influx of low-priced cement from countries with low carbon emission costs and a prevalence of low-carbon cement in the nation advanced in terms of climate change measures can strain cement share. - Demand for low-carbon logistics can contribute to increasing logistical costs.	- Further development, spread, and promotion of low-carbon cement and low-carbon concrete that the Group has been working on for a long time will accelerate product differentiation, and the application to low-carbon building structures that is expected to spread and grow will become more common and will expand the business. - Concrete pavement with excellent LCA in terms of heat island effect reduction, fuel efficiency effect, and durability can become ubiquitous, and demand for cement may increase.		High		Low
		Recycling market - Reduced waste/byproducts (waste oils, waste plastics, coal ash, flue gas desulfurization gypsum, etc.) can bring about intensified competition of waste collection, deterioration of quality, a decline in processing costs, and soaring prices. - Fierce competition to procure biomass fuels will send the price soaring.	- Revenue from waste collection and recycling can be expected from an increase in receivable items that is underpinned by technological advancements in waste and byproducts treatment. - The new business area to extract, refine, and sell resources from waste is expected to expand thanks to ownership of massive manufacturing infrastructure to collect various waste material and process raw fuel.	Low	Low		
		Optoelectronics business and Advanced Materials business —	An increase in data traffic due to the transformation of lifestyles and work styles induced by rising average temperatures and electricity supply shortages caused by non-fossil energy conversion will likely boost the need for high-capacity, high-speed, and high-power-saving devices, resulting in more demand for optical communications parts and semiconductor manufacturing equipment.		Medium		Medium
	Assessment	Change in stakeholders' assessment Difficulty in procuring funds is expected due to lower assessment of GHG emitter companies.	Fund procurement and employee hiring can become easily leveraged as a result of a higher evaluation of proactive climate change measures, new technological advancements in CO₂ recycling, promotion of new businesses, and waste/byproducts processing.		Medium		Low
	Physical Risks	Acute risks Frequent and intensified natural disasters Supply chain being cut off by frequent large typhoons and torrential rain, and the ensuing damage to production sites, is expected to increase costs incurred from the disruption to operations and those required for restoration.	- Demand for cement-related products is expected to increase due to infrastructure developments contributing to national resilience, maintenance/reinforcement/repair of structures, and the like. - With requests for disaster waste treatment, a more important social role can be fulfilled.	Medium	High	High	Low
		Chronic risks Rising average temperature, recurring extreme weather - Rising temperatures are expected to adversely affect the health and security of employees at production sites. - Higher sea levels can inflict damage caused by inundation, including high tide along the coast.	- Increasing demand for labor-saving methods, including those to shorten the construction period and make construction more efficient, is expected. - Expansion in demand for marine products and business creation can potentially tap a new source of revenue.			High	Low