CDP Climate Change 2022 Questionnaire

C0 Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

The Group is centered on the Obayashi Corporation, one of Japan's biggest construction companies, and consists of 98 subsidiaries and 26 affiliated companies, with about 1.92trillion yen in total sales and 15,000 employees. Since its founding by Yoshigoro Obayashi in Osaka in 1892 and until today, the Group has engaged in numerous major projects in Japan and abroad, building on its DNA of "an attitude of sincere manufacturing" and "technological power." Making use of technologies and knowhow that we have cultivated since the beginning, we have recently gone beyond our main construction business to engage in new businesses like the renewable energy business, actively working to realize a low carbon society.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

Start date	End date	Indicate if you are providing emissions data for past reporting years
From: [01/04/2021]	To: [31/03/2022]	No

C0.3

(C0.3) Select the countries/areas in which you operate.

Japan

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

JPY

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Other, please specify

Domestic (non-consolidated)

C-C N0.7/C-RE0.7

(C-CN0.7/C-RE0.7) Which real estate and/or construction activities does your organization engage in?

Answer specifically, e.g. new construction and large-scale alterations of buildings, other real estate and construction activities

New businesses like civil engineering, real estate development, and renewable energy

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier*

C1 Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
President	At the Obayashi Corporation, the Board of Directors, which comprises all directors, oversees climate-related risks and opportunities as a priority matter for our businesses. The President and CEO (hereafter "President"), who is a member of the Board of Directors and Chair of the CSR Committee, has the highest responsibility for climate-related issues. Obayashi's major policies, measures, and organizations that refer to climate-related issues for which the President is responsible are as follows: ・Basic Principles and Environmental Policy of the Obayashi Corporation The Basic Principles of the Obayashi Corporation is based on the spirit of the Three Pledges (Quality, Value, and Efficiency) that go back to the founding of the company. Our Corporate Philosophy defines our social mission, and our Code of Conduct stipulates guidelines for achieving that. As a leading sustainability company, our Corporate Philosophy specifies that we "care for the global environment and create solutions to social challenges as a good corporate citizen."

	The Code of Conduct promotes "fostering an environmentally responsible society" as one way to "fulfill our social mission The President of Obayashi Corporation has separately established the Obayashi Environmental Policy, which states the following as its basic philosophy: As a good corporate citizen, Obayashi considers active efforts and continuous improvement of environmental issues to be integral components of business management. We have a vision of a future sustainable society and seek to contribute to its realization. ・Obayashi Sustainability Vision 2050 Obayashi's Expert Committee, chaired by the President and composed of outside experts and several Obayashi executives, will study the issue and incorporate contributions to the achievement of ESG and SDGs as a management foundation and social issue by grasping social trends and changes in the business environment surrounding the Obayashi Group. The objective in so doing is to simultaneously pursue sustainability for the "Earth, society and people" as well as that of the entire Obayashi Group. For this purpose, the Obayashi Green Vision 2050, formulated in 2011, was updated to the Obayashi Sustainability Vision 2050 in June 2019. The said Vision defines our vision for 2050 and sets targets for 2040–2050, including decarbonization, to realize the ideal state. ・Mid-term Business Plan 2017 and Mid-term Business Plan 2022 Aiming at the realization of a sustainable society, as stated in its Corporate Philosophy, the Obayashi Group has drawn up its vision for the future for the 150th anniversary of its founding (2042) and formulated its Medium-term Business Plan 2017. The latter outlines the achievements to be realized and measures to be taken in the first five years of the roadmap and reviews previous initiatives, based on Obayashi's Basic Principles, from an ESG perspective, identifying six key ESG issues. The Obayashi Group aims to achieve medium- to long-term growth and realize a sustainable society by incorporating important ESG issues into its business initiatives, based on its Medium-term Business Plan, steadily promoting them and working in conjunction with the SDGs. The company has also adopted building an environmentally conscious society as one of its key ESG issues and has named promotion of decarbonization and other actions as part of its action plan. The PDCA cycle is used to check the progress of KPIs set for each action plan each fiscal year and to promote activities based on the PDCA cycle. In March 2022, we formulated the Medium-term Business Plan 2022, which is the final year of the Medium-term Business Plan 2017. ・The Board of Directors Obayashi Corporation has a Board of Directors on which all directors sit, including the President and the executive officer in charge of the environment (Representative Director and Executive Vice President). The Board of Directors convenes about 15 times a year and oversees climate-related risks and opportunities. In FY2020, the committee discussed and decided on specific ESG-related initiatives and KPIs incorporated in the management plan. Among these, as matters related to climate-related issues, were the KPIs "CO2 emissions reduction rate by direct contribution* (compared to FY2013)" and "CO2 emissions reduction

	rate by indirect contribution** (compared to FY2013)." These matters related to the Promotion of Decarbonization Action Plan regarding the ESG key issue "Formation of an Environmentally Sound Society." *Direct contributions＝A＋B－C A　Fuel consumption and power purchased at construction sites and in offices（Scope1+2） B　Transportation of construction materials and waste, commuting of employees and workers（Scope3: Categories 4, 7, 9） C　Emissions corresponding to power generated in renewable energy businesses **Indirect contributions＝a＋b－c a　Annual emissions for buildings in operation and in common use for 35 years after completed construction by us b　Production of construction materials（Scope3: Category 1） c　Reduction effect by adoption of energy-saving and low-carbon materials In March 2022, the company formulated the Medium-term Business Plan 2022 and set new GHG emission reduction targets for FY2021. ・CSR Committee Obayashi Corporation has established the CSR Committee, chaired by the president and composed of several directors, including the director in charge of the environment, and several executive officers, to promote company-wide CSR activities from an ESG perspective based on Obayashi's Basic Philosophy. The CSR Committee meets once a year and formulates the basic policy on CSR, including activities for climate-related matters, proposes policies and concrete activity plans, and reviews how they are implemented. In FY2020, based on deliberations and decisions by the CSR Committee, the Company announced its endorsement of the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) in July 2020. It also conducted scenario analyses for four major domestic businesses (construction, civil engineering, development, and new areas) to identify and assess climate-related risks and opportunities and determine the medium- to long-term impact of climate-related issues on their businesses. Based on those results, information was disclosed based on the TCFD proposal in November 2020.

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues	Governance mechanisms into which climate-related issues are integrated	Please explain

are a scheduled agenda item		
All meetings (planned)	●Reviewing and guiding strategy ●Reviewing and guiding major plans of action ●Reviewing and guiding risk management policies ●Reviewing and guiding annual budgets ●Reviewing and guiding business plans ●Setting performance objectives ●Monitoring implementation and performance of objectives ●Overseeing major capital expenditures, acquisitions and divestitures ●Monitoring and overseeing progress against goals and targets for addressing climate-related issues	The following are the meetings in the Obayashi Corporation where climate-related matters are on the agenda and which are attended by officers including the chief executive Representative Director and President and/or the executive in charge of environmental actions (Representative Director and Executive Vice President). These meetings are scheduled 1-15 times a year. 1. Board of Directors The Obayashi Corporation has a "Board of Directors" that consists of all directors. The board meets 15 times a year and oversees climate-related risks and opportunities. 2. CSR Committee It clarifies the Obayashi Corporation's basic stance on CSR (corporate social responsibility, including activities for environmental preservation and climate-related matters) and promotes CSR activities throughout the corporation. The President chairs the committee and it consists of the executive in charge of environmental actions and other officers. In terms of climate-related matters, it engages in "reviewing and instructing strategy," "reviewing and instructing major action plans," "reviewing and instructing risk management policy," "monitoring how goals are implemented and achieved," and "setting goals for addressing climate-related issues and monitoring their progress," which has allowed it to contribute to the supervision of climate-related matters by revising the Obayashi Green Vision 2050, which was formulated as a medium- to long-term environment vision in 2011, into the Obayashi Sustainability Vision 2050 in FY2020.3 by incorporating not only E (environment) but also S (society) and G (governance) elements, as well as disclosing information based on the TCFD proposal. 3. Environmental Management Expert Committee This is an organization under the CSR Committee that is in charge of "matters of proposing and implementing measures for the operation of the environmental management system," "matters of grasping how measures for the operation of the environmental management system are implemented," and "matters of gathering and reconciling the opinions of relevant departments for the promotion of measures for the operation of the environmental management system." It is chaired by the executive in charge of environmental actions and

		consists of environment managers from each business division. It reviews and instructs strategies and action plans based on environment-related data gathered and analyzed from the whole corporation, defines performance goals, and monitors how they are implemented and achieved. In terms of climate-related matters, it engages in "reviewing and instructing major action plans," "reviewing and instructing risk management policies," "defining performance goals," "monitoring how the goals are implemented and achieved," and "supervising the progress toward goals for addressing climate-related issues," which has allowed it to contribute to the supervision of climate-related matters by holding management reviews twice a year to approve the setting and revising of environment goals as well as issue reviews and instructions about environmental preservation activities to the overall environmental manager and environmental managers in the corporation and all our branches. 4. Liaison Conference for All Branch Environmental Managers This is an organization under the Environmental Management Expert Committee that promotes instructions of the CSR Committee and the Environmental Management Expert Committee. It is attended by the executive in charge of environmental actions, the overall environmental manager, and the environmental managers in the corporation and all our branches. In terms of climate-related matters, it engages in "reviewing and instructing major action plans," "defining performance goals," "monitoring how goals are implemented and achieved," and "setting goals for addressing climate-related issues and monitoring their progress," which has allowed it to contribute to the supervision of climate-related matters by reviewing and analyzing the achievements of environmental preservation activities in the corporation and all our branches.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence	Criteria used to assess competence of board member(s) on climate-related issues

	on climate-related issues	
Row1	Yes	Since 1999, Obayashi Corporation has been operating an ISO 14001-compliant environmental management system in all its branches and organizations, primarily in its main businesses of civil engineering and construction. The system has established environmental targets and is working to combat climate change by reducing CO2 emissions and waste. Since it was founded, the Company has also continued to develop technologies to enhance earthquake and fire resistance, providing resilient buildings and social infrastructure that can withstand disasters. Since 2011, the Company has also been developing its renewable energy business, contributing to society by supplying green power. One of the Company's criteria for evaluating the appointment of directors is whether they have extensive experience of and insight into corporate management and the Company's business areas. Therefore, the Company has determined that directors' extensive experience in its civil engineering and construction and renewable energy businesses is sufficient to demonstrate their competence in climate change issues. The President has extensive experience in addressing climate change issues and promoting renewable energy projects as the head of the Business Innovation Office since 2011 and of the Technology Business Creation Division since 2014. He also chairs the Board of Directors (oversight of climate-related risks and opportunities) and the CSR Committee (formulation of basic policies, formulation of measures, and evaluating implementation to promote CSR activities, including activities related to climate-related issues). The Executive Vice President has extensive experience in overall branch management, including environmental activities, as Executive Officer and Deputy General Manager of the Civil Engineering Construction Division of the Tokyo Head Office since 2011 and Executive Officer and General Manager of the Shikoku Branch since 2015. Since FY2020, he has been a member of the Board of Directors (overseeing climate-related risks and opportunities) and the CSR Committee (formulating basic policies, developing measures, and evaluating implementation to promote CSR activities, including activities related to climate-related issues) as the director in charge of the environment.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
President	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly
Other C-Suite Officer, please specify Executive Officer in charge of the Environment (Executive Vice President and Representative Director)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly
Corporate responsibility committee [1]	Both assessing and managing climate-related risks and opportunities	Annually

[1] CSR Committee

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

The Obayashi Corporation has a CSR Committee that consists of several directors and executives, including the executive in charge of environmental actions (Representative Director and Executive Vice President), chaired by the Representative Director and President. The committee is tasked with clarifying the Obayashi Corporation's basic stance on CSR (corporate social responsibility, including activities for environmental preservation and climate-related matters) as well as promoting CSR activities throughout the corporation through "1. matters of formulating the corporation's basic policy on CSR," "2. matters of proposing policies to promote CSR activities," and "3. matters of evaluating the implementation of CSR activities." When it comes to climate-related matters, the committee makes annual reports about the results of monitoring CO2 emissions based on reports submitted by the Environmental Management Expert Committee (chairman: executive in charge of environmental actions: Representative Director and Executive Vice President), which is a subordinate organization. From this, the CSR Committee (chairman: Representative Director and President) has final responsibility for evaluating and monitoring climate-related matters.

The following are the organizations that engage in climate-related matters with the involvement of the Representative Director and President as well as the responsibilities of those organizations.

・Members of the Board of Directors

The Obayashi Corporation has a Board of Directors that consists of all directors. The board meets 15 times a year and oversees climate-related risks and opportunities.

・Members of the CSR Committee

The following are the organizations that engage in climate-related matters with the involvement of the executive in charge of environmental actions (Representative Director and Executive Vice President) as well as the responsibilities of those organizations.

・Members of the Board of Directors

The Obayashi Corporation has a Board of Directors that consists of all directors. The board meets 15 times a year and oversees climate-related risks and opportunities.

・Members of the CSR Committee

The Obayashi Corporation has a CSR Committee that consists of several directors and executives, including the executive in charge of environmental actions (Representative Director and Executive Vice President), chaired by the Representative Director and President. The committee is tasked with clarifying the Obayashi Corporation's basic stance on CSR (corporate social responsibility, including activities for environmental preservation and climate-related matters) as well as promoting CSR activities throughout the corporation through "1. matters of formulating the corporation's basic policy on CSR," "2. matters of proposing policies to promote CSR activities," and "3. matters of evaluating the implementation of CSR activities." When it comes to climate-related matters, the committee makes annual reports about the results of monitoring CO2 emissions based on reports submitted by the Environmental Management Expert Committee (chairman: executive in charge of environmental actions: Representative Director and Executive Vice President), which is a subordinate organization.

・ Members of the Environmental Management Expert Committee

The Obayashi Corporation has an Environmental Management Expert Committee that is chaired by the executive in charge of environmental actions (Representative Director and Executive Vice President) and is subordinate to the CSR Committee. Moreover, the Obayashi Corporation has an "environmental management system" in place to be able to contribute to building a society where sustainable development is possible, by minding the environmental impact of all our business activities and working to preserve the environment. The expert committee is in charge of the following matters: "1. matters of proposing and implementing measures for the operation of the environmental management system," "2. matters of grasping how measures for the operation of the environmental management system are implemented," "3. matters of gathering and reconciling the opinions of relevant departments for the promotion of measures for the operation of the environmental management system" and "4. matters of providing affiliated companies with instruction and cooperation regarding the aforementioned matters as needed." The executive in charge of environmental actions, who chairs this expert committee, is responsible for taking various actions with regard to the Obayashi Corporation's environmental management system, including addressing climate-related matters (such as evaluation, supervision, etc.). With regard to climate-related matters, the expert committee receives reports about energy usage collected and tallied on a semi-annual basis and CO2 emissions calculated from those figures from the "overall environmental manager" (General Manager of the Environmental Management Department of the Safety, Quality & Environment Division in the Head Office [environment/sustainability manager]) as well as monitors these activities.

（(References) "overall environmental manager" "environmental managers"

Moreover, the Obayashi Corporation has an "environmental management system" in place to be able to contribute to building a society where sustainable development is possible, by

minding the environmental impact of all our business activities and working to preserve the environment. The General Manager of the Environmental Management Department of the Safety, Quality & Environment Division in the Head Office (environment/sustainability manager) is appointed as "overall environmental manager." The overall environmental manager follows the instructions of the Environmental Management Expert Committee, which is an organization under the CSR Committee, and works to establish, implement, and maintain the environmental management system in all branches. Moreover, the head of construction at each branch (environment/sustainability manager) is also appointed "environmental manager" of that branch. The environmental manager follows the instructions of the overall environmental manager and works to establish, implement, and maintain the environmental management system in their branch. Further, the overall environmental manager and the environmental managers have various obligations regarding actions associated with the Obayashi Corporation's environmental management system, including addressing climate-related matters. With regard to climate-related matters, the overall environmental manager leads the Environmental Management Department of the Safety, Quality & Environment Division as the administration office in tallying energy use based on semi-annual reports from the branch environmental managers as well as monitoring the situation together with the CO2 emissions calculated from those figures. Reports about all branches and their results are also given at the Liaison Meeting for All Branch Environmental Managers, which is held twice a year.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row1	Yes	Obayashi Corporation provides incentives for all employees, environmental officers, and directors to manage climate-related issues. The management of climate-related issues uses environmental targets in the environmental management system (EMS), such as reduction of CO2 emissions at the design and construction stages and achievement of medium- and long-term performance indicators, to increase corporate and shareholder value.

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Director on board	Monetary reward	Emissions reduction project	Directors are paid performance-linked stock-based compensation to raise their awareness of the need to contribute to medium- and long-term performance improvement and to increase corporate and shareholder

			value. The amount of compensation varies based on factors such as the degree of achievement of predetermined performance indicators and responsibilities in accordance with their position. Of this compensation, the medium- to long-term performance-linked stock compensation, which is paid according to the achievement of medium- to long-term performance indicators, is also linked to corporate performance against climate-related sustainability indicators.
Other C-Suite Officer	Monetary reward	Emissions reduction project	The director in charge of the environment (Representative Director and Executive Vice President) is paid performance-linked stock compensation with the aim of enhancing his awareness of the need to contribute to medium- and long-term performance improvement and to increase corporate and shareholder value. The compensation varies based on his job responsibilities according to his position and the achievement of predetermined performance indicators. Of this compensation, the medium- to long-term performance-linked stock compensation, which is paid according to the achievement of medium- to long-term performance indicators, is also linked to corporate performance against climate-related sustainability indicators.
All employees	Monetary reward	Emissions reduction project	The Obayashi Corporation has an "environmental commendation" system that recognizes especially meritorious and otherwise exemplary activities in three of our environment-related initiatives (low carbon, recycling, coexistence with nature). The judgment criteria of the "environmental commendation" include environmental impact (reduce greenhouse gas emissions, reduce energy use, improve efficiency, etc.). As part of the commendation, the awardee is presented with a certificate as well as prize money or a prize item.
All employees	Monetary reward	Emissions reduction project	One of the items in the employee performance review is "has performed work in consideration of the environment," which is reflected in each employee's salary. "Work in consideration of the environment" includes activities relevant to reducing CO2 emissions at the design and construction stages, which is an EMS environment goal of the Obayashi Corporation.

C2 Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

Time horizon	From (years)	To (years)	Comment
Short-term	0	1	
Medium-term	1	3	
Long-term	3	31	

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

Substantive financial or strategic impact is defined as follows. The evaluation criteria for importance/impact are impact in case of occurrence, risk of occurrence in the short, medium, and long terms (frequency), impact on consolidated operating income as an indicator of financial impact, and qualitative evaluation of consistency with the Obayashi Corporation's Basic Principles, business activities, and business strategy. Rising construction costs in our construction business, which is our core business and accounts for more than 90% of net sales, is tantamount to rising cost of goods sold, which has a negative impact on consolidated operating income. Changes in consolidated operating income are an element that causes a considerable financial impact when we identify and assess risks and opportunities. Moreover, our consolidated operating income was 410billion yen as of March 2022, but fluctuations in domestic construction demand are having a short-term impact on our building construction business and a medium- to long-term impact on our civil engineering business.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations

Upstream

Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term

Medium-term

Long-term

Description of process

The Obayashi Corporation incorporates techniques for identifying, evaluating, and managing complex and society-wide risks and opportunities in the organization's processes as part of overall risk and opportunity management, thereby identifying, evaluating, and managing climate-related issues.

As part of the Obayashi Corporation's methods for identifying, evaluating, and managing complex and society-wide risks and opportunities, the CSR Committee examines impact on the entire supply chain, including the whole group, suppliers, and clients, and what the corporation needs the most in the short, medium, and long terms, through which they are able to identify and evaluate risks and opportunities and finally determine ESG Materialities, including climate-related ones. The CSR Committee chaired by the President oversees two other committees, namely the Public Relations Expert Committee and the Environmental Management Expert Committee. It receives reports on the identification and evaluation of various risks and opportunities from these two committees and manages them from a comprehensive standpoint. Twice a year, the Environment Expert Department identifies and evaluates short-term risks and opportunities that are already manifesting and that affect the group and value chain as a whole. The Environmental Management Expert Committee, which meets twice a year and is chaired by the executive for environmental actions, likewise reviews key measures in environmental management, makes minor adjustments to target levels, and ensures that the latest information is reflected and evaluated. The results of their deliberations are reported to the CSR Committee, which is the supreme decision-making body for environmental measures.

Regarding medium- to long-term risks and opportunities, including short-term risks to the entire Group and value chain, the department specializing in ESG identified 22 "ESG issues" from among 300 issues in the ESG field and prioritized them based on a two-pronged assessment of stakeholder interest and their degree of importance and impact in terms of business strategy or finance in the Obayashi Group.

The CSR Committee then narrows it down to six items after considering the Obayashi Corporation's Basic Principles and business strategies. One of these ESG Materialities is "forming a society that cares about the environment."

In its efforts to address climate-related risks and opportunities, the CSR Committee develops ESG Materiality action plans and KPIs (numerical targets), incorporates them into business plans, and asks the departments to reflect them in their key measures.

The ESG expert department conducts performance reviews twice a year and a detailed analysis once a year to measure progress toward departmental numerical targets, all of which is evaluated by the CSR Committee once a year.

[Processes for identifying and evaluating climate-related risks and opportunities]
Also with regard to methods for identifying and evaluating climate-related risks and opportunities, we identify and evaluate the materiality of risks and opportunities according to definitions and indicators for serious impact, and define risk responses and rankings in the same way as for the aforementioned risks and opportunities that affect the entire value chain.

The evaluation criteria for importance/impact are impact in case of occurrence, risk of occurrence in the short, medium, and long terms (frequency), impact on consolidated operating profit as defined for serious financial impact, and qualitative evaluation of consistency with the Obayashi Corporation's Basic Principles, business activities, and business strategy.

The Obayashi Sustainability Vision 2050, which was revised and announced on June 24, 2019, explains how to manage long-term risks and opportunities of three years or more until 2050 by taking into account various social trends and changes in the business environment of the Obayashi Group as well as by conducting revisions and control with management and external experts. At the intermediate target years of 2030 and 2040, we will set the targets for 2040-2050 as well as consider the need for revising the Vision. Moreover, we have implemented scenario analyses for our four main domestic businesses in 2030 based on the TCFD proposal, identifying and evaluating risks and opportunities to understand the mid- and long-term impact of climate-related challenges on the businesses.

[Processes for responding to climate-related risks and opportunities]
For methods to respond to climate-related risks and opportunities, we rank the identified risks and opportunities as follows according to the identification and evaluation results from the aforementioned [Processes for identifying and evaluating climate-related risks and opportunities]. They are managed by also considering and reflecting financial impact on the medium-term business plans formulated every three to five years. The responsible departments formulate their own priority implementation plans based on the response measures adopted. These response measures are then developed into specific measures for which progress is reported along with action plans and KPIs to the CSR Committee once a year.

・Tasks with high importance, impact, and response for the Obayashi Group as well as high stakeholder interest and response from other companies
[Risks] Responding with control measures[Opportunities] Responding by strengthening priority initiatives
・Tasks with high importance, impact, and response for the Obayashi Group as well as low stakeholder interest and response from other companies
[Risks] Responding with reduction measures [Opportunities] Responding by actualizing priorities and communicating importance
・Tasks with low importance, impact, and response for the Obayashi Group as well as high stakeholder interest and response from other companies

[Risks] Responding with transfer measures [Opportunities] Responding by proposing and implementing responses and measures

・Tasks with low importance, impact, and response for the Obayashi Group as well as low stakeholder interest and response from other companies

[Risks] Responding with acceptance measures [Opportunities] Responding by observing trends and ascertaining opportunities

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

Risk type	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Design-build projects account for approximately 50% of Obayashi's building construction orders (50% of design–build ratio in FY2021). Therefore, we recognize that the expansion of the scope of the current regulations (the Building Energy Efficiency Act) and the increase in the level of regulations will always be relevant and included as a short-term risk that is becoming apparent. This is because if the level of energy conservation design technology possessed by Obayashi Corporation declines, the accumulated know-how through new technological development, etc. is insufficient, and the solution proposal capability declines, then opportunities will be lost to receive orders for design and construction projects. These issues are identified by the environment expert department every half a year, while the Environmental Management Expert Committee, which also convenes once every half a year, reflects this in their revisions of key measures and minor adjustments of target levels. The revised Building Energy Efficiency Act enacted in April 2021 is expected to expand the obligation to adhere to energy efficiency standards from large buildings of 2,000 m^2 or more to medium-sized buildings of 300 m^2 or more, as well as further raise the regulation level in the future. Unless we develop and expand low-emission construction and services, this will reduce our ability to build and offer services through design and construction methods that utilize our technological and managerial abilities to contribute to reducing CO2 emissions, which will decrease demand for our products and services, thereby cutting profits. There is a fear that we may lose design and construction orders if we accumulate insufficient know-how and our ability to come up with solutions goes down, due to various shortages in energy-saving design technologies and delays in new technological development.
	Relevant, always included	We recognize that new regulations (e.g., the introduction of a fully-fledged carbon tax in Japan) are relevant and always included as a medium-term risk of increased raw material and other construction

Emerging regulation		costs, especially in relation to our significant Scope 1 emissions in terms of our emission rate. These are analyzed in detail approximately every three years in line with the new GHG reduction target (FY2030 target) established in March 2022. They are also reflected in the review carried out to assess the business environment surrounding the Obayashi Group in the Mid-term Business Plan to be established every three to five years, the formulation of management foundation strategies, and the review of seven initiatives (action plans) for CO2 emission reduction. Future introduction of a carbon tax or other tax could increase the cost of raw materials and other construction costs.
Technology	Relevant, always included	We recognize that the impact of technology (e.g., trends in new technologies related to renewable energy) is relevant and always included as a medium-term risk over the next one to three years in that the government's social infrastructure development policy and energy strategy to utilize renewable energy, such as solar, offshore wind, geothermal, biomass, and hydrogen, will lead to an increase in the number of companies entering the market and intensified technical competition. Hence, Obayashi's proprietary technology will become obsolete, resulting in a loss of overall competitiveness as a contracting business. These are analyzed in detail approximately every three years in line with the level of achievement of the new GHG reduction target (FY2030 target) established in March 2022 and reflected in the Medium-term Management Plan to be formulated every three to five years and in the seven-point action plan for CO2 emission reduction. There is a risk that the Obayashi Corporation loses its technological advantage and our comprehensive competitiveness as a contractor due to new technological trends.
Legal	Relevant, always included	With regard to legal risk, in the event that a construction project constructed by Obayashi does not meet the performance requirements for their buildings and the client’s equipment, the company may be sued for breach of contract in the medium to long term, regardless of whether it is the fault of Obayashi, and there is a risk of litigation over who is to blame and the percentage of responsibility. In addition, we recognize that the risk of climate change-related lawsuits is increasing. Clients and customers are likely to increasingly demand compliance with CO2 emission reductions at the construction stage as well as performance guarantees for energy-creating and energy-saving equipment and devices that are expected to reduce CO2 emissions during the operation of the building as a condition for ordering new construction and renovation work. We recognize these litigation risks as medium- and long-term risks that are relevant and always included.
Market	Relevant, always included	As a background of market risk, the Japanese government's Green Growth Strategy, which aims to achieve carbon neutrality by 2050, has incorporated the average ZEH/ZEB (Net Zero Energy Building: a building that is carbon neutral without using emissions trading, etc.) for new homes and buildings in 2030 into its timetable, and the market

		need for ZEB in buildings is increasing. On the other hand, equipment that improves environmental performance, such as ZEB conversion, significantly drives up construction costs, making the development of technology to enhance performance and reduce costs an urgent task. Obayashi Corporation sees the expanding needs for energy-saving and renewable energy technologies in the scenario analysis based on TCFD recommendations as an opportunity. It is promoting the development and practical application of ZEB technology and other technologies that achieve business feasibility and comfort. In the construction market, including environmental technologies, the Company is likely to be exposed to severe development and price competition over the medium to long term, and we recognize that market risk in relation to climate change is a medium- to long-term risk that is relevant and always included. In the last fiscal year, the entire Obayashi Group invested approximately 15.8 billion yen in R&D expenses, including ZEB. Customers demand high-quality, low-cost buildings, but if a competitor offers a lower-cost ZEB, there is a risk that sales will not increase and the investment in development costs will not be recouped. In addition, there is a possible risk that intensifying price competition will not result in increased profits even for high-quality products.
Reputation	Relevant, always included	Reputation risk includes external evaluation of climate change initiatives, including external evaluation by CDP and others, evaluation of recent ESG initiatives, and evaluation of climate-related information disclosure in line with TCFD recommendations. We recognize that reputation risk is relevant and always included as a short-term risk that is already becoming apparent, as some environmental measures may cause a decline in external evaluation and increase financing costs. These issues are identified by the environment expert department every half a year, while the Environmental Management Expert Committee, which also convenes once every half a year, reflects this in their revisions of key measures for environmental management. The results of their deliberations are reported to the CSR Committee, which is the supreme decision-making body for environmental measures. As an example, lower "external recognition" might lead to higher financial costs, so it is because of this relation that it is included in the evaluation.
Acute physical	Relevant, always included	Acute physical risks (e.g., increased storms such as typhoons) may cause construction schedule delays in terms of their impact on Obayashi's nationwide network of offices and construction sites. Therefore, they are short-term risks that are already materializing and will always be included. These issues are identified by the environment expert department every half a year and then annually evaluated by the CSR Committee, which is the supreme decision-making body for risk management. These decisions are reflected in revisions of key measures for risk

		management. More "storms due to typhoons, etc." risks delaying construction in western Japan where we have many important clients, and in recent years, this risk has begun expanding to all of Japan.
Chronic physical	Relevant, always included	Chronic physical impacts (e.g., maximum temperature increase) are recognized as relevant and always included as a short-term risk that is already becoming apparent, as they may reduce work efficiency and increase labor costs due to the deteriorating work environment in terms of the harsh conditions for employees and workers, including personnel working on construction sites. For these, data on the occurrence of heatstroke are monitored monthly by Obayashi's Safety Specialist Department, and environmental data are compiled and reported semi-annually by the Environmental Specialist Department. In addition, the Environmental Management Specialist Committee, which also meets semi-annually, reviews and reflects on the key measures for environmental management. The results of their deliberations are reported to the CSR Committee, which is the supreme decision-making body for environmental measures. Worsening working environments risk decreasing work efficiency and increasing labor costs, so it is because of this relation that it is included in the evaluation.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

ID

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type and Primary climate-related risk driver

Chronic physical

Rising mean temperatures

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company- specific description

The working environment in construction is often very hot, such as a place in direct sunlight, somewhere lacking air conditioning, a closed space with little ventilation, or somewhere with hot materials and machines. Obayashi Corporation has many important customers in western Japan, centering on Osaka, where the company was founded. Obayashi's construction work, equivalent to nearly 90% of domestic sales in FY2021, is performed in the west of the Kanto region, which accounted for 80% of the cases of heatstroke in FY2021. Deterioration of the work environment due to rising temperatures can cause decreasing productivity at construction sites in the west of the Kanto region due to an increase in the number of heatstroke cases at construction sites and the resulting decrease in work efficiency and increase in the number of workers who are absent from work, as well as the increased risk of accidents occurring. In Obayashi 2021, there were 152 cases of heatstroke (203 in FY2020) and 14 cases of one or more days of absence (24 in FY2020). When temperatures exceed reference values at a construction site and there is an increased risk of heatstroke, work is temporarily suspended. This has a financial impact of lowering site productivity by about 16 million yen. This creates a risk of relatively minor financial impact when identifying and evaluating risks based on the definition of severe financial impact.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

15,955,200

Potential financial impact figure -minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact figure

When temperatures exceed reference values at a construction site and there is an increased risk of heatstroke, work is temporarily suspended. This has a financial impact of lowering site productivity.
Number of heatstroke cases in our company in 2013, the largest number in recent years (277 cases) x 2 days (assumed to be the number of lost workdays per case) x amount equivalent to daily allowance (24,000 yen) = 13,296,000 yen
The number of days of absence from work per case is assumed to be 2 days (estimated based on Obayashi Corporation's table of heat-related accidents in FY2021).

The amount equivalent to daily wages is assumed to be 24,000 yen (estimated from the 2022 unit labour cost for public works design).
It is assumed that there will be a 20% increase in the number of occurrences due to rising temperatures caused by global warming (estimated from "Climate Change Observation, Prediction and Impact Assessment Integrated Report 2018: Climate Change in Japan and its Impacts" by the Ministry of the Environment, Ministry of Education, Culture, Sports, Science and Technology, Ministry of Agriculture, Forestry and Fisheries, Ministry of Land, Infrastructure and Transport, and Japan Meteorological Agency).
13,296,000 yen × 0.2 = 2,659,200 yen
Increased cost due to workers' absence from work due to heatstroke: 13,296,000 yen + 2,659,200 yen = 15,955,200 yen

Cost of response to risk

1,326,000,000

Description of response and explanation of cost calculation

(Situation) The following three items of our Health and Safety Policy were established based on the basic principle of "valuing everyone we come in contact with in our business."

1. Comply with the Industrial Safety and Health Act, other relevant laws, and Obayashi Corporation's internal rules.

2. Appropriately implement and use Obayashi's Occupational Health and Safety Management System.

3. Help improve the independent health and safety management efforts of suppliers.

In accordance with this policy, Central Guidelines for Health and Safety Measures along with priority measures are formulated under the leadership of the top management every year, based on which each branch makes their own "guidelines for health and safety measures" and implement their own concrete measures. In the "heatstroke prevention measures" of the Central Guidelines for Health and Safety Measures, each construction site is asked to measure WBGT values (heat index) as well as inform workers about these values and warn them about the heatstroke risk. Moreover, if the reference values are exceeded or may be exceeded, they should make sure to implement prevention measures, such as securing ventilation and changing work tasks and work place. These are based on the Guidelines for Basic Measures to Prevent Heatstroke in the Workplace of the Ministry of Health, Labour and Welfare.

（Challenges）Conventional heatstroke countermeasures have been limited to alerting people to use the WBGT (heat index) as an indicator and encouraging them to drink water, take salt, and take breaks. However, the onset of heatstroke varies from person to person and depends on the work’s nature and location. The challenge has been to comprehensively assess these factors and communicate the dangers individually. It was also hoped that one of the solutions would be to monitor the physical condition of each worker, such as the heart rate of each worker.

（Actions）In February 2015, we worked together with NTT Communications to develop

workwear using the functional material hitoe. The wearing of these enables vital data to be acquired, such as the heart rate of workers on actual construction sites in real time. In June 2015, a system called "Heat Index Watcher" was also developed to continuously measure WBGT (heat index) at multiple locations on site and centrally manage the information at the construction office. By monitoring the measured WBGT values and workers' heart rates, the system operates to reduce risk by verifying the usefulness of risk prediction before the occurrence of heatstroke, etc. This was seen as an action to be taken by FY2021 in accordance with the Mid-term Management Plan 2017; full-scale operation of the Heat Index Watcher began in FY2019, and in FY2021, the system was introduced at nearly 200 construction sites throughout Japan. The company also continued to roll out the Envital system.

（Results）In July 2019, we updated the Envital system that manages worker safety by centrally managing the health of workers at construction sites and the conditions of their work places. We greatly improved convenience and utility, for example by switching the biosensors making up the system from shirt-type to wristband-type heart rate sensors, obtaining position information to improve management functionality, and adding an emergency alert function. In FY2021, the Heat Index Watcher alerts were improved to be delivered directly to "direct," a messenger application that allows communication with outside parties such as partner companies. As a result, the number of heatstroke cases in FY2021 decreased by 51 compared to FY2020.

Management costs have been included in the following amounts since FY2021 environmental accounting: overhead costs related to R&D: approx. 1,153 million yen + "monitoring and measurement costs": 167 million yen + "environmental damage response allowance, insurance premium costs": 6 million yen = 1,326,000,000,000 yen (1,326 million yen).

Comment

ID

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type and Primary climate-related risk driver

Acute physical

Storms (including blizzards, dust storms, sandstorms)

Primary potential financial impact

Increased direct costs

Company- specific description

Sudden typhoons and floods are a major risk in the construction business, which is the Obayashi Corporation's primary business, that can lead to landslides in developed land, flooding and inundation of underground construction sites, damage to buildings, structures, materials, and construction equipment, as well as

construction delays.

Big typhoons hit locations across Japan in 2017 and 2018, causing damage to all our domestic bases, but the biggest damage was done in the Kansai area. Obayashi Corporation is a member of the Osaka Umekita 2nd Phase Redevelopment Project (provisional name), which started construction in December 2020 and was still under construction in FY2021, as the developer and builder, and the risk impact of typhoon damage will be significant. If physical risks such as sudden typhoons or floods occur and their severity increases, it might be necessary to pay for repairs to storm damage or hire more staff to make up for construction delays, thus increasing capital costs causing a financial impact of about 2.8 billion yen. This creates a risk of severe financial impact when identifying and evaluating risks based on the definition of severe financial impact.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

2,800,000,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact figure

Physical risks, such as sudden typhoons or floods that potentially increase in severity, have a financial impact due to increased capital costs. as additional labor costs are incurred to repair damage caused by storms or recover from delays if the construction schedule is delayed.

The following costs are estimated for damage repair and construction period delay recovery:

Obayashi Corporation's domestic civil engineering sales in FY2021: 346.8 billion yen x 0.2% = 693,600,000 (about 700 million yen); Obayashi Corporation's domestic construction sales in FY2021: 1,059.9 billion yen x 0.2% = 2,120,000,000 (about 2.1 billion yen)

[0.2% = the degree of impact of large-scale natural disasters on GDP in developed countries (Source: Tokio Marine & Nichido Global Warming Seminar "The Role of Finance and Insurance in Response to Climate Change," November 18, 2008)]

Cost of civil engineering construction damage repair and of construction period delay recovery: 700 million yen + building construction damage repair cost and construction period delay recovery cost: 2.1 billion yen = 2,800,000,000,000 yen (2.8 billion yen)

Cost of response to risk

173,000,000

Description of response and explanation of cost calculation

(Situation, challenges) If physical risks such as sudden typhoons or floods occur and their severity increases, it might be necessary to pay for repairs to storm damage or hire more staff to make up for construction delays, thus increasing capital costs causing a financial impact.

(Actions) For disaster countermeasures at construction sites, Obayashi Corporation has decided to operate to reduce risk by implementing risk response measures in the following ways: (1) Prediction and prevention, (2) Avoiding and minimizing damage, and (3) Risk shifting. These are seen as actions to be taken until FY2026 based on the mid- to long-term management plan.

(1) Prediction and prevention (ordinary times): Establish a typhoon countermeasures headquarters in the head office and every branch to gather detailed information about typhoons and bomb cyclones from the Japan Meteorological Agency and private data companies. When Typhoon No. 14, formed east of the Philippines, approached western Japan on September 7, 2021, the Disaster Response Headquarters received the first and second reports from private data companies. Having made assumptions about several patterns, depending on the size of the risk, such as the proximity of the typhoon, it assigned standby personnel and support organizations by area accordingly.

(2) Avoiding and minimizing damages (typhoon approaching or after passing): On September 17, 2021, measures to prevent the scattering of materials and equipment were taken at the Osaka Head Office construction site based on a predetermined checklist. Under the direction of the Osaka Head Office Construction Department, measures such as personnel standing by were accordingly taken at the construction site. In case of damage to buildings that were completed or under construction, they were reported to the head office and support was provided to buildings in need of material or personnel support through the aforementioned support organizations, based on designated procedures. After the typhoon passed, information about damages and clients was collected and aggregated according to the above procedures.

(3) Risk-shifting: Standard construction contracts will have the client (orderer) bear risks relating to serious damage due to natural disaster, but our construction insurance, etc. provided compensation that allowed us to shift and reduce risk.

(Results) The following risk mitigation and shifting were implemented in response to the physical risk caused by Typhoon No. 14.

1) Prediction and prevention

2) Damage avoidance and minimization

3) Risk transfer

Management costs are included in "Monitoring and measurement costs": 167 million yen + "Allowance for environmental damage and insurance costs": 6 million yen = 173,000,000,000 yen (173 million yen) of FY2021 environmental accounting.

Comment

ID

Risk 3

Where in the value chain does the risk driver occur?

Upstream

Risk type and Primary climate-related risk driver

Emerging regulation

Carbon pricing mechanisms

Primary potential financial impact

Increased direct costs

Company- specific description

Obayashi Corporation was Japan's second largest construction company in terms of revenue size in FY2021, with its construction business accounting for about 93% of consolidated sales. In the construction business, the company excels in difficult construction projects, such as skyscrapers and deep underground tunnels, using its advanced technological capabilities. These construction sites consume a large amount of energy during construction. In FY2021, about 55,000 kl/year of light oil was used for the operation of construction equipment, and about 96,000 MWh/year of electricity was used for the welding of reinforcing bars and steel frames, site lighting equipment, and operation of electric construction equipment. The energy consumption of all our operations is equivalent to 147,000 tons of CO2 emissions in Scope 1 and 48,000 tons in Scope 2, with Scope 1 accounting for about 75%. In addition, the manufacture of steel, cement, and other major construction materials consumes a large amount of energy, and the materials we procure were equivalent to approximately 1.44 million tons of CO2 emissions in FY2021 as Scope 3 Category 1. Scope of CO2 emissions. If a carbon tax is imposed, although the rules for taxing the category are not clear, it is assumed that the cost of energy and material procurement will increase, which will directly lead to an increase in construction costs. Therefore, in the construction market, there is a risk that business performance will be affected by how the price is passed on. As a transition risk in the company's supply chain, if the carbon tax is introduced, construction costs will increase by approximately 1.63 billion yen due to the additional carbon tax on key materials and an increase of energy costs. This is a risk factor that has a significant financial impact in identifying and assessing risk according to the definition of significant financial impact.

Time horizon

Medium-term

Likelihood
Likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
1,628,000,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact figure
Transitional risks for the Obayashi Corporation's supply chains consist of additional construction costs if carbon taxes are introduced, energy costs increase, and the taxes are levied on the principal materials. Emissions from the production of steel and cement used by Obayashi Corporation in FY2021 were approximately 1.44 million t-CO. If price pass-through of raw material costs to construction costs is not possible, this will increase the construction cost price and impact revenue.
CO2 emissions from energy consumption during the company's construction of the project were approximately 188,000 tons × additional global warming tax of 1,000 yen/t-CO2 = 188,000,000 yen (188 million yen). CO2 emissions from steel and cement production used by the company in FY2021 were approx. 1,440,000,000 tons-CO2 x 1,000 yen/t-CO2 = 1,440,000,000 yen (1,440 million yen).
188,000,000 yen (188 million yen) + 1,440,000,000 yen (1,440 million yen) = 1,628,000,000 yen (1,628 million yen) is the carbon tax to be added.

Cost of response to risk
5,900,000,000

Description of response and explanation of cost calculation
(Situation) As a construction company, the Obayashi Corporation is able to directly reduce CO2 emissions at our own discretion by decarbonizing our facilities and building low-carbon structures.
（Challenges）Obayashi Corporation has traditionally set a goal of reducing CO2 emissions by 85% by 2050 compared to 2013 levels through the development of technologies that contribute to rationalization and productivity improvements in construction that lead to energy reductions, as well as through ingenuity and ingenuity at the construction site. In March 2022, new FY2030 GHG emission reduction targets were set for SCOPE 1 and 2 of 46.2% reduction (compared to

FY2019) and for SCOPE 3 of 27.5% reduction (compared to FY2019). With this reduction target, the company committed to the SBT, a greenhouse gas emission reduction target consistent with the Paris Agreement, and applied for certification. (Actions) As an example of technological development that contributes to increased productivity, we have developed the world-first Energy-saving Shield Construction Method, which combines high-speed construction with reduced power usage when constructing tunnels by digging underground with a large cross-section shield machine, thereby realizing a highly efficient digging method that is about 25% faster and combines about 30% less energy than conventional methods. Other targets are set to reduce CO2 emissions through the use of LEDs for temporary on-site lighting, the widespread use of high-efficiency construction heavy equipment, and education on fuel-efficient driving. These CO2 emission reduction measures are to be operationalized to reduce the risk of increased production costs due to changes in input prices. This is seen as an action to be taken until FY2021 based on the Mid-term Business Plan 2017.

（Results）In FY2021, we achieved a 17.9% reduction, as compared to our target of a 15.0% reduction in FY2013.

Administrative costs are included in the R&D costs corresponding to the design phase of approximately 4.7 billion yen + indirect costs related to R&D of approximately 1.2 billion yen = approximately 5,900,000,000,000 yen (5.9 billion yen) from Obayashi Corporation's non-consolidated environmental accounting in FY2021.

Comment

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

ID

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

In light of the Japanese government's policy target of carbon neutrality by 2050, reducing CO2 emissions is generally considered an urgent global challenge.
One third of Japan's CO2 emissions are related to housing and buildings, and Obayashi Corporation has an extremely important role to play in reducing GHG emissions from its domestic construction business, which is its main business and accounts for three quarters of its consolidated sales. Obayashi Corporation is also actively responding to demand for new ZEB and energy-efficient buildings, as well as energy-efficient renovations such as improving equipment efficiency and enhancing building insulation, in order to reduce CO2 emissions at its facilities. Eco-Navi, which is a simulation software for identifying the most effective combinations of energy-saving techniques to accommodate client budgets and building information, has continued to evolve in parallel with progress in buildings and facilities since its creation in 1998. In addition to clinic and school versions, a new version is being developed to handle building renovation and meet a variety of needs. The Thermal Shield Method, which uses paint that has high sunlight reflectivity to keep surface temperature from rising, reflects the infrared sunlight that shines on rooftops and such to reduce the air conditioning load through thermal insulation and contribute to energy conservation.
Port Plus, a fire-resistant high-rise structure with all ground structural members (columns, beams, floors, and walls) made of wood, has a significantly lower environmental impact than steel-frame or reinforced concrete structures. This is due to the stable long-term fixation of CO2 through the use of wood and the CO2 reduction effect throughout its life cycle, from material production through construction, demolition, and disposal. It is believed that Obayashi Corporation's know-how and ability to propose solutions, accumulated through the development of technologies related to various other energy-saving construction methods, energy-saving design technologies, and new technologies, will increase opportunities to win orders to carry out ZEB and energy-efficient renovations. By developing and expanding low-CO2-emission construction products and services, the Company expects to increase construction output and services (and increase revenues from increased demand for the products and services) through design–build methods that can take advantage of the technical and management capabilities that contribute to reducing CO2 emissions. The financial impact of this opportunity is defined as the increase in construction volume and services due to design–build of ¥311.4 billion. This constitutes an opportunity with tremendous financial impact when identifying and evaluating opportunities based on the definition of severe financial impact.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

311,400,000,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact figure

By developing and expanding low-emission construction and services, we hope to boost our ability to build and offer services through design and construction methods that utilize our technological and managerial abilities to contribute to reducing CO2 emissions (which will increase demand for our products and services, thereby increasing profits).

We estimate the financial impact from this "opportunity" to be "increased construction and services sales in construction design.

Estimated annual increase in orders of 296.6 billion yen: increase in architectural design and construction 296.6 billion yen

[296.6 billion yen = (Percentage of building construction orders received in 2021: 1,186.5 billion yen, of which 50% is due to design–build) x 50% (assumed percentage of those contributing to orders received)]

Increase in design and other services [14.8 billion yen = 296.6 billion yen (increase in architectural design work) x 5% (assumed design fee rate)]

Increase in construction volume and services due to design–build = 296,600,000,000 yen (296.6 billion yen) + 14,800,000,000 yen (14.8 billion yen) = 311,400,000,000,000 yen (311.4 billion yen)

Cost to realize opportunity

6,954,000,000

Strategy to realize opportunity and explanation of cost calculation

（Situation）Obayashi Corporation is winning orders by ensuring clients understand the superiority of its ZEB and energy-saving technologies, which the Corporation owns, and by responding to the demand for ZEB, energy-saving buildings, and energy-saving renovations.

（Challenges） To this end, the Company must continue to develop technologies to meet the world's ZEB and energy conservation needs, discover demand, increase opportunities to win orders, and improve the certainty of winning orders. In addition, the Company must provide their customers with high-performance eco-friendly facilities to meet the demand for new ZEB and energy-efficient buildings, as well as that for energy-efficient retrofits such as improving equipment efficiency and enhancing building insulation performance.

(Actions) Therefore, it was decided to operate to reduce risk by developing technologies and providing solutions for (1) through (4). This is seen as an action to be taken until

FY2021 based on the Mid-term Business Plan 2017.
(1) (Competitive product planning as a comprehensive construction company) In 2011, the Techno-Station (in the main building of Obayashi Technical Research Institute (Kiyose City, Tokyo) completed its basic plan to become a ZEB (zero energy building) with net-zero energy consumption by covering the energy needs using the facilities' own renewable power generation. The Harumi 2-chome Project, designed and constructed by Obayashi Corporation and under construction in FY2021, aims to develop and put into practical use ZEB technologies, such as reducing the heat load on the exterior skin and optimizing equipment and devices, by using operational data from existing Obayashi Group-owned buildings. In addition, Port Plus, a fire-resistant high-rise structure with all ground structural members (columns, beams, floors, and walls) made of wood, was under construction in FY2021 as the company's next-generation training facility. The use of 1,990m³ of timber for stable long-term fixation of CO2 (approx. 1,652 tons) and the reduction of CO2 by approx. 1,700 tons (approx. 40%) over the entire life cycle from material production through construction, demolition, disposal, etc. (compared to steel-frame construction) significantly reduces environmental impact compared to steel-frame or reinforced concrete construction.
(2) (Enhancing our business promotion system to increase opportunities for orders together with their accuracy) The Company has leveraged its accumulated construction experience to discover and secure needs for new construction and the renovation of energy-efficient buildings by communicating with the clients through management and maintenance of their building history databases, real estate asset management, and support for maintenance and management operations. In April 2020, a new general sales headquarters was established at the head office. In March 2022, the Carbon Neutral Solution Department was established to provide prompt, comprehensive, and effective solutions to the diverse needs of customers for carbon neutrality.
(3) (Introducing and collecting records of consulting services relating to energy conservation for clients) Since the 1990s, the company has been developing the Eco Navi software system, which simulates effective building energy-saving methods based on the performance of clients' existing facilities and operational records of energy use. Moreover, it continued to provide consulting services in FY2021 to meet clients' needs to save energy and ensure cost-effectiveness.
(4) (Enhancing our ability to propose designs and technological ability) In addition to the above Eco-Navi use results, the Company is proposing reductions in CO2 emissions by using CASBEE (Comprehensive Assessment System for Built Environment Efficiency), an environmentally conscious design method, in its design projects. In 2016, the Company developed Econavi® (City Version), an energy system design support tool that enables optimal system design to network multiple groups of buildings and the areal use of energy in smart cities, and the company continued to improve this tool in FY2021.

（Results）
(1) In FY2014, the Technostation at the main building of Obayashi Corporation's Technical Research Institute (Kiyose City, Tokyo) achieved ZEB status with an energy balance of zero, meaning that all energy consumption is covered by the renewable energy generated at the facility, which remained the case in FY2021. The Harumi 2-chome Project obtained ZEB Ready certification without any special energy-saving equipment being installed. Port Plus®, Japan's first high-rise, purely wooden fire-

resistant building, which was under construction in FY2021 as our next-generation training facility, has also received ZEB Ready certification.
(2) Construction orders in the domestic private non-manufacturing sector in FY2021 were 12% higher than in FY2020.
(3) The number of consulting projects using eco navigation increased in FY2021.
(4) The emission reduction rate in operation based on CASBEE evaluation in FY2021 for our design project was 32% less than that of a standard building.

The realized cost is included in "R&D cost": (4,733 million yen) + "Environment-related division cost": (415 million yen) + "Design for Environment cost": (1,806 million yen) = (6,954 million yen) from environmental accounting in FY2021.

Comment

ID

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity drive

Development of new products or services through R&D and innovation

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

If the construction business, which is the Obayashi Corporation's primary business, is affected by a considerable contraction of the construction market due to an economic downturn in Japan or overseas, it might impact the group's performance as it receives fewer orders. The Obayashi Corporation works to improve sales strengths, procurement ability, and productivity in accordance with medium- to long-term market trends, but it is also working to diversify revenue sources by expanding business domains. As part of this, the entire Obayashi Group is promoting "renewable energy businesses" as an action plan for the sake of realizing a "decarbonized" society, which is a concrete initiative in the long-term Obayashi Sustainability Vision 2050. Access to renewable energy businesses, such as solar power generation and wind power generation, as new and emerging markets is expected to increase long-term revenues from the sale of electricity to power companies under the feed-in tariff system for renewable energy. It is also expected to increase profit-earning opportunities for Obayashi Group companies. As of March 2022, the company was already promoting renewable energy power generation projects at 28 solar power plants, one onshore wind farm, and two wood biomass power plants, with a total rated output of approximately 205 MW. In recent

years, the company has focused on projects involving the construction, maintenance, and operation of wind turbines. The Mikane Hamada Wind Power Plant, which began operation in November 2017, received the Civil Engineering Award from the Japan Construction Federation in 2020 for its development of the Wind Lift Method, which enables wind turbines to be erected without the need for a large crane, and for its high technological capabilities. In the Kamikita Ogawara Wind Farm in Rokkasho Village, Aomori Prefecture, where construction was scheduled to start in September 2020 and be completed and put into operation at the end of 2021, wind turbines were installed in the smallest possible area by using the Wind Lift Method. Access to renewable energy businesses, such as solar power generation and wind power generation businesses, which are new and emerging markets, is expected to increase the revenues of Obayashi Group companies from the long-term sale of electricity to power companies under the feed-in tariff system for renewable energy. For this reason, the financial impact figure of 770 million yen of expected profit from the increase in the price of renewable energy is considered to be the financial impact figure for the opportunity. This is an opportunity factor that has a relatively low degree of financial impact in identifying and evaluating opportunities, rather than the definition of significant financial impact.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

775,250,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact figure

By accessing new and emerging markets for solar power generation, wind power generation, and other "renewable energy businesses" and promoting them as a group-wide effort, we expect increases in profit from selling power to power companies in the long term based on the feed-in tariff system for renewable energy. Obayashi Clean Energy, including its subsidiaries engaged in renewable energy business, had sales of 11,075,000,000 yen (11.075 billion yen) in FY2021.

The expected future electricity price increase rate is assumed to be 7% (estimated from the Agency for Natural Resources and Energy's "Outlook for Energy Supply and Demand in FY2030").

Profit from changes in renewable energy prices = Obayashi Clean Energy's FY2021 net sales x expected future electricity price increase rate = 110,750,000,000 yen (110.75%)

x expected future electricity price increase rate of 7% = 775,250,000 yen (775.25 million yen)

Cost to realize opportunity

106,000,000

Strategy to realize opportunity and explanation of cost calculation

(Situation) We have decided to implement a project for constructing, maintaining, and operating fixed-bottom type offshore wind power stations as Japan's first commercial large-scale offshore wind power generation business at Akita and Noshiro Ports in Akita Prefecture, working jointly with other companies through Akita Offshore Wind Corporation, a special purpose company that we invested in in July 2016. This project aims at constructing, maintaining, and operating offshore wind power stations with total capacity of about 140,000 kW and sell power to Tohoku Electric Power based on the feed-in tariff system for renewable energy over 20 years starting with the commencement of operations in 2022.

(Challenges) The total project cost is about 100 billion yen, so the risk of the Obayashi Corporation having to foot the whole investment was a challenge.

(Actions) As such, we hoped to procure low-cost development capital by issuing our own green bonds for our own "renewable energy businesses." The green bonds issued by the Obayashi Corporation in October 2018 were to be used to promote solar power generation, wind power generation (onshore, offshore), and other renewable energy businesses. In June 2019, the company issued the Obayashi Sustainability Bond (the 24th unsecured bond). These ESG financings are managed to reduce financing risks and are viewed as actions to be taken until FY2026 based on the medium- to long-term management plan.

(Results) A portion of the funds raised through the Obayashi Sustainability Bond issued in June 2019 was allocated to renewable energy projects: the hydrogen production plant demonstration test, the Otsuki biomass power plant, and the Kamikita Ogawara onshore wind farm. Otsuki Biomass is already in operation, and construction of the second onshore wind power generation project of the Obayashi Group, the Kamikita Ogawara Wind Power Project, started in September 2020, followed by trial operation in FY2021 and power generation in FY2022. These green projects have diversified both the power source mix of Obayashi's renewable energy business and Obayashi's revenue base. Furthermore, in order to make a strong commitment to achieving decarbonization, an important pillar of Obayashi Corporation's sustainability efforts, the company issueed an Obayashi Sustainability Link Bond in April 2022, aiming to promote environmentally and socially sustainable economic activities and growth.

The procurement costs are green bond issuance costs 53 million yen + sustainability bond issuance costs 53 million yen = 106,000,000 yen (106 million yen).

Comment

ID

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development of climate adaptation, resilience and insurance risk solutions

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

The Obayashi Corporation's civil engineering business is one of our specialities where we competitively construct structures for storing water underground in urban areas, which requires advanced construction technology, and restore large-scale infrastructure, for instance with dam reconstruction.

According to the Japan Meteorological Agency's Japan's Climate Change, global warming has caused an increase in days in which at least 100 mm of rain falls and short periods of heavy rain where at least 50 mm falls in recent years. As a result, the capacity of rivers and waterways are frequently exceeded. Preparing temporary underground water storage functions in urban areas and dredging rivers and dams are effective ways to prevent this flood damage, which we consider an opportunity. In particular, our evaluation is that order opportunities for the Obayashi Corporation's domestic civil engineering will increase because the typhoons have been impacting not just western Japan, where we have a rich construction track record, but all of Japan in recent years. This access to new markets is expected to expand our opportunities for receiving orders and earning revenue, as we possess advanced construction technology and have an advantage in terms of bidding price. We classify construction of underground rivers and reservoirs, river repairs and improvements, river dredging, and construction of seawalls to be climate-adaptation civil engineering. If we propose new solutions to such climate-adaptation needs that are accepted and lead to more orders and higher revenue per year, we define that as a financial impact. We consider the financial impact of this "opportunity" to be a maximum of 20,000,000,000 yen (about 20 billion yen) in more climate-response civil engineering orders per year as a result of developing climate-adaptation solutions. This constitutes an opportunity with tremendous financial impact when identifying and evaluating opportunities based on the definition of severe financial impact.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure - minimum (currency)

3,000,000,000

Potential financial impact figure - maximum (currency)

20,000,000,000

Explanation of financial impact figure

Climate change is making situations where the capacity of rivers and drainage are exceeded more frequently. In order to prevent flood damage, the need for national land resilience has increased, and following the three-year emergency measures for national land resilience by 2020, the government has implemented the Five-Year Acceleration Plan for Disaster Prevention, Disaster Mitigation, and Building National Resilience. This five-year project, with a project scale of over 15 trillion yen, is to be implemented intensively for five years, until FY2025, and the market for construction of civil engineering facilities for disaster prevention is expanding. Especially effective climate change-adaptation technologies include preparing temporary underground water storage functions in urban areas and dredging rivers and dams, so we are seeing the emergence of a new market for public works as local governments are wanting to build drainage and rainwater trunk lines using small- and medium-sized cross-section shield technology. This access to new markets is expected to expand our opportunities for increased revenue (sales), as we possess advanced construction technology and have an advantage in terms of bidding price. If we propose new civil engineering solutions to such climate-adaptation needs that are accepted and lead to more orders and higher revenue per year, we define that as financial impact.

[We classify construction of underground rivers and reservoirs, river repairs and improvements, river dredging, and construction of seawalls to be climate change-adaptation civil engineering, and anticipate three to four such projects (about 1-5 billion yen per project) per year in urban areas.]

We estimate that developing solutions for climate change adaptation can earn us an annual 3,000,000,000 yen (about 3 billion yen) to 20,000,000,000 yen (20 billion yen) in climate change-adaptation civil engineering orders.

At least 1 billion yen per project x 3 projects + 5 billion yen x 0 =3,000,000,000 yen (3 billion yen); at most 1 billion yen per project x 0 + 5 billion yen x 4 projects = 20,000,000,000 yen (20 billion yen).

Cost to realize opportunity

5,148,000,000

Strategy to realize opportunity and explanation of cost calculation

(Situation) Obayashi Corporation is developing and improving its technologies with the "Innovate Technologies and Businesses" strategy (Capture growth opportunities generated by social demand for "carbon neutrality" and "well-being" (safety, security, comfort and health) by materializing new value with in-depth integration of innovative

technology and business model), one of the basic strategies set forth in its Mid-term Business Plan 2022. The Obayashi Corporation possesses a wealth of technologies for digging, shield tunneling, and dam construction to prepare underground water storage functions and dredge rivers and dams, considering this one of our specialty areas.

(Challenges) In shield construction, there has been a growing need for environmental considerations in recent years because of concerns about the risk of tail grease oil components leaking into groundwater in places where groundwater from geological formations near shield tunnels is used. Moreover, accurately placing the concrete molds needed to build gravity dams takes a great deal of time and effort even from highly trained workers, so automating and reducing the manpower need for moving and installing concrete molds is an important challenge for increasing productivity in the future.

(Actions) The Obayashi Corporation developed SEALNOC BD, which is a high-performance tail seal material for shields that is also environment-friendly, in cooperation with ENEOS in September 2020. Moreover, in November 2020, we applied the mold automatic slide system, which is one of the technologies integrated in the dam computerization construction technologies ODICT™, at the main body of Kawakami Dam (Iga City, Mie; client: Japan Water Agency). It was decided to continue to operate in FY2021 with improvements to reduce risk. This is seen as an action until FY2021 in accordance with the Mid-Term Business Plan 2017.

(Results) SEALNOC BD is an improvement of conventional tail seal materials that prevent contamination of the groundwater during shield tunneling. It uses a biodegradable material to minimize its environmental impact and was the first to be awarded an eco mark in Japan. Moreover, the development of the mold automatic slide system combined elevator scaffolds with an automatic climbing function and a measurement system to check mold location, thereby enabling full automation of all tasks from demounting a mold from the formed layer and sliding it vertically to deciding placement and installation by using a tablet.
The realization cost is included in "R&D cost" (4,733 million yen) + "Environment-related division cost" (415 million yen) = (5,148 million yen) from the environmental accounting in FY2021.

Comment

C3. Business Strategy

C3.1

(C3.1) Does your organization’s strategy include a transition plan that aligns with a 1.5°C world?

Row1

Transition plan

Yes, we have a transition plan which aligns with a 1.5° C world

Publicly available transition plan

Yes

Mechanism by which feedback is collected from shareholders on your transition plan

We do not have a feedback mechanism in place, but we plan to introduce one within the next two years

Attach any relevant documents which detail your transition plan (optional)

【Obayashi】Initiatives for a low-carbon, recycling-oriented, nature-symbiotic society _ Sustainability.pdf

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy
Row1	Yes, qualitative and quantitative

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios RCP 2.6	Company-wide		[Scenario Identification] Having established the long-term vision – Obayashi Sustainability Vision 2050 – that sets the company-wide, long-term direction of their business activities from an environmental perspective, and having set decarbonization as one of our targets for the years 2040 to 2050, Obayashi Corporation is working to realize a sustainable society. We aim to realize this vision by conducting business activities designed to prevent global warming. These activities include making "Establish an Environmentally Responsible Society," which includes reducing CO2 emissions, one of our ESG Materialities. The Company has declared our support for the TCFD. We have conducted scenario analyses on our businesses in order to identify and assess climate-related risks and

			opportunities and understand the medium- to long-term impacts climate problems may have on our business for the year 2030. RCP2.6 was used as the 2°C scenario in the physical risk/opportunity analysis. [Parameter] The social quantitative parameter is based on the forecast of economic development, and the impact on business is based on the sales ratio and growth rate. Climate-related quantitative parameters such as the increase in midsummer days due to rising temperatures, the increase in natural disasters, and changes in investments in infrastructure are taken into account. [Assumption] Scenario analysis for the year 2030 was based on available public data. It is assumed that a linear change occurs in the data for the periods for which no data are available. It is also assumed that there will be changes in working hours due to rising temperatures in 2030 as well as in the impact of natural disasters. Regarding market and customer trends, we assume that, due to changes in construction demand and other factors, there will be a need to develop infrastructure that can cope with the growing impact of natural disasters. [Analytic Choice] The scenario analysis set the year 2030 as an intermediate year to 2050, the target year of the long-term vision. The JMA report on temperature increase is referenced.
Physical climate scenarios RCP 8.5	Company-wide		[Scenario Identification] Having established the long-term vision – Obayashi Sustainability Vision 2050 – that sets the company-wide, long-term direction of its business activities from an environmental perspective and having set decarbonization as one of our targets for the years 2040 to 2050, Obayashi Corporation is working to realize a sustainable society. We aim to realize this vision by conducting business activities designed to prevent global warming. These include setting "Establish an Environmentally Responsible Society," which includes reducing CO2 emissions, as one of our ESG Materialities. The company has declared our support for the TCFD. We have conducted scenario analyses on our businesses in order to identify and

			assess climate-related risks and opportunities and understand the medium- to long-term impacts climate problems may have on our business by the year 2030. The RCP8.5 was used as the 4°C scenario in the physical risk/opportunity analysis. [Parameter] Social quantitative parameters are based on forecasts of economic development, and business impacts are considered in terms of sales ratios and growth rates. As climate-related quantitative parameters, changes such as an increase in midsummer days due to rising temperatures, the expansion of natural disasters, and investments in infrastructure are taken into account. [Assumption] A scenario analysis is conducted for the year 2030 based on publicly available data. Data for the periods for which data are not available are assumed to undergo linear changes. For the year 2030, changes in working hours due to rising temperatures and changes in damage due to the effects of natural disasters are assumed. Market and customer trends are also assumed to change due to the need for process adjustments following changes in summer working hours. [Analytic Choice] The scenario analysis assumed the year 2030 as an intermediate year to 2050, the target year of the long-term vision. The JMA report on temperature increase is referenced.
Transition scenarios IEA SDS	Company-wide		[Scenario Identification] Having established the long-term vision – Obayashi Sustainability Vision 2050 – that sets the company-wide, long-term direction of its business activities from an environmental perspective and having set decarbonization as one of our targets for the years 2040 to 2050, Obayashi Corporation is working to realize a sustainable society. We aim to realize this vision by conducting business activities designed to prevent global warming. These include setting "Establish an Environmentally Responsible Society," which includes reducing CO2 emissions, as one of our ESG Materialities. The Company has declared our support for the TCFD. We have conducted scenario

			analyses on our businesses in order to identify and assess climate-related risks and opportunities and understand the medium- to long-term impacts climate problems may have on our business for the year 2030. The IEA_SDS was used as the 2°C scenario in the analysis of transition risks and opportunities. [Parameter] The social quantitative parameter is based on the forecast of economic development, and the impact on business is based on the sales ratio and growth rate. Climate-related quantitative parameters include changes in carbon prices, including taxes, energy costs, and the cost of installing energy-saving and renewable energy technologies. [Assumption] A scenario analysis is conducted for the year 2030 based on publicly available data. For periods for which data are not available, linear changes are assumed to occur: changes due to taxation on CO2 emissions to control temperature rise in 2030, demand for renewable energy, and promotion of the introduction of energy-saving and renewable energy technologies. Regarding market and customer trends, it is assumed that changes in taxation, increased demand for renewable energy, and cost fluctuations due to technology application will occur. [Analytic Choice] The scenario analysis assumed the year 2030 as an intermediate year to 2050, the target year of the long-term vision. The IEA's WEO2019 is referenced for tax prices and renewable energy prices.
Transition scenarios IEA STEPS (previously IEA NPS)	Company-wide		[Scenario Identification] Obayashi Corporation has formulated Obayashi Sustainability Vision 2050 – a long-term vision that sets the company-wide, long-term direction of its business activities from an environmental perspective – and has set decarbonization as one of its goals for the period 2040–2050 to realize a sustainable society. To realize this vision, the company is developing business activities aimed at preventing global warming, such as making "the formation of an environmentally conscious society" a key ESG issue,

			including the reduction of CO2 emissions. The company endorsed the recommendations of the TCFD due to the need to analyze the impact of climate-related financial disclosures on our business for the year 2030 and surveyed the available scenario literature to identify and assess climate-related risks and opportunities and understand the medium- to long-term impact of climate-related issues on our business. The IEA_STEPS was used as the 4°C scenario in the analysis of transition risks and opportunities. [Parameter] The social quantitative parameter is based on the forecast of economic development, and the impact on business is based on the sales ratio and growth rate. Climate-related quantitative parameters include changes in carbon prices, including taxes, energy costs, and the cost of installing energy-saving and renewable energy technologies. [Assumption] The scenario analysis is based on publicly available data for the year 2030. Data for the periods for which data are not available are assumed to result in linear changes; changes due to energy demand, prices, etc. to adapt to the 2030 temperature increase are assumed. Regarding market and customer trends, it is assumed that changes such as fluctuations in material costs caused by energy prices will occur. [Analytic Choice] The scenario analysis assumed the year 2030 as an intermediate year to 2050, the target year of the long-term vision. The IEA's WEO2019 is referenced for tax prices and renewable energy prices.

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row1

Focal questions

The transition scenario focuses on the impact of the carbon tax on the company's own costs associated with the shift to a decarbonized society toward a 1.5°C world, the impact on the customer side of the shift to decarbonization as a result of stricter environmental regulations, and what opportunities are likely to be gained in Obayashi's service areas.

In the physical scenario, the focus was on the impact of a long-term temperature increase of about 4°C on the client side of the Company due to more severe natural disasters and worsening labour conditions due to higher temperatures and changes in demand for Obayashi's existing service offerings to help solve these issues.

Results of the climate-related scenario analysis with respect to the focal questions

In the transition scenario, the following risks (1) and opportunities (2) are assumed.
(1) Introduction of a carbon tax:
Overview） ・Cost increase when levied on CO2 from business activities
・Procurement cost increase from higher prices on construction materials with high energy consumption
2030 impact) 4℃ scenario = minor, 2℃ scenario = major
(2) Expanding needs for energy conservation and renewable energy technologies
Overview)・Increasing superiority in ZEB (net zero energy buildings) and energy-saving technologies that meet society's needs
・Switching from existing energy to renewable energy
・Expanding office demand for green building certification
2030 impact）4℃ scenario = medium, 2℃ scenario = major
Of the above, (1) will be to curb costs by reducing energy consumption at each stage through promotion of energy conservation at the construction stage and application of low-carbon materials; and (2) will be to promote the development of ZEB and other technologies and apply them to buildings to reduce energy consumption during operation, thereby differentiating buildings and expanding opportunities to win orders.
In the physical scenario, the following risks (1) and (2) and opportunities (3) are assumed.
(1) Rise in summer temperatures
Overview） ・Increasing health risks for workers at construction sites, including heatstroke
・Deepening worker shortages due to worsening working environments at construction sites
2030 impact）4℃ scenario = major, 2℃ scenario = majo
(2) Intensification of natural disasters (typhoons, torrential rains, floods, etc.)
Overview） ・Increasing risks such as damages to buildings under construction, suspended work, and damages to construction material suppliers due to storms and floods
・Decreasing value of real estate in areas with high flood risk
2030 impact）4℃ scenario = medium, 2℃ scenario = medium
③国土強靭化の取り組み

Overview） ・Expanding demand for construction, maintenance, and repairs of infrastructure to prevent and decrease disaster risk and increase national land resilience
2030 impact） 4℃ scenario = major, 2℃ scenario = major
As regards the above, (1) the introduction of mechanized construction will reduce construction schedule delays due to deterioration in the labour environment; (2) strengthening the BCP, including the supply chain, will reduce construction schedule delays due to wind and flood damage; and (3) the development of disaster prevention/mitigation/toughness technologies will be promoted and applied to buildings and infrastructure to differentiate them and expand opportunities to win orders.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

Business area	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	The main products and services offered by the Obayashi Corporation are building construction and design. Design and construction make up the main part of the construction industry, but the management of buildings as products (when used after delivery) is associated with considerable greenhouse gas emissions, so it is important to work to keep those emissions down in the same way that we do during the construction stage. In the current situation, we need to reduce greenhouse gas emissions considerably by strengthening regulations and through other measures in accordance with the Japanese national policy for the Paris Agreement in 2015 ("Japan's draft agreement") and the 2050 Carbon Neutrality Declaration of the Japanese government in September 2020. We assume that similar measures are needed on the construction market. The national Energy Basic Plan also states that "we shall aim to realize ZEB on average for all new constructions by 2030, including new public buildings by 2020." More concretely, we need to implement measures that reduce greenhouse gas emissions at the management stage to fight

		climate change, and it is likely that we will see an increase in orders for ZEB (zero energy buildings) that aim to eliminate such emissions. As part of this, we need to possess technologies and know-how to construct buildings that can meet client needs or we will risk missing more orders and see a drop in sales. Meanwhile, if we do secure superior technologies and know-how, we should see more orders and increases in sales as we expect it to have an impact on the construction and development businesses. In the Obayashi Corporation's TCFD scenario analysis, the growing importance of ZEB and energy-saving technologies in response to social needs from expanded demand for energy-saving and renewable energy technologies was identified as a transition opportunity, to which we aim to respond by "promoting the development and practical application of ZEB technology that provides comfort and is business-feasible." The above suggests the need to supply the market with buildings that emit less greenhouse gases as well as the need for solutions in the form of 1) developing and possessing technologies for buildings that accommodate regulations and needs and 2) concomitant strengthening of our competitiveness and ability to present technologies. In this, we consider 1) the regulations and needs to be shaped by Japan's draft agreement, which is why we have calculated upper limits for emissions from building management in 2030 by collating that draft with our business size and contents. We are calculating and reflecting a total reduction rate for emissions so that they do not exceed those limits. Thus, we set emissions reduction targets in line with national regulations and work together with our technological development departments to achieve them, thereby enabling us to acquire the technological ability to supply the market with buildings that can meet demands.

		Moreover, in terms of measures for 2) strengthening of our competitiveness and ability to present technologies, we use CASBEE (Comprehensive Assessment System for Built Environment Efficiency) to assess design and construction jobs and set numerical targets for CO2 emissions reduction per unit of floor space managed in "relevant buildings" (buildings with specifications as designed by us) as compared to "reference buildings" (buildings with average specifications defined by CASBEE). This allows us to strengthen our competitiveness through our ability to present technologies by promoting the introduction of energy-saving technologies. Regarding 1), we are continuing our activities with a medium- to long-term target of -25% in FY2031.3 compared to FY2014.3 for our reduction rate of indirect contributions to emissions. In FY2021, this was -26% compared to FY2013. Regarding (2), in terms of emission intensity during operation (per floor area, per year) of CASBEE-referenced buildings, there was a -32% reduction in FY2021. As CASBEE is regularly revised, we always aim to achieve better total environmental performance than for buildings and infrastructure with standard specifications, with the reference buildings of that year as an index, continuing our activities working toward the aforementioned reduction rate for emissions output during management. The management emissions of buildings supplied to the market is one of the principal components of the "indirect contributions to emissions" which is the basis for calculating 1) according to the corporation's divisions. As this is an accumulation of annual emissions during management for our design and construction jobs as calculated from the results of 2), so supplying buildings with high environmental performance (low emissions) to the market may be considered contributing to reducing greenhouse gas emissions from products and services. The corporation considers "establishing an environmentally responsible society" an ESG

		Materiality and conducts activities with action plans for "promoting environment-friendly businesses" and "promoting decarbonization" as well as KPIs. ESG initiatives were identified as business foundation strategy in the Medium-Term Business Plan 2017. Moreover, the Medium-Term Business Plan is based on the long-term Obayashi Sustainability Vision 2050 and strategically important decision-making. These activities are having effects on business strategies in the construction and development businesses. The Medium-Term Business Plan 2017 covers the five years from 2017 and 2021, while the long-term Obayashi Sustainability Vision 2050 covers the period until 2050.
Supply chain and/or value chain	Yes	The Obayashi Corporation's supply and value chains can be broadly divided as having to do with either the production and procurement of materials for construction (raw materials, secondary products, equipment, etc.) or the labor at the construction sites (workers). We also need to take into consideration the greenhouse gas emissions from materials production and construction, as they impact the market via Paris Agreement-related national regulations in the same way that products and services do. The national policy for the 2015 Paris Agreement ("Japan's draft agreement") also indicates FY2031.3 emission goals by sector, with materials production and on-site construction falling under production departments and materials transportation falling under transportation departments, so we need to make reductions as appropriate for these. More concretely, measures to reduce greenhouse gas emissions to fight climate change are expected to increase costs through the levying of carbon taxes and additional equipment investments as regulations are strengthened to keep down emissions during materials production and on-site construction. Rising costs can lead to lower competitiveness, missing out on orders, and reduced profitability, so it can have an impact in terms of decreasing sales and revenue. Meanwhile,

		development of materials that minimize greenhouse gas emissions during production can increase competitiveness, expand orders, and have an impact in terms of boosting sales. The Obayashi Corporation also identifies higher prices and procurement costs for energy-consuming construction materials with the introduction of a carbon tax as transition risks in our TCFD scenario analysis, and intends to counter this by "establishing designs and construction technologies for building wooden medium- and high-rise buildings as well as creating relevant supply chains." Moreover, considering that slight temperature increases at construction sites are unavoidable even if we fight climate change, we will see lower work efficiency as working outdoors will be restricted during hot hours (more time for rest needed, etc.), thus leading to new costs as project timelines are extended and work has to be conducted outside regular hours such as when temperatures are lower, which in turn is expected to decrease sales and revenue. The Obayashi Corporation also identifies increased health risks for workers, such as the risk of heat stroke at construction sites when it is hot in summer, and deepening manpower shortages due to worsening working environments as physical risks in our TCFD scenario analysis, and intends to counter this by "further increasing productivity and construction safety using labor-saving technology and ICT" and "developing innovative technologies to improve working conditions at construction sites." The above factors are thought to impact both the construction business and the development business. For materials production, we need to choose and develop low-carbon materials and collaborate with partner companies with regard to this, as well as implement measures to improve fuel efficiency of vehicles during materials transportation. As for labor at construction sites, we need to mechanize, improve equipment, and develop technologies to increase work efficiency, as well as collaborate with partner companies in the same way as for materials production. We aim to resolve the various challenges by reliably implementing measures such as these.

		The corporation identifies "conducting responsible supply chain management" as an ESG priority, has selected "promoting CSR procurement" as an action plan, and defined KPIs. For our activities, we have formulated the Obayashi Group CSR Procurement Policy, and we also expect our supply chains to act in accordance with CSR Procurement Guidelines that are based on the aforementioned policy. As part of this, we are asked to "promote business activities that preserve the environment and reduce the environmental load." Decarbonizing materials production and increasing transportation fuel efficiency belong to the aforementioned initiatives promoted, while in terms of labor, the implementation of energy-saving construction by increasing work efficiency also falls under there. Moreover, to steadily yield results in our development of low-carbon materials and highly efficient construction methods, we select R&D themes with due consideration from the initial stage and anticipate the possibility of collaborating in open innovation, including with our supply chains. The corporation calculates the CO2 emissions of materials production as category 1 "purchased goods / services" of Scope 3 and CO2 emissions of materials transportation as category 4 "transportation and delivery (upstream)," which are included in the calculation of the corporation's "indirect contributions" and "direct contributions" respectively, to evaluate total reduction rate. Moreover, labor refers to activities at construction sites, so that Scope 1 and 2 energy-saving activities influence CO2 emissions and it is calculated as "direct contributions." Moreover, labor refers to activities at construction sites, so that Scope 1 and 2 energy-saving activities influence CO2 emissions and it is calculated as "direct contributions." We connect the green procurement rate for construction materials with emissions reductions by encouraging material choices that take KPIs and

		environmental load into account. As regards the indirect contribution emission reduction rate, the company has set a mid- to long-term target of 25% reduction from the FY2013 level for FY2030 and is continuing its activities. As regards the direct contribution emission reduction rate, the mid- to long-term target is set at 85% below the FY2013 level for FY2030, and activities are continuing, while the FY2021 level is 57% below the FY2013 level. The green procurement rate for construction materials was 47%. This is tied in with our ESG priorities and associated action plans and KPIs. ESG initiatives were identified as business foundation strategy in the Medium-Term Business Plan 2017. Moreover, the Medium-Term Business Plan is based on the long-term Obayashi Sustainability Vision 2050 and strategically important decision-making. The above ESG Materialities "conducting responsible supply chain management" and the action plan "promoting CSR procurement" influence our business strategies for construction and development. The Medium-Term Business Plan 2017 covers the five-year period from 2017 to 2021, while we aim to realize the long-term Obayashi Sustainability Vision 2050 by 2050.
Investment in R&D	Yes	The primary business of the Obayashi Corporation is the construction business, so technologies relevant to construction and buildings and infrastructure have a major impact. The current Medium-Term Business Plan 2017 has as one of its technology strategies "developing technologies that contribute to business by aligning with customer needs, stimulating new demand, and reading the markets and the times." Whether we are able to develop technologies that resonated with market needs and opportunities that have to do with climate change measures will have a major impact on our business. We have to reduce greenhouse gas emissions in accordance with the national policy in the 2015 Paris Agreement as well as other laws and regulations, which also means that we need to develop and possess technologies that match corresponding social needs. Concrete challenges include developing technologies for supplying energy-saving

		construction and energy-saving buildings. The national policy for the 2015 Paris Agreement ("Japan's draft agreement") also defines emission goals for FY2031.3 by sector, with the management of buildings and infrastructure falling under administration departments, materials production and on-site construction under production departments, and materials transportation under transportation departments, so as to anticipate reductions that suit the targets set for each sector. Moreover, the national Energy Basic Plan states that it aims to realize ZEB on average for new public structures by 2020 and for other new structures by 2030, so we anticipate that we need to reduce greenhouse gas emissions accordingly. n the Obayashi Corporation's TCFD scenario analysis, the growing importance of ZEB and energy-saving technologies in response to social needs from expanded demand for energy-saving and renewable energy technologies was identified as a transition opportunity, to which we aim to respond by "promoting the development and practical application of ZEB technology that provides comfort and is business-feasible." More concretely, as keeping down greenhouse gas emissions to fight climate change becomes a social need, we expect to see more orders for ZEB (zero energy buildings) that strive to eliminate greenhouse gas emissions during the management stage of buildings and infrastructure. As part of this, we need to possess technologies and know-how that can meet client needs or we will risk missing more orders and see a drop in sales. On the other hand, if we secure advantages in technologies and know-how, this may increase sales by providing more orders. As regards materials production, the costs of materials when keeping down greenhouse gas emissions during manufacturing affect competitiveness, while the costs of additional equipment to counter rising temperatures during on-site construction can also affect competitiveness. If clients are not happy with the added value that accompany the rising costs, there is a risk that the drop in competitiveness will cause us to lose orders, while securing competitive advantages by curbing costs can lead to expanded orders. Whether we possess such technological ability, technologies, and know-how will impact our construction and development businesses. Research themes are selected annually, and we continuously make technological development investments as appropriate by carefully investigating and reflecting

		national policy, laws and regulations, and social needs. Environment-related R&D expenses are calculated according to the environmental accounting every year and disclosed. R&D is many times carried out over several years, so it can be difficult to evaluate results on a one-year basis, which is why we are looking into techniques for analyzing the effects of adopting our new development technologies in construction and implementing them in buildings and infrastructure by measuring them as indicators of emissions from our direct and indirect contributions. Our environment-related R&D expenses were 4,987 million yen in FY2021.3. The mid- to long-term target for the indirect contribution emission reduction rate is set at 25% below the FY2013 level for FY2030, and the actual result for FY2021 was 26% below the FY2013 level. The company has set a mid- to long-term goal of reducing direct emissions by 85% in FY2030 compared to FY2013 and is continuing these activities. The actual result in FY2021 was 57% below the FY2013 level. Our reduction-rate targets for emissions from direct and indirect contributions were defined in the medium- to long-term Obayashi Green Vision 2050 formulated in 2011, were reaffirmed with the developmental revision into the long-term Obayashi Sustainability Vision 2050 in 2019, and are still used on the basis of strategically important decision-making. Moreover, the Medium-Term Business Plan 2017, which is a business strategy, is based on the long-term Obayashi Sustainability Vision 2050, and it is thought to impact our construction and development businesses since it includes R&D investments. The Medium-Term Business Plan 2017 covers the five-year period from 2017 to 2021, while we aim to realize the long-term Obayashi Sustainability Vision 2050 by 2050.
Operations	Yes	The primary business of the Obayashi Corporation is the construction business, so accurately managing climate change measures that have to do with construction will impact our performance. In order to carefully examine the impact of climate-related risks and opportunities in our business activities and reflect them in our measures, our challenge is to create organizational and standardized mechanisms to be used in our management. We are promoting our business activities with the environment as a principal management item alongside conventional safety and quality. If the activity procedures and targets are insufficiently specified in our management, this

		will reduce the efficacy of our activities to reduce greenhouse gas emissions at construction sites and we will not be able to achieve sufficient reduction effects, which we expect leads to the aforementioned risks under "Products and services," "Supply and value chains," and "R&D investments." On the other hand, if the management is conducted sufficiently, this can allow us to achieve reduction in the various domains as previously explained. These initiatives have an especially major impact on the construction business, but it is important to see them as affecting all businesses and departments since they are the basis of all our business activities. The Obayashi Corporation's TCFD disclosure item "Governance" states that, "Obayashi's CSR Committee was put in place to promote business activities based on the Obayashi Basic Principles and Group-wide CSR activities with an ESG perspective. It is headed up by the Representative Director and President and has a membership consisting of General Managers of divisions and other executive officers. Meeting once a year, the CSR Committee sets basic CSR policies that include initiatives on climate problems, drafts policies and specific action plans, and reviews achievements of initiatives. The ESG & SDGs Department of the Corporate Strategy Division serves as secretariat for the CSR Committee. It drafts, promotes, and monitors the progress of measures to promote ESG management and SDG achievement, disseminates information, instills relevant practices within the Group, and promotes Group-wide initiatives." We have publicized a schematic of our change-related governance structure and organizational overviews of each organization, as well as our activities. The Obayashi Corporation has the aforementioned CSR Committee chaired by the President deliberate on and confirm climate-related risks and opportunities. The Environmental Management Expert Committee, which is a subordinate organization, then revises and promotes measures and implementation plans with environment-related data that have been collected according to the Obayashi Environmental Management System (EMS). The committee also monitors and reviews the setting, implementation, and performance of targets. Furthermore, concrete activities based on the implementation plans and targets defined by the Environmental Management Expert

		Committee are promoted by the environment departments at the main office, the branches, and group companies. The CSR Committee also reports to the Board of Directors, with the board overseeing all climate-related risks and opportunities. Operational effects are evaluated on the basis of progress toward EMS targets and accompanying factor analysis as well as feedback for next-year activities based on that analysis. The EMS targets are defined based on the action plans and KPIs of the ESG Materialities that are linked with the Medium-Term Business Plan. As an example, the action plan "promote decarbonization" has "direct contribution of CO2 emissions reduction rate" as a KPI and a FY2031.3 target of -85% compared to FY2014.3. We conduct business activities to achieve this target by setting "CO2 emissions reduction rate during construction (FY2014.3 baseline)" as annual targets. The FY2021 target was -15%, while the actual result was -17.9%. This is "emissions from construction," which we classify as "direct contributions," so it is a mechanism for reflecting the results of our activities. We ensure the efficacy of our greenhouse gas emission reductions by setting the targets with EMS and having individual business departments manage them. ESG initiatives (ESG Materialities, action plans, and KPIs) were identified as business foundation strategy in the Medium-Term Business Plan 2017. Moreover, the Medium-Term Business Plan is based on the long-term Obayashi Sustainability Vision 2050 and strategically important decision-making. Considering the aforementioned connection with the ESG initiatives, EMS is based on the business strategy of the Medium-Term Business Plan and how well it is managed will have an impact on our businesses. The Medium-Term Business Plan 2017 covers the five-year period from 2017 to 2021, while we aim to realize the long-term Obayashi Sustainability Vision 2050 by 2050.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning	Description of influence

	elements that have been influenced	
Row1	Revenues Direct costs	【Direct costs】 Material costs, labor costs (personnel costs), and direct expenses (utilities costs) fall under direct costs in construction. Material costs include the procurement of construction materials that make up the buildings and affect their environmental specifications. The construction materials procured have a climate effect through the CO2 emitted when they are produced in the factories and transported to the construction sites. The national policy for the 2015 Paris Agreement (the "Japan's draft agreement") indicates FY2031.3 emission goals by sector, with materials production and on-site construction falling under the industry sector and materials transportation falling under the transportation sector, so we need to make reductions as appropriate for these. Moreover, the emissions from the construction work are supply chain emissions from the client's perspective, so we expect calls for reductions there for the same reasons. If costs increase even if we plan the application of materials and equipment with a small environmental load, there will be a higher risk of losing orders as construction costs go up and we lose advantages. Conversely, if we can keep costs from going up, this will allow us to secure advantages in terms of construction costs and obtain more orders. The Obayashi Corporation is promoting ESG initiatives as a business foundation strategy in our Medium-Term Business Plan 2017 for FY2018.3 to FY2022.3. As part of this, we have defined the action plan "promoting CSR procurement" and the KPI "construction materials green procurement rate" for the ESG Materiality "Conducting responsible supply chain management," and are working to apply materials and equipment with a small environmental load. Green procurement refers to initiatives to select and procure materials and equipment with a small environmental load. The indicator that is the green procurement rate reflects how big a part of construction material and equipment procurement costs consists of materials and equipment with a small environmental load, so a higher procurement rate means a smaller environmental load. Achieving the aforementioned KPI, which is a strategic target, means increasing the proportion of construction work that meets the need of smaller environmental load when receiving orders, as we are working to reach the sales and profit targets outlined by the business indicator targets in the Medium-Term Business Plan 2017. Furthermore, the Obayashi Corporation has Green Procurement Guidelines for Office Supplies and Construction Materials and Machinery, thus encouraging the procurement of materials and equipment with a small environmental load in all our business activities. In our procurement, we pay attention to the following aspects of environmental load reduction and environmental conservation. 1) Promoting energy and resource conservation, 2) cutting CO2

		emissions, 3) minimizing waste, 4) promoting recycling, 5) minimizing use of hazardous substances, and 6) preserving surrounding environments and ecosystems. Moreover, when selecting items, we take into consideration if they reduce the environmental load, if they must be procured in great amounts, and if they still have a major environmental load reducing effect, regardless of the amount to be procured, because they come from our own R&D, based on the contents of "designated procurement items" in the Act on Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities (Green Purchasing Act). The principal "designated procurement items" among our construction materials are soil from construction, asphalt concrete, cement, concrete, and steel. The target green procurement rate, an indicator, was set at 55% by FY2021, and the actual rate in FY2021 was 57.5%. This target is reflected in EMS (Environmental Management System). 【Revenue】 The Obayashi Corporation's primary businesses are the construction, development, and green energy businesses. We need to reduce greenhouse gas emissions considerably by strengthening regulations and through other measures as well as implement similar measures on the construction market in accordance with the Japanese national policy for the Paris Agreement in 2015 ("Japan's draft agreement") and the 2050 Carbon Neutrality Declaration of the Japanese government in September 2020. More concretely, we need to reduce CO2 emissions during management, which indicates building performance, and during construction, which requires us in our construction and development businesses to possess construction technologies and know-how for realizing design that accommodate environmental specifications in demand as well as construction that yields as little emissions as people wish to see. Moreover, our green energy business, which centers around the renewable energy business, is subject to an important growth strategy for securing diverse revenue sources as we aim to stably supply CO2-free power. We are already operating 44 power plants in 30 locations as we are advancing commercialization centering on solar and biomass power generation, with a capacity of producing about 154 MW. We are also engaging in large-scale offshore wind power generation, which is currently difficult to commercialize. In the construction and development businesses, there is a higher risk of fewer orders and reduced revenue and profit if we do not possess technologies and know-how for designing and constructing buildings that meet client needs. We also expect opportunities in the form of more orders and increased revenue and profit if we secure advantages with aforementioned technologies and know-how. Whether we are able to research and develop technologies as well as acquire know-how that accord with climate change-related social and market needs and opportunities will have a major impact on our businesses.

		The Medium-Term Business Plan 2017 includes targets for revenue and business profit as business indicators targets. The plan covers the period from FY2018.3 to FY2022.3. The ESG initiatives are our foundational business strategy for achieving those targets, so we are promoting initiatives to solve global environmental problems by defining the action plan "promoting decarbonization" and the indicator KPIs "direct contribution of CO2 emissions reduction rate" and "indirect contribution of CO2 emissions reduction rate" for the ESG Materiality "Establishing an environmentally responsible society." As defined below, "direct contributions" refers to reducing emissions at construction sites while "indirect contributions" refers to reducing emissions from the management of the buildings we design, so we promote the possession and the improvement of technologies and know-how through our business foundation strategy. As previously mentioned, the possession of technologies and know-how impacts revenue and profit, so we aim to improve them for the sake of achieving our business indicator targets. Moreover, we are steadily increasing power generation to reach our targets by continuously investing in our renewable energy business. Direct and indirect contributions are defined as follows. Direct contributions = A + B - C A: Fuel consumption and power purchased at construction sites and in offices (scope 1 + scope 2) B: Transportation of construction materials and waste, commuting of employees and workers (categories 4, 7, 9 in scope 3) C: Emissions corresponding to power generated in renewable energy businessesIndirect contributions = a + b - c a: Annual emissions from operating buildings designed and constructed by the Obayashi Corporation for 35 years after completion b: Production of construction materials (category 1 in scope 3) c: Reduction effect by adoption of energy-saving and low-carbon materials The indicators, targets, and FY2021.3 results for CO2 emission reduction and financial planning are as follows. Construction Work Indicator: direct contributions Target: 85% reduction by FY2031.3 (FY2014.3 baseline) FY2021 results: 57% reduction Design Indicator: indirect contributions Target: 25% reduction by FY2031.3 (FY2014.3 baseline)

		FY2021 results: 26% reduction Renewable energy business Indicator: annual power generation Target: at least 370,000 MWh → CO2 emission conversion 174,000 t-CO2 by FY2022.3 FY 2021: 297.320 MWh → CO2 emissions conversion: 135,000 t-CO2 Sales Indicator: Medium-Term Business Plan 2017 Target: about 2 trillion yen by FY2022.3 FY2021 results: 1766.8 billion yen Operating profit Indicator: Medium-Term Business Plan 2017 Target: about 100 billion yen by FY2022.3 FY2021 results: 98.7 billion yen The investments and initiatives in our construction and development businesses are as follows. Construction business Investments: Construction technology R&D (total of 100 billion yen in the FY2018.3-FY2022.3 plan, 90.7 billion yen in FY2018.3-FY2021.3 results) Initiatives: ・Providing buildings with high environmental performance (ZEB, etc.) ・Promoting energy-saving construction ・Introducing low-carbon materials (applying clean-crete, green procurement, etc.) ・Introducing energy-saving construction machinery ・Realizing autonomous and automatic construction, etc. Development business Investments: Sustainable investments (target of at least 90% of real estate rental business investments, about 94% achieved in FY2021.3)Initiatives: ・Providing green buildings ・Energy-saving investments, etc. Green energy business Investments: Investments into the renewable power generation business, etc. (total of 100 billion yen in the FY2018.3-FY2022.3 plan, 50.5 billion yen in FY2018.3-FY2021.3 results)

		Initiatives: ・Solar power generation business ・Biomass power generation business ・Onshore wind power generation business ・Geothermal and micro hydroelectric power generation business, etc. In FY2021, the construction and development businesses were partially affected by the spread of the new coronavirus infection, but the Company largely achieved the targets of the Medium-term Business Plan 2017, indicating that it is making solid progress in both addressing climate change and securing sales and profits.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's transition to a 1.5°C world?

No, but we plan to in the next two years

C4 Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Absolute target
Intensity target

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Year target was set

2021

Target coverage

Company-wide

Scope(s)

Scope1
Scope2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Base year

2014

Base year Scope 1 emissions covered by target (metric tons CO2e)

145,000

Base year Scope 2 emissions covered by target (metric tons CO2e)

84,000

Base year Scope 3 emissions covered by target (metric tons CO2e)

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

229,000

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

97

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

97

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

97

Target year

2022

Targeted reduction from base year

15

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

194,650

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

146,000

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

42,000

Scope 3 emissions in reporting year covered by target (metric tons CO2e)

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

188,000

% of target achieved relative to base year [auto-calculated]

119.3595342067

Target status in reporting year

Achieved

Is this a science-based target?

Yes, we consider this a science-based target, and the target is currently being reviewed by the Science Based Targets initiative

Target ambition

Well-below 2° C aligned

Please explain target coverage and identify any exclusions

The targets are set on a business year basis.
Short-term target: 15% reduction from FY2013 levels in FY2021 (April 1, 2021 to March 31, 2022), as established by the Environmental Management Expert Committee.

Plan for achieving target, and progress made to the end of the reporting year

List the emissions reduction initiatives which contributed most to achieving this target

Fuel-efficient operation, new power purchase, etc.

Target reference number

Abs 2

Year target was set

2017

Target coverage

Company-wide

Scope(s)

Scope1
Scope2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Base year

2014

Base year Scope 1 emissions covered by target (metric tons CO2e)

145,000

Base year Scope 2 emissions covered by target (metric tons CO2e)

84,000

Base year Scope 3 emissions covered by target (metric tons CO2e)

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

229,000

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

97

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

97

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

97

Target year

2022

Targeted reduction from base year

8

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

210,680

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

146,000

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

42,000

Scope 3 emissions in reporting year covered by target (metric tons CO2e)

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

188,000

% of target achieved relative to base year [auto-calculated]

223.7991266376

Target status in reporting year

Achieved

Is this a science-based target?

Yes, we consider this a science-based target, and the target is currently being reviewed by the Science Based Targets initiative

Target ambition

Well-below 2° C aligned

Please explain target coverage and identify any exclusions

The targets are set on a business year basis.
Medium-term target: "8% reduction compared to FY2014.3 in FY2022.3 (April 1, 2021-March 31, 2022)" formulated by the Environmental Management Committee, which was the predecessor of the Environmental Management Expert Committee, to match the Medium-Term Business Plan.

Plan for achieving target, and progress made to the end of the reporting year

List the emissions reduction initiatives which contributed most to achieving this target

Fuel-efficient operation, new power purchase, etc.

Target reference number

Abs 3

Year target was set

2019

Target coverage

Company-wide

Scope(s)

Scope1
Scope2
Scope3

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Category 4: Upstream transportation and distribution
Category 7: Employee commuting
Category 9: Downstream transportation and distribution

Base year

2014

Base year Scope 1 emissions covered by target (metric tons CO2e)

145,600

Base year Scope 2 emissions covered by target (metric tons CO2e)

93,400

Base year Scope 3 emissions covered by target (metric tons CO2e)

163,000

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

402,000

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

97

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

97

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

97

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

97

Target year

2051

Targeted reduction from base year

85

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

60,300

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

146,300

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

47,200

Scope 3 emissions in reporting year covered by target (metric tons CO2e)

97,000

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

290,500

% of target achieved relative to base year [auto-calculated]

32.6309628329

Target status in reporting year

Underway

Is this a science-based target?

Yes, we consider this a science-based target, and the target is currently being reviewed by the Science Based Targets initiative

Target ambition

1.5° C aligned

Please explain target coverage and identify any exclusions

The targets are set on a business year basis.
Long-term target: "85% reduction compared to FY2014.3 in FY2051.3 (April 1, 2050-March 31, 2051)" formulated in the long-term Obayashi Sustainability Vision 2050.

Plan for achieving target, and progress made to the end of the reporting year

Fuel-efficient operation, purchase of new electricity, purchase of alternative fuels, etc.

List the emissions reduction initiatives which contributed most to achieving this target

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Year target was set

2021

Target coverage

Company-wide

Scope(s)

Scope1
Scope2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Intensity metric

Other, please specify
t-CO2/construction sales (100 million yen)

Base year

2014

Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)

13

Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)

8

Intensity figure in base year for Scope 3 (metric tons CO2e per unit of activity)

Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)

21

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure

97

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure

97

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure

% of total base year emissions in all selected Scopes covered by this intensity figure

97

Target year

2021

Targeted reduction from base year (%)

15

Intensity figure in target year for all selected Scopes (metric tons CO2e per unit of activity) [auto-calculated]

17.85

% change anticipated in absolute Scope 1+2 emissions

14.1

% change anticipated in absolute Scope 3 emissions

Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)

11

Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)

3

Intensity figure in reporting year for Scope 3 (metric tons CO2e per unit of activity)

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)

14

% of target achieved relative to base year [auto-calculated]

222.2222222222

Target status in reporting year

Achieved

Is this a science-based target?

Yes, we consider this a science-based target, and the target is currently being reviewed by the Science Based Targets initiative

Target ambition

Well-below 2° C aligned

Please explain target coverage and identify any exclusions

The targets are set on a business year basis.
Short-term target: "15% reduction compared to FY2014.3 in FY2021.3 (April 1, 2020-March 31, 2021)" formulated by the Environmental Management Expert Committee

Plan for achieving target, and progress made to the end of the reporting year

List the emissions reduction initiatives which contributed most to achieving this target

Fuel-efficient operation
Purchase of new electric power, etc.

Target reference number

Int 2

Year target was set

2017

Target coverage

Company-wide

Scope(s)

Scope1

Scope2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Intensity metric

Other, please specify

t-CO2/construction sales (100 million yen)

Base year

2014

Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)

13

Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)

8

Intensity figure in base year for Scope 3 (metric tons CO2e per unit of activity)

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)

21

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure

97

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure

97

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure

% of total base year emissions in all selected Scopes covered by this intensity figure

97

Target year

2022

Targeted reduction from base year (%)

8

Intensity figure in target year for all selected Scopes (metric tons CO2e per unit of activity) [auto-calculated]

19.32

% change anticipated in absolute Scope 1+2 emissions

-17.9

% change anticipated in absolute Scope 3 emissions

Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)

11

Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)

3

Intensity figure in reporting year for Scope 3 (metric tons CO2e per unit of activity)

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)

14

% of target achieved relative to base year [auto-calculated]

416.6666666667

Target status in reporting year

Achieved

Is this a science-based target?

Yes, we consider this a science-based target, and the target is currently being reviewed by the Science Based Targets initiative

Target ambition

Well-below 2° C aligned

Please explain target coverage and identify any exclusions

The targets are set on a business year basis.
Medium-term target: "8% reduction compared to FY2014.3 in FY2022.3 (April 1, 2021-March 31, 2022)" formulated by the Environmental Management Committee, which was

the predecessor of the Environmental Management Expert Committee, to match the Medium-Term Business Plan.

Plan for achieving target, and progress made to the end of the reporting year

List the emissions reduction initiatives which contributed most to achieving this target

Fuel-efficient operation
Purchase of new electric power, etc.

Target reference number

Int 3

Year target was set

2019

Target coverage

Company-wide

Scope(s)

Scope1
Scope2
Scope3

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Category 4: Upstream transportation and distribution
Category 7: Employee commuting
Category 9: Downstream transportation and distribution

Intensity metric

Other, please specify
t-CO2/construction sales (100 million yen)

Base year

2014

Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)

13

Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)

8

Intensity figure in base year for Scope 3 (metric tons CO2e per unit of activity)

15

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)

36

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure

97

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure

97

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure

97

% of total base year emissions in all selected Scopes covered by this intensity figure

97

Target year

2051

Targeted reduction from base year (%)

85

Intensity figure in target year for all selected Scopes (metric tons CO2e per unit of activity) [auto-calculated]

5.4

% change anticipated in absolute Scope 1+2 emissions

-19

% change anticipated in absolute Scope 3 emissions

-40

Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)

11

Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)

4

Intensity figure in reporting year for Scope 3 (metric tons CO2e per unit of activity)

7

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)

22

% of target achieved relative to base year [auto-calculated]

45.7516339869

Target status in reporting year

Underway

Is this a science-based target?

Yes, we consider this a science-based target, and the target is currently being reviewed by the Science Based Targets initiative

Target ambition

1.5° C aligned

Please explain target coverage and identify any exclusions

The targets are set on a business year basis.
Long-term target: "85% reduction compared to FY2014.3 in FY2051.3 (April 1, 2050-March 31, 2051)" formulated in the long-term Obayashi Sustainability Vision 2050.

Plan for achieving target, and progress made to the end of the reporting year

Fuel-efficient driving
Purchase of new electricity
Alternative fuel purchase, etc.

List the emissions reduction initiatives which contributed most to achieving this target

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Net-zero target(s)

C4.2c

(C4.2c) Provide details of your net-zero target(s).

Target reference number

NZ1

Target coverage

Company-wide

Absolute/intensity emission target(s) linked to this net-zero target

Not applicable

Target year for achieving net zero

2050

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

Please explain target coverage and identify any exclusions

The scope of the program is company-wide, and expansion to the entire group is being considered in the future.

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?

Unsure

Planned milestones and/or near-term investments for neutralization at target year

Planned actions to mitigate emissions beyond your value chain (optional)

The long-term Obayashi Sustainability Vision 2050 from 2019 carries on the targets of the earlier Obayashi Green Vision 2050 (formulated in 2011), but we are considering redefining the targets by carefully comparing how they were defined with SBT standards.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

Stage of development	Number of initiatives	Total estimated annual CO2e savings in metric tons CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	0	0
Implementation commenced*	0	0
Implemented*	3	13,777
Not to be implemented	0	0

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category and Initiative type

Energy efficiency in production processes
Machine/equipment replacement

Estimated annual CO2e savings (metric tons CO2e)
2,290

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 2 (market-based)

Voluntary/ Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
85,935,000

Investment required (unit currency – as specified in C0.4)
60,000,000

Payback period
4-10 years

Estimated lifetime of the initiative
>30 years

Comment
LED

Initiative category and Initiative type

Energy efficiency in production processes
Process optimization

Estimated annual CO2e savings (metric tons CO2e)
10,696

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 1

Voluntary/ Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
451,914,000

Investment required (unit currency – as specified in C0.4)
0

Payback period
No payback

Estimated lifetime of the initiative
16-20 years

Comment

Fuel-efficient operations

Initiative category and Initiative type

Other, please specify

Other, please specify

Purchase of low-carbon energy

Estimated annual CO2e savings (metric tons CO2e)

791

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 2 (market-based)

Voluntary/ Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

10,990,128

Investment required (unit currency – as specified in C0.4)

0

Payback period

<1 year

Estimated lifetime of the initiative

6-10 years

Comment

New energy purchasing performance

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for energy efficiency	Budget for developing technologies to strengthen buildings' energy conservation standards.
Internal incentives/recognition programs	We have an "environmental award" system for initiatives on environmental effects (reducing greenhouse gas emissions, reducing energy usage, increasing efficiency) that constitute activities of remarkable merit or that are otherwise exemplary. Moreover, the personnel evaluation of employees include items on environment-related initiatives, which are reflected in salaries.

Dedicated budget for other emissions reduction activities	Budget for promoting the renewable energy business of the Obayashi Corporation and Group companies. Includes business review budget and technological development budget for solar and biomass power generation, hydrogen use, and so forth.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation

Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon

Other, please specify

JIS

Type of product(s) or service(s)

Cement and concrete

Other, please specify

Low carbon concrete

Description of product(s) or service(s)

By reusing blast furnace slag fine powder and other by-products generated at steel mills, CO2 emissions from materials used have been significantly reduced (by up to 80%).

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

The Avoided Emissions Framework (AEF)

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Cradle-to-gate

Functional unit used

t-CO2

Reference product/service or baseline scenario used

General Concrete

Life cycle stage(s) covered for the reference product/service or baseline scenario

Cradle-to-gate

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

15,223

Explain your calculation of avoided emissions, including any assumptions

Obayashi Corporation's low-carbon concrete, Clean-Crete, is a concrete that reduces CO2 emissions by up to 80% compared to ordinary concrete by replacing some of the cement with blast furnace slag fine powder, a by-product of steel production, and fly ash, a by-product of coal-fired power generation. While the production of ordinary concrete emits approximately 260 kg of CO2 per m^3, the production of Clean-Crete can reduce CO2 emissions by up to approximately 50 kg, resulting in a maximum emissions reduction of approximately 80%.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

8

Level of aggregation

Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon

Other, please specify

CASBEE

Type of product(s) or service(s)

Buildings construction and renovation

Other, please specify

Construction of buildings with specifications compliant with CASBEE criteria

Description of product(s) or service(s)

CASBEE is a system that evaluates environmental performance by calculating emissions, etc. during building operation at the time of design. It enables comparison and calculation of reductions because emissions during operation can be calculated for both the designed property and a typical building.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Estimating and Reporting the Comparative Emissions Impacts of Products (WRI)

Life cycle stage(s) covered for the reference product/service or baseline scenario

Use stage

Functional unit used

t -CO2

Reference product/service or baseline scenario used

Reference building in CASBEE calculations

Life cycle stage(s) covered for the reference product/service or baseline scenario

Use stage

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

22,712

Explain your calculation of avoided emissions, including any assumptions

When environmental performance is evaluated by CASBEE, emissions during building operation can be calculated per unit area. In this process, the emissions of a typical building are calculated as the reference building and the emissions of the designed building as the building in question, so the difference between the two can be calculated as the CO2 emission reduction rate and the amount of reduction.

For example, if the reference building is 100 kg-CO2/m2/year and the building in question is 70 kg-CO2/m2/year, then 1-80/100 = 0.2, a 20% reduction rate. If the total floor area is 10,000 m2, the reference building is 100 kg-CO2/m2/year x 10,000 m2 = 1,000 t-CO2/year, and the building in question is 80 kg-CO2/m2/year x 10,000 m2 = 800 t-CO2/year, resulting in an annual reduction of 1000 - 800 = 200 t-CO2/year.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

42.1

C5 Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row1

Has there been a structural change?

No

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?
Row1	No

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start

1st April, 2013

Base year end

31st March, 2014

Base year emissions (metric tons CO2e)

145,315

Comment

・Since FY1999.3, we have tracked use of electricity, diesel, kerosene, and gas at our offices and construction sites based on the calculation criteria in the Guidelines for Environmental Accounting in Construction (JFCC) with regard to Scope 1 and 2 emissions. ・The tallying procedures are as follows. 1) For construction sites, tally and calculate emissions for energy use based on EMS and CO2 emission tallying systems. 2) For permanent departments, tally energy use and calculate emissions for store facilities, equipment centers, etc., based on EMS and other surveys.

Scope 2(location-based)

Base year start

1st April, 2013

Base year end

31st March, 2014

Base year emissions (metric tons CO2e)

90,558

Comment

・Since FY1999.3, we have tracked use of electricity, diesel, kerosene, and gas at our offices and construction sites based on the calculation criteria in the Guidelines for Environmental Accounting in Construction (JFCC) with regard to Scope 1 and 2 emissions. ・The tallying procedures are as follows. 1) For construction sites, tally and calculate emissions for energy use based on EMS and CO2 emission tallying systems. 2) For permanent departments, tally energy use and calculate emissions for store facilities, equipment centers, etc., based on EMS and other surveys.

Scope 2(market-based)

Base year start

1st April, 2013

Base year end

31st March, 2014

Base year emissions (metric tons CO2e)

91,066

Comment

・Since FY1999.3, we have tracked use of electricity, diesel, kerosene, and gas at our offices and construction sites based on the calculation criteria in the Guidelines for Environmental Accounting in Construction (JFCC) with regard to Scope 1 and 2 emissions. ・The tallying procedures are as follows. 1) For construction sites, tally and calculate emissions for energy use based on EMS and CO2 emission tallying systems. 2) For permanent departments, tally energy use and calculate emissions for store facilities, equipment centers, etc., based on EMS and other surveys.

Scope 3 category 1: Purchased goods and services

Base year start

1st April, 2019

Base year end

31st March, 2020

Base year emissions (metric tons CO2e)

1,321,400

Comment

Scope 3 category 2: Capital goods

Base year start

1st April, 2019

Base year end

31st March, 2020

Base year emissions (metric tons CO2e)

7,000

Comment

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

1st April, 2019

Base year end

31st March, 2020

Base year emissions (metric tons CO2e)

12,700

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start

1st April, 2019

Base year end

31st March, 2020

Base year emissions (metric tons CO2e)

9,400

Comment

Scope 3 category 5: Waste generated in operations

Base year start

1st April, 2019

Base year end

31st March, 2020

Base year emissions (metric tons CO2e)

98,600

Comment

Scope 3 category 6: Business travel

Base year start

1st April, 2019

Base year end

31st March, 2020

Base year emissions (metric tons CO2e)

1,700

Comment

Scope 3 category 7: Employee

Base year start

1st April, 2019

Base year end

31st March, 2020

Base year emissions (metric tons CO2e)

19,600

Comment

Scope 3 category 8: Upstream leased assets

Base year start

1st April, 2019

Base year end

31st March, 2020

Base year emissions (metric tons CO2e)

200

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start

1st April, 2019

Base year end

31st March, 2020

Base year emissions (metric tons CO2e)

38,000

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Not relevant
As a construction company, the company's end product is construction products.
Therefore, the company does not sell intermediate products.

Scope 3 category 11: Use of sold products

Base year start

1st April, 2019

Base year end

31st March, 2020

Base year emissions (metric tons CO2e)

2,590,000

Comment

Scope 3 category 12: End of life treatment of sold products

Base year start

1st April, 2019

Base year end

31st March, 2020

Base year emissions (metric tons CO2e)

34,300

Comment

Scope 3 category 13: Downstream leased assets

Base year start

1st April, 2019

Base year end

31st March, 2020

Base year emissions (metric tons CO2e)

5,500

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

5,500

Comment

Not relevant

As the largest general construction company in Japan, the main business is large-scale construction work, which differs from management development through franchising, as is carried out by housing manufacturers. Therefore, the question is not relevant because the company does not engage in any business that falls under the category of franchise.

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Not relevant

According to the Basic Guidelines for Calculating Greenhouse Gas Emissions through Supply Chains issued by the Ministry of the Environment and the Ministry of Economy, Trade and Industry, the category concerned applies to investment businesses (businesses that invest for profit) and businesses that provide financial services and are mainly for private financial institutions (commercial banks, etc.). This does not apply to our business as a construction company.

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Not relevant

CO2 emissions associated with manufacturing of leased assets (upstream), such as construction machinery and temporary materials used at construction sites and fixtures and fittings used at offices, were not calculated because it is difficult to obtain information due to the wide variety of lease sources.

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Not relevant

CO2 emissions from dismantling and disposal of leased assets (downstream), namely construction equipment and temporary materials used at construction sites and fixtures and fittings used at offices, were not calculated because it is difficult to obtain information due to the wide range of leased assets.

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

Other, please specify

Environmental Accounting Guidelines for the Construction Industry (Japan Construction Industry Association)

C6 Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

146,656

Comment

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

49,482

Scope 2, market-based (if applicable)

47,466

Comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

1,439,400

Emissions calculation methodology

Spend-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The company always keeps track of the results of purchases and procurement from material manufacturers in construction through the in-house system. This resulted in the calculation of the amount of major construction materials (steel frame, rebar, cement, ready-mixed concrete, and water) to be used in FY2021. The CO2 emissions intensity during material production takes into account the life cycle assessment and uses the LCI database IDEAv2.

Capital goods

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

12,300

Emissions calculation methodology

Spend-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

This is independently computed by the Obayashi Corporation.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

29,500

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The Obayashi Corporation by itself. Calculated based on our total energy use from our ISO14001: Environmental Management System (EMS) as well as "average emission intensity of all power sources based on content analysis of energy greenhouse gas composition."

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

8,600

Emissions calculation methodology

Spend-based method
Fuel-based method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

Independently computed by the Obayashi Corporation. The corporation constantly monitors records of purchases and procurement from material makers during construction, doing so via our internal management systems. The Company calculated the weight of each major material based on the construction and procurement results for FY2021. Referencing the survey results of the former Environmental Load Expert Committee of the BCS (present-day Japan Federation of Construction Contractors), we estimate the average transportation distance for each material and use emission intensity from the fuel use intensity of the ton-kilometer method.

Waste generated in operations

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

191,200

Emissions calculation methodology

Waste-type-specific method

Other, please specify

Waste emissions from new construction x CO2 emissions intensity of treatment and disposal

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

Independently computed by the Obayashi Corporation.
According to the Basic Guidelines on Calculating Greenhouse Gas Emissions through Supply Chains of the Ministry of the Environment and the Ministry of Economy, Trade and Industry, "CO2 emissions from construction waste transportation can optionally be included in Category 5 (waste from business)." We count it as emissions from waste transportation under a separate item for emission sources called [Downstream transportation and distribution].

Business travel

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

1,800

Emissions calculation methodology

Other, please specify

The Company calculated the emissions intensity per employee based on the Guidelines for Calculating Greenhouse Gas Emissions through Supply Chains issued by the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan [Number of employees x CO2 emission intensity per employee].

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

Independently computed by the Obayashi Corporation.

Employee commuting

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

18,800

Emissions calculation methodology

Other, please specify

Based on the Basic Guidelines for Calculating Greenhouse Gas Emissions through Supply Chains issued by the Ministry of the Environment and the Ministry of Economy, Trade and Industry, the Company calculated the emissions intensity for construction worker commuting based on [distance travelled/fuel consumption x CO2 emissions intensity from diesel oil] and for employee commuting based on [transportation expense paid by each transportation category x emissions intensity per transportation expense paid by each transportation category].

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

Independently computed by the Obayashi Corporation.
Based on the Basic Guidelines on Calculating Greenhouse Gas Emissions through Supply Chains of the Ministry of the Environment and the Ministry of Economy, Trade and Industry,

1.we calculate CO2 emissions from construction worker commutes by multiplying the CO2 emission coefficient by the amount of diesel used from average commute distance, number of persons traveling together, and fuel, converted using the total number of workers from labor safety management data.

2.CO2 emissions from employee commutes is calculated multiplying allowance for commuting by train, bus, ferry, taxi, or private car by emission intensity per travel allowance according to traffic zone.

Upstream leased assets

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

200

Emissions calculation methodology

Other, please specify

Company-owned car and car lease x average transportation distance x CO2 emission intensity
This is calculated using the "ton-kilometer method" in conformance with the Basic Guidelines on Calculating Greenhouse Gas Emissions through Supply Chains of the Ministry of the Environment and the Ministry of Economy, Trade and Industry.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

We include CO2 emissions from the transportation of construction machinery and provisional materials at construction sites that correspond to lease assets (upstream) in Scope 1 of the annual environmental report.
At present, we are including this by calculating it from gasoline use surveyed and tallied from supply chains through our Tokyo head office and branches (13 locations) in ISO14001 and EMS (Environmental Management System).

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

71,000

Emissions calculation methodology

Other, please specify

Waste emissions from new construction and dismantling x average transportation distance x CO2 emission intensity

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

See entry for mission source [Waste generated in operations].

Processing of sold products

Evaluation status

Not relevant, explanation provided

Please explain

As a construction company, we consider buildings to be finished products. As such, we do not sell intermediate products, so this is not relevant.

Use of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

1,212,300

Emissions calculation methodology

Methodology for direct use phase emissions, please specify

The amount is recorded for the year of completion of construction in FY2021. The calculation is based on the CASBEE emissions per area during operation of the in-house-designed and -constructed property x total floor area x 35 years in service.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The amount is recorded for the year of completion of construction in FY2021. The calculation is based on the CASBEE emissions per area during operation of the in-house designed and constructed property x total floor area x 35 years in service.

End of life treatment of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

51,100

Emissions calculation methodology

Waste-type-specific method

Other, please specify

Waste emissions from dismantling x CO2 emission intensity from processing and disposal

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

CO2 emissions accompanying construction and building dismantling are calculated according to the case, including structure and usage. Moreover, for buildings designed by ourselves, we include CO2 emissions during dismantling when calculating LCCO2 with CASBEE (Comprehensive Assessment System for Built Environment Efficiency). However, the buildings we construct will not necessarily be dismantled by ourselves in the future. Moreover, as buildings' years of durability and destruction period differ greatly between decades because of methods of operations, maintenance, and management, so it is impossible to predict how and when our structures will be dismantled. Thus, we are unable to predict annual CO2 emissions for this. Therefore, for disposal of products sold, the Company decided to use the CO2 emissions from construction waste from demolition work (including demolition of existing structures for new construction) for which the company received orders in FY2021, instead of demolition treatment and disposal for projects constructed, as the CO2 emissions from the treatment and disposal of such waste. Moreover, we count CO2 emissions from transportation of construction waste in connection with dismantling as emissions from

waste transportation under a separate item for emission sources called [Downstream transportation and distribution].

Downstream leased assets

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

12,100

Emissions calculation methodology

Lessor-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

Independently computed by the Obayashi Corporation.
Calculated based on the leased building area x Building Energy Consumption Survey Report [Report 43].

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

As one of Japan's biggest comprehensive construction companies, we primarily engage in large-scale construction jobs, which differ from businesses by franchises such as house builders. So, since we do not conduct business that corresponds to franchises, this question is not relevant.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

According to the Basic Guidelines on Calculating Greenhouse Gas Emissions through Supply Chains of the Ministry of the Environment and the Ministry of Economy, Trade and Industry, this category applies to investors (businesses that invest for profit) as well as businesses that offer financial services, so it is mainly for private financial institutions (commercial banks, etc.). This does not apply to our businesses as we are a construction company.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Please explain

We do not calculate CO2 emissions associated with lease assets (upstream) in the form of construction machinery and provisional materials used at construction sites as well as the "manufacturing" of appliances and equipment used in offices. This is because the information is difficult to obtain as we deal with many different leasers.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Please explain

We do not calculate CO2 emissions associated with lease assets (downstream) in the form of construction machinery and provisional materials used at construction sites as well as the "dismantling and disposal" of appliances and equipment used in offices. This is because the information is difficult to obtain as we deal with many different leasers.

C-CN6.6/C-RE6.6

(C-CN6.6/C-RE6.6) Does your organization assess the life cycle emissions of new construction or major renovation projects?

	Assessment of life cycle emissions	Comment
Row1	Yes, quantitative assessment	When receiving orders for new constructions or large-scale repair projects in our construction business, we largely categorize orders as either including both design and construction or including only construction. We are able to consider and make implementations for life-cycle greenhouse gas emissions more independently with design and construction jobs. Of the design and construction projects undertaken by the Obayashi Corporation, nearly all new constructions have their environmental specifications assessed using CASBEE. CASBEE assesses environmental efficiency and life cycle CO2 by calculating "life cycle" CO2 emissions as a sum of annual emissions per floor area at different stages: during "construction," "during repairs, improvements, and dismantling," and during "operations." This can be said to allow us to make quantitative assessments of individual properties for specific years based on those figures.

C-CN6.6a/C-RE6.6a

(C-CN6.6a/C-RE6.6a) Provide details of how your organization assesses the life cycle emissions of new construction or major renovation projects.

	Projects assessed	Earliest project	Life cycle stage(s)	Methodologies/stand	Comment

		phase that most commonly includes an assessment	most commonly covered	ards/tools applied	
Row1	All new construction and major renovation projects	Design phase	Cradle-to-gate	Other, please specify CASBEE Using assessments from CASBEE (Comprehensive Assessment System for Built Environment Efficiency)	CASBEE (Comprehensive Assessment System for Built Environment Efficiency) is a comprehensive assessment system of not only environment-friendly performance in the form of energy conservation and the use of materials and equipment with low environmental load but also the quality of the building, including how comfortable the rooms are and the scenery. CASBEE has been continuously developed and maintained by the Institute for Building Environment and Energy Conservation since a research committee for the comprehensive environmental assessment of buildings was set up as part of an industry-government-academia collaborative project with support from the Housing Bureau of the Ministry of Land, Infrastructure, Transport and Tourism in April 2001. As buildings are used over several decades, the Obayashi Corporation assesses annual emissions per floor space during "operations" as a ratio compared to the emissions of a reference building, as calculated by CASBEE. As CASBEE is revised at regular intervals, we set targets every year using those ratios with the aim of providing the market with buildings that are always more advanced than the average buildings suggested by CASBEE.

C-CN6.6b/C-RE6.6b

(C-CN6.6b/C-RE6.6b) Can you provide embodied carbon emissions data for any of your organization's new construction or major renovation projects completed in the last three years?

	Ability to disclose embodied carbon emissions	Comment
Row1	Yes	The Obayashi Corporation assesses the buildings it designs and constructs in a given year using CASBEE, tallies differences in CO2 emissions during operations between the "reference buildings" that CASBEE indicates as average every year and the "relevant buildings" based on the design specifications, and publicizes our annual reductions. The actual values are: FY2019 = 30,000 t-CO2, FY2020 = 33,000 t-CO2, FY2021 = 22,000 t-CO2.

C-CN6.6c/C-RE6.6c

(C-CN6.6c/C-RE6.6c) Provide details of the embodied carbon emissions of new construction or major renovation projects completed in the last three years.

Year of completion

2022

Property sector

Other, please specify

New design and construction projects

Type of project

New construction

Project name/ID (optional)

Newly designed and constructed properties in FY2021

Life cycle stage(s) covered

Use stage

Normalization factor (denominator)

Other, please specify

Based on calculations according to the Building Standards Act

Denominator unit

square meter

Embodied carbon (kg/CO2e per the denominator unit)

22,712,000

(%) of new construction/major renovation projects in the last three years covered by this metric (by floor area)

26.26

Methodologies/standards/tools applied

Other, please specify

CASBEE

Comment

The total annual emissions of the reference building and the building in question are calculated from the operational emissions by CASBEE for new buildings designed and constructed in FY2021, and the difference is calculated as the amount of reduction. The coverage ratio is calculated as a percentage of the annual construction floor area.

Year of completion

2021

Property sector

Other, please specify

New design and construction projects

Type of project

New construction

Project name/ID (optional)

New design and construction projects in FY2021.3

Life cycle stage(s) covered

Use stage

Normalization factor (denominator)

Other, please specify

Based on calculations according to the Building Standards Act

Denominator unit

square meter

Embodied carbon (kg/CO2e per the denominator unit)

33,399,000

(%) of new construction/major renovation projects in the last three years covered by this metric (by floor area)

38.61

Methodologies/standards/tools applied

Other, please specify

CASBEEy

Comment

We calculate the total annual emissions of "reference buildings" and "relevant buildings" from CASBEE's emissions during operations for new design and construction projects in FY2021.3, and estimate our reductions based on the difference. We calculate the coverage rate using the ratio to annually constructed floor space

Year of completion

2020

Property sector

Other, please specify

New design and construction projects

Type of project

New construction

Project name/ID (optional)

New design and construction projects in FY2020.3

Life cycle stage(s) covered

Use stage

Normalization factor (denominator)

Other, please specify

New design and construction projects

Denominator unit

square meter

Embodied carbon (kg/CO2e per the denominator unit)

30,385,000

(%) of new construction/major renovation projects in the last three years covered by this metric (by floor area)

35.13

Methodologies/standards/tools applied

Other, please specify

CASBEE

Comment

We calculate the total annual emissions of "reference buildings" and "relevant buildings" from CASBEE's emissions during operations for new design and construction projects in FY2020.3, and estimate our reductions based on the difference. We calculate the coverage rate using the ratio to annually constructed floor space.

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

14.56

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

194,122

Metric denominator

unit total revenue

Metric denominator: Unit total

13,329.1

Scope 2 figure used

Market-based

% change from previous year

2.86

Direction of change

Increased

Reason for change

Total revenue (sales) output level
Net sales increased 10.7% over the previous year, and in FY2021, our non-consolidated Scope 2 emissions were reduced by approximately 16.2% from the previous year due to increased labour productivity and reduced work hours at construction sites. On the other hand, total CO2 emissions increased by 13.8% due to an increase in large excavation projects, resulting in a 2.86% increase in emissions per unit of sales in FY2021 compared to FY2020.

Intensity figure

14.54

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

194,122

Metric denominator

Other, please specify

施工高

Metric denominator: Unit total

13,351.2

Scope 2 figure used

Market-based

% change from previous year

1.39

Direction of change

Increased

Reason for change

Construction volume output level

The denominator is FY2022.3 construction volume.

CO2 emissions per construction volume were calculated using construction volume (in Japanese yen), which is the main business, as the denominator. Construction work, the main business, increased 12.32% from the previous year. In FY2021, the non-consolidated Scope 2 emissions were reduced by approximately 16.2% from the previous year due to increased labour productivity and reduced work hours at construction sites. However, total CO2 emissions increased by 13.8% due to an increase in large excavation projects, resulting in an increase in FY2021 emissions per unit of construction of 1.39% compared to FY2020.

C7 Emissions breakdown

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

No

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
Japan	146,656

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division
By activity

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric tons CO2e)
Civil Engineering	69,623
Building Construction	76,712
Other	321

C7.3c

(C7.3c) Break down your total gross global Scope 1 emissions by business activity.

Activity	Scope 1 emissions (metric tons CO2e)
Office	146,335
Construction	321

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Japan	49,482	47,466

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division
By activity

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Civil Engineering	22,030	21,194

Building Construction	21,438	20,427
Other	6,014	5,845

C7.6c

(C7.6c) Break down your total gross global Scope 2 emissions by business activity.

Activity	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Office	43,468	41,621
Construction	6,014	5,845

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Increased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

Reason	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	12,742	Decreased	7.48	Total CO2 emissions (Scope 2) in FY2021 decreased compared to FY2020 due to lower emission coefficients of the electric power companies (Tohoku Electric Power, Tokyo Electric Power, Chubu Electric Power, and Chugoku Electric Power) with which Obayashi Corporation has contracts. The amount of change (decrease) was Σ(FY2020 electricity consumption x FY2020 emission factor) - (FY2021 electricity consumption x FY2021 emission factor), which is 12,742 t-CO. The ratio of the amount of change (decrease) to the total amount of CO2 emissions (Scope 1 + 2) in FY2020 (reported value for FY2020 (actual value for FY2020): 170,421t-

				CO2(*)) is 12,742t-CO2/170,421t-CO2= 7.48%. * Our FY2021.3 results were changed from the values in our previous CDP response following third-party verification.
Other emissions reduction activities	2,290	Decreased	1.34	Regarding FY2022.3 total CO2 emissions (Scope 2), we estimate a 2,290 t-CO2 reduction thanks to the promotion of LED temporary lighting at Obayashi Corporation construction sites. The ratio of the amount of change (decrease) to the total amount of CO2 emissions (Scope 1 + 2) in FY2020 (reported value for FY2020 (actual value for FY2020): 170,421t-CO2(*)) was 2,290t-CO2/170,421t-CO2 = 1.34%. * The FY2020 actual values have been changed from the previous CDP response values due to third-party verification.
Divestment	0	No change	0	Not Applicable
Acquisitions	0	No change	0	Not Applicable
Mergers	0	No change	0	Not Applicable
Change in output	32,760	Increased	19.22	Emissions in FY2021 (Scope 1) increased by 32,760 t-CO2 compared to FY2020, mainly due to the greater use of heavy excavation equipment and pile-driving machines at construction sites than in FY2020, despite efforts to reduce CO2 emissions through fuel-efficient operations at construction sites, etc. The ratio of the amount of change (increase) to the total amount of CO2 emissions (Scope 1 + 2) in FY2020 (reported value for FY2020 (actual value for FY2020): 170,421t-CO2 (*)) was 32,760t-CO2/170,421t-CO2 = 19.22%. * The FY2020 actual values have been changed from the previous CDP response values due to third-party verification.

Change in methodology	0	No change	0	Not Applicable
Change in boundary	0	No change	0	Not Applicable
Change in physical operating conditions	0	No change	0	Not Applicable
Unidentified	0	No change	0	Not Applicable
Other	0	No change	0	Not Applicable

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

C8 Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

Activity	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	No

Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

Activity	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable + non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	596,690	596,690
Consumption of purchased or acquired electricity		0	299,275	299,275
Consumption of purchased or acquired steam		0	4	4
Consumption of self-generated non-fuel renewable energy		822		822
Total energy consumption		822	895,969	896,791

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

Fuel application	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	No
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Other biomass

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Other renewable fuels (e.g. renewable hydrogen)

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Coal

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Oil

Heating value

HHV

Total fuel MWh consumed by the organization

595,534

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Gas

Heating value

HHV

Total fuel MWh consumed by the organization

1,156

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Mainly used in offices (East Japan Robotics Center, West Japan Robotics Center, Kyushu Machinery Works, Osaka Kizai Center), cafeterias, etc.

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self- cogeneration or self-trigeneration

84

Comment

Mainly used in offices (East Japan Robotics Center, West Japan Robotics Center, Kyushu Machinery Plant, Osaka Kizai Center), cafeterias, etc.

Total fuel

Heating value

HHV

Total fuel MWh consumed by the organization

596,690

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self- cogeneration or self-trigeneration

84

Comment

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

Energy Carrier	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	926	906	842	822
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero or near-zero emission factor in the market-based Scope 2 figure reported in C6.3.

Sourcing method

Green electricity products from an energy supplier (e.g. green tariffs)

Energy carrier

Electricity

Low-carbon technology type

Renewable energy mix, please specify

Solar, biomass, hydropower, etc.

Country/area of low-carbon energy consumption

Japan

Tracking instrument used

NFC - Renewable

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

9,513

Country/area of origin (generation) of the low-carbon energy or energy attribute

Japan

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2,016

Comment

C8.2g

(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.

Country/area

Japan

Consumption of electricity (MWh)

299,275

Consumption of heat, steam, and cooling (MWh)

4

Total non-fuel energy consumption (MWh) [Auto-calculated]

299,279

C9 Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Waste

Metric value

15.6

Metric numerator

Construction waste emissions from new construction (excl. sludge) [t]

Metric denominator (intensity metric only)

Civil engineering construction volume for that year [100,000,000 yen]

% change from previous year

22.8

Direction of change

Increased

Please explain

We tally the total of construction waste excluding sludge from new construction based on the manifestos as well as calculate construction volume output level from the annual construction volume for new construction. We assess the emission reduction rate by looking at aging for construction volume proportion. The increase in FY2021 was due to an increase in the number of large properties using the reverse casting method from FY2020.

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row1	Yes	The Obayashi Corporation is a construction business and is investing in the development of technologies for environmental performance and construction that conserve energy as low-carbon products as well as technologies for building management as services. In FY2022.3, "environment-related development costs" corresponded to 5,886,000,000 yen of environmental preservation costs.

C-CN9.6a/C-RE9.6a

(C-CN9.6a/C-RE9.6a) Provide details of your organization's investments in low-carbon R&D for real estate and construction activities over the last three years.

Technology area

Unable to disaggregate by technology area

Stage of development in the reporting year

Average % of total R&D investment over the last 3 years

41 - 60%

R&D investment figure in the reporting year (optional)

5,886,000

Comment

Since the construction of buildings involves introducing facilities and equipment to improve performance during operations (incl. designs), selecting and applying materials and products used, and packaging safety and other diverse functions, our R&D also requires complex and diversified consideration. The same goes for R&D expenditures, so we do not extract them individually but count them as "environment-related development costs."

C-CN9.10/C-RE9.10

(C-CN9.10/C-RE9.10) Did your organization complete new construction or major renovations projects designed as net zero carbon in the last three years?

No, but we plan to in the future

C-CN9.11/C-RE9.11

(C-CN9.11/C-RE9.11) Explain your organization’s plan to manage, develop or construct net zero carbon buildings, or explain why you do not plan to do so.

Obayashi Corporation's scope of work includes construction and some design. For management, development, and construction of net zero carbon buildings, it is necessary to achieve zero emissions not only during construction, but also during operation and demolition, and this cannot be achieved solely within the scope of the Company's business. For these reasons, the construction industry cannot be directly involved; on the other hand, however, it is indirectly involved in supplying buildings that reduce emissions during operation, but the Company sees this as the responsibility of the construction industry. However, with the current situation, in which the promotion of ZEB also aims for a reduction of 50% or more in building performance, it must be said that it is difficult in terms of both technology and cost to achieve zero emissions during operation by building performance alone. For emissions that cannot be compensated for by building performance, the project owner will procure CO2-free energy during operation. Such a scheme – that is, one for project involvement over the life cycle – is under consideration, but there are no concrete plans at this time.

C10 Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

Scope	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions and attach the relevant statements.

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for reporting year - previous statement of process attached

Type of verification or assurance

Limited assurance

Attach the statement

【Obayashi Corporation】Verification Report of Environmental Information.pdf

Page/section reference

1/1

Relevant standard

ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)

100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for reporting year - previous statement of process attached

Type of verification or assurance

Limited assurance

Attach the statement

【Obayashi Corporation】Verification Report of Environmental Information.pdf

Page/section reference

1/1

Relevant standard

ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)

100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category

Scope 3: Purchased goods and services
Scope 3: Capital goods
Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)
Scope 3: Upstream transportation and distribution
Scope 3: Waste generated in operations
Scope 3: Business travel
Scope 3: Employee commuting
Scope 3: Upstream leased assets
Scope 3: Downstream transportation and distribution
Scope 3: Use of sold products
Scope 3: End-of-life treatment of sold products
Scope 3: Downstream leased assets

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for reporting year - previous statement of process attached

Type of verification or assurance

Limited assurance

Attach the statement

【Obayashi Corporation】Verification Report of Environmental Information.pdf

Page/section reference

1/1

Relevant standard

ABNT NBR ISO 14064-3:2007 (Associação Brasileira de Normas Técnicas)

Proportion of reported emissions verified (%)

100

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

No, we do not verify any other climate-related information reported in our CDP disclosure

C11 Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

Tokyo CaT - ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

Tokyo CaT - ETS

% of Scope 1 emissions covered by the ETS

0.86

% of Scope 2 emissions covered by the ETS

8.65

Period start date

1st April, 2020

Period end date

31st March, 2025

Allowances allocated

0

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

973.7

Verified Scope 2 emissions in metric tons CO2e

4,900

Details of ownership

Other, please specify

Facilities either partly or fully owned and managed by us

Comment

We report the CO2 emissions of our offices and facilities in Tokyo Metropolis (offices and facilities with oil equivalent energy usage of at least 30 kL and less than 1,500 kL in the previous fiscal year) in accordance with the Tokyo Metropolitan Government's Program for Reporting on Measures against Global Warming. This system is part of the urban cap & trade system for office buildings, etc. that is led by Tokyo Metropolis. Since the deadline for submitting the FY2022.3 results has yet to come, the reported values are from the FY2021.3 results.

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

The Obayashi Corporation owns offices as bases for our business activities. As with the activities at our construction sites, office energy use and concomitant greenhouse gas emissions have to be considered in terms of climate change measures for our business activities and it is important that we keep emissions down. Especially in Tokyo where we have greatest number of employees, we report the CO2 emissions of our offices and facilities in Tokyo Metropolis (offices and facilities with oil equivalent energy usage of at least 30 kL and less than 1,500 kL in the previous fiscal year) in accordance with the Tokyo Metropolitan Government's Program for Reporting on Measures against Global Warming. The following are measures we implement and promote to cut emissions.

1. We are utilizing the ISO14001 organizational system that we are operating inside the Obayashi Corporation to promote energy conservation, appointing an energy conservation manager at each store and creating a system for promoting activities.

2. We measure the energy use figures of each department annually and announce them to all employees through the abovementioned system, thereby seeking to raise everyone's energy conservation awareness.

By making reports according to this system, we encourage higher awareness about emissions from office activities and thus contribute to keeping CO2 emissions down. Offices are in constant use, so we will continue the virtuous circle of raising awareness and promoting reduced emissions. The FY2021 report is currently under acceptance inspection (due at the end of August), and the total CO2 emissions for FY2020 were 5,873.7t-CO2 (973.7t-CO2 for Scope 1 and 4,900t-CO2 for Scope 2), a decrease from 6569.8t-CO2 for the previous year. 2, a decrease from 6569.8t-CO2 in the previous year.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

No, and we don't anticipate doing so in the next two years

C12 Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our customers/clients

Yes, other partners in the value chain

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement and Details of engagement

Collaboration & innovation

Run a campaign to encourage innovation to reduce climate change impacts

% of customers by number

100

% customer-related Scope 3 emissions as reported in C6.5

40.2

Please explain the rationale for selecting this group of customers and scope of engagement

In the Obayashi Corporation's corporate code of conduct, which is based on the Obayashi Basic Principles, prescribes items like "environment-friendly society-building" and "providing high-quality structures and services" as "indicators for remaining a company trusted by all stakeholders." We also provide all our clients (orderers) with environment-friendly technology, etc.

As such, all our clients are subject to engagement.

Furthermore, we work to provide clients with satisfactory high-quality structures and services through integrated quality management based on our quality management system, provide clients with initiatives and solutions for advanced technology

development that meets their various needs, and support our clients in everything from formulating BCP (business continuity planning) to restoration work during disasters.
Emissions during building operation are particularly large. For buildings designed and constructed by Obayashi Corporation, the Company is actively proposing technologies that enable customers (clients) to reduce CO2 emissions during building operation, such as specifications that achieve a CASBEE rating of A or higher and ZEB proposals, by utilizing its technologies and expertise. Specifically, the environmental target of the design division in the environmental management system is to achieve a CO2 emission reduction rate of 25% or more during the operation of buildings designed and constructed by the Company (compared to CASBEE reference buildings). Since this has a major impact on the Obayashi Corporation's Scope 3 CO2 emissions (category 11: use of sold products) and the building operations costs of clients (orderers) with regard to energy conservation during building operations, we are collaborating with all our clients (orderers) from the sales and design stages.
In addition, the Company has established the percentage of projects with a CASBEE rank of A or higher of the projects designed and constructed (2,000 m2 or more) as a KPI related to "Establish an Environmentally Responsible Society," one of the ESG materialities, with a target of 70% or higher in FY2021.

Impact of engagement, including measures of success

The Obayashi Corporation has set "Client satisfaction" as a KPI based on our ESG materialities. The FY2021 result for "Customer Satisfaction" is 95.9%, which is on par with the FY2020 result (96.8%). The direct measure of success with respect to working with customers (clients) on climate-related issues is the environmental target item "CO2 emission reduction rate at the design stage (compared to CASBEE standard)" for the design department of our environmental management system. In FY2021, the target was 32%, compared to the target of 25% or more.
Through this, the Obayashi Corporation reduces our Scope 3 CO2 emissions (category 11: use of sold products) and we estimate that we can contribute to climate action by reducing energy costs and CO2 emissions for building operations by clients (orderers). Other results of all customer engagements will be a reduction in CO2 emissions and, furthermore, the promotion of technological innovation.
Moreover, we have set "Proportion of design and construction jobs (2,000 m2 or more) with CASBEE A rank or higher" as a KPI for the action plan "Promoting an environment-friendly business" based on our ESG materialities.
The FY2021 result was 71%, an improvement over the FY2020 result (64%), and the FY2021 target (70% or higher) was achieved.
From the above, it can be said that engagement with all customers has been successful.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Obayashi Corporation believes that hydrogen, which does not emit CO2 at the usage stage, will be one important energy source for society in the future and a next-generation energy source toward the realization of carbon neutrality by 2050. The Company is promoting a demonstration

project that aims to realize low-cost hydrogen and promote its use by pursuing both efficiency and economy in each process, from production to transportation and utilization.
The main examples for the reporting year are as follows:

・First in Japan to produce and supply green hydrogen from geothermal heat (Kokonoe-cho, Kusu-gun, Oita Prefecture)

Geothermal energy, a renewable energy source, is expected to offer a stable energy supply in Japan and is positioned as an important energy source in Japan's green energy strategy. However, power generation facilities are often located in mountainous areas, and in some cases, even if power can be generated, it is physically difficult to "grid-connect" the facility to the power grid. Against this backdrop, MHI is engaged in a demonstration project in Kokonoe-cho, Kusu-gun, Oita Prefecture, with the aim of implementing green hydrogen produced by geothermal-derived electricity in society.

In July 2021, with the cooperation of the local Oita Geothermal Development Co., a hydrogen production plant was installed at a geothermal power generation facility and began producing green hydrogen (10 Nm^3/h) using geothermally generated electricity (125 KW). Oita Geothermal Development Co., Ltd. has been working on a geothermal power generation project in Kokonoe-cho, Kusu-gun, Oita Prefecture since 2013. Under the corporate philosophy of contributing to regional and social development through the development of renewable energy, the company has not only reached consensus with local residents but has also contributed to the region. The green hydrogen produced is used at local hydrogen stations and research facilities for hydrogen energy-related products. In addition, the hydrogen fuel was used as part of the fuel for Toyota Motor Corporation's "Corolla with hydrogen engine" in the Super Taikyu Series 2021 Round 4 held in Hita City, Oita Prefecture, Japan, from July 31 to August 1, 2021.

・Future Concept of Green Hydrogen Supply Chain Construction (Taupo, New Zealand*1)

In Taupo, located between Auckland and the capital Wellington on the North Island of New Zealand, a hydrogen production and supply demonstration facility utilizing geothermal power generation was constructed through Halcyon Power*3, which was jointly established with Tuaropaki Trust*2, and production of green hydrogen began in March 2021. The first megawatt-class hydrogen production plant in the country produces 100 tons of hydrogen per year (equivalent to 1,000 fuel cell vehicles), and the entire supply chain, from transportation to utilization, is being constructed and its business feasibility is being verified. In December 2021, the company began test sales for vehicles used in public transportation and logistics facilities to confirm pricing based on manufacturing and transportation costs as well as social acceptability. In the future, the company intends to expand the use of this material in a wide range of applications, such as hydrogen stations and raw materials for chemical plants, and will develop its business with a view to exporting the material from New Zealand to Japan and other countries.

*1 Taupo
Taupo is located between Auckland, the largest commercial city in the northern part of the North Island of New Zealand, and Wellington, the southernmost city and the capital of the North Island. Geothermal power generation is thriving, and there are many large-scale geothermal power plants.

*2 Tuaropaki Trust Inc.
A trust organization owned by indigenous Maori landowners of New Zealand, the Trust has developed one of the largest geothermal power plants in the country with an emphasis on sustainable resource use and has operated it steadily for 19 years. The geothermal power, steam, and waste heat from the plant are also used for nearby agribusinesses such as dairy processing and greenhouse cultivation.

*3 Halcyon Power
Halcyon Power was established as a joint venture between Obayashi Corporation and Tuaropaki Trust to examine the feasibility of a green hydrogen supply chain. The objective is to expand the use of green hydrogen not only through its production, but also through its entire supply chain, from transportation to consumption, and to understand the technical and institutional issues at each stage as well as costs and social acceptability.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

Yes, climate-related requirements are included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement

Complying with regulatory requirements

Description of this climate related requirement

Obayashi Corporation has established the Obayashi Group CSR Procurement Policy and the Obayashi Group CSR Procurement Guidelines and requires suppliers to comply with them. The guidelines stipulate that the Company shall promote business activities that take into consideration environmental conservation and reduction of environmental impact, including measures against climate change, and shall comply with all relevant laws and regulations, international conventions, and social norms applicable in the countries and regions in which it operates. All guideline items, including these, are stipulated in the terms and conditions of the contract concluded with the supplier and confirmed at the time of contract. In addition, every fiscal year, a questionnaire is sent to suppliers to check their compliance with the guidelines. In FY2021, the questionnaire was sent to approximately 1,300 suppliers, with a response rate of 90.9%. The Company continues to conduct the survey and enhance supply chain management by

enriching the content of the survey and expanding the number of companies to which it is sent.

% suppliers by procurement spend that have to comply with this climate-related requirement

100

% suppliers by procurement spend in compliance with this climate-related requirement

100

Mechanisms for monitoring compliance with this climate-related requirement

Supplier self-assessment

Response to supplier non-compliance with this climate-related requirement

Retain and engage

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row1

Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate

Yes, we engage indirectly through trade associations

Yes, we engage indirectly by funding other organizations whose activities may influence policy, law, or regulation that may significantly impact the climate

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

[Obayashi Corporation] JCI_20210419_Message to the Japanese Government from the Climate Change Initiative_Ambitious 2030 Targets to Achieve the Paris Agreement in Japan.pdf

[Obayashi Corporation] JCLP_20210909_Statement on the Draft of the 6th Energy Basic Plan.pdf

[Obayashi Corporation] JCLP_20210513_Opinion on diversification of non-FIT renewable energy options in Japan.pdf

[Obayashi Corporation] JCLP_20210422_Welcome Japan's New 2030 Greenhouse Gas Emission Reduction Target.pdf

[Obayashi Corporation] JCLP_20210728_Opinion for promoting the design of carbon tax and emissions trading system.pdf

[Obayashi Corporation] JCLP_20210527_Opinion on conversion of freight vehicles to zero-emission vehicles.pdf

Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy

Obayashi Corporation is a member of the Board of Directors, which oversees climate-related risks and opportunities, and a member of the CSR Committee (chaired by the president), which formulates basic policies, develops measures, and evaluates implementation status to promote CSR activities, including activities related to climate-related issues. In addition, the director in charge of environment (Executive Vice President and Representative Director), who chairs the Environmental Management Expert Committee, a subordinate body of the CSR Committee, participates as a member of the Environmental Committee of the Japan Federation of Construction Contractors Associations (JFCCA). Moreover, members of the secretariat of the CSR Committee (ESG/SDGs Promotion Department, Group Corporate Strategy Office) and the secretariat of the Environmental Management Expert Committee (chaired by the director in charge of environment), a subordinate body of the CSR Committee (Environmental Management Department, Safety & Quality Management Division), participate as members of the Environmental Management Subcommittee and the Global Warming Prevention Subcommittee, which are subordinate bodies of the JFCCA's Environmental Committee. The content of deliberations on climate change issues by the Environmental Committee, the Environmental Management Subcommittee, and the Global Warming Prevention Subcommittee of the JFCCA is reported to and shared with the Board of Directors, the CSR Committee, and the Environmental Management Expert Committee of Obayashi Corporation, thereby ensuring consistency with the company's climate change strategy.

In addition, if a disagreement with Obayashi Corporation's climate change strategy is recognized, the Company's members may provide opinions, etc., to the relevant committee or subcommittee of the JFCCA and work to indirectly influence public policy to bring it into line with Obayashi's climate change strategy. The Company also endorses, with the approval of its directors, the statements of the Japan Climate Initiative (JCI) and the recommendations of the Japan Climate Leaders Partnership (JCLP).

C12.3b

(C12.3b) Provide details of the trade associations your organization engages with which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association

Other, please specify

Japan Federation of Construction Contractors

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

JFCCA is a nationwide association of general construction companies and construction contractor associations whose members are engaged in the construction industry. It works to solve basic domestic and international problems in that industry, including various systems related to it. It also aims to promote the sound development of the construction industry in Japan by promoting related technological progress and management improvements, thereby contributing to the enrichment of people's lives and the foundation of industrial activities. The purpose of JFCCA's activities related to climate change countermeasures is to conduct surveys and research on environmental issues related to the construction industry, make proposals, and promote countermeasures. As an organization, JFCCA has established and is promoting the Environment Committee, several specialized subcommittees, including the Environmental Management Subcommittee and the Global Warming Countermeasures Subcommittee, and the Carbon Neutral Measures Working Group. Like Obayashi Corporation, JFCCA supports the Japanese government's Carbon Neutral by 2050 strategy. Specifically, the Voluntary Action Plan on the Environment in the Construction Industry (first edition) was formulated in 1996, organizing the construction industry's activities for the environment into three frames based on environmental management: decarbonized society, recycling-oriented society, and society in harmony with nature. In addition, the 7th edition of the Environmental Voluntary Action Plan for the Construction Industry was formulated and published in April 2021, after a review of new targets for a smooth transition to a decarbonized society and circular economy. The 7th edition of the Voluntary Action Plan for the Environment in the Construction Industry sets the goals of reducing CO2 emissions at the construction stage to "aim for a 40% reduction in CO2 emissions per unit of production in the early years of FY2030 to 2040 (compared to FY2013)" and "promote initiatives to achieve virtually zero CO2 emissions at the construction stage by 2050." In addition, the Company has set the following goal for curbing CO2 emissions during operation at the design stage: Promote the contribution of design and construction to global warming prevention to society by identifying and disclosing the amount of CO2 reduction, CO2 reduction

rate, and energy conservation performance index values. In FY2021, the president of Obayashi Corporation was the vice president (representative director) of the JFCCA, and the director in charge of the environment (executive vice president and representative director) was a member of the JFCCA's Environment Committee. In addition, members of the secretariat of Obayashi Corporation's CSR Committee and Environmental Management Expert Committee participated as members of the Environmental Management Subcommittee and Global Warming Prevention Subcommittee, which are subordinate organizations of the JCIA's Environmental Committee and work together to formulate, implement, and disseminate the Voluntary Action Plan on the Environment in the Construction Industry. In addition, the Company participates as a member of a study group (Global Warming Prevention Subcommittee) in the construction industry regarding the Keidanren Carbon Neutral Action Plan and is involved in the formulation of said plan and its implementation.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.3c

(C12.3c) Provide details of the funding you provided to other organizations in the reporting year whose activities could influence policy, law, or regulation that may impact the climate.

Type of organization

Other, please specify

Japan Climate Leaders Partnership

State the organization to which you provided funding

The Japan Climate Leaders Partnership (JCLP) is a unique Japanese business group that was launched in 2009 with the recognition that industry must develop a healthy sense of urgency and initiate proactive action to achieve a sustainable decarbonized society. By leading the transition to a decarbonized society, the Company aims to become one that is sought after by society. The objective of the activity is to achieve a rapid transition to a decarbonized society and to achieve the 1.5°C target in order to avoid a climate crisis. In addition, the Company's activity policy is to lead Japan in achieving policy change through the five pillars of policy engagement, promoting our

own decarbonization, providing solutions to decarbonize society, communicating with society, and collaborating with our global network.

Funding figure your organization provided to this organization in the reporting year (currency as selected in C0.4)

200,000

Describe the aim of this funding and how it could influence policy, law or regulation that may impact the climate

By joining and funding the JCLP, which aims to achieve a rapid transition to a decarbonized society and achieve the 1.5°C target to avoid a climate crisis, it becomes possible to lobby countries and engage them in policies that may affect climate change.

Have you evaluated whether this funding is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In mainstream reports

Status

Complete

Attach the document

【Obayashi Corporation】118th Annual Securities Report.pdf

Page/Section reference

- Governance：P39-43
- Strategy：P11-16
- Risks & Opportunities：P11-19
- Emission targets：P14
- Other metrics：P14

Content elements

Governance
Strategy
Risks & Opportunities
Emission targets
Other metrics

Comment

Publication

In voluntary sustainability report

Status

Underway – previous year attached

Attach the document

【Obayashi Corporation】OBAYASHI Corporate Report 2021.pdf

Page/Section reference

- Governance：P37、P39-40、P42
- Strategy：P42
- Risks & Opportunities：P42-44
- Emissions figures：P14
- Emission targets：P38、P40、P43
- Other metrics：P14、P38-40

Content elements

Governance
Strategy
Risks & Opportunities
Emissions figures
Emission targets
Other metrics

Comment

The Obayashi Corporate Report (integrated report) collects important information for understanding the Obayashi Corporation and the Obayashi Group. More detailed information can be found in our ESG Data Book and on our website.

C15 Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related matters within your organization?

	Board-level oversight and/or executive management-level	Description of oversight and objectives relating to biodiversity

	responsibility for biodiversity-related issues	
Row 1	Yes, both board-level oversight and executive management-level responsibility	Obayashi Corporation has established a Sustainability Committee under the Board of Directors, chaired by the President and CEO and composed of outside directors and other members, to implement corporate activities based on the Obayashi basic philosophy and to promote efforts to achieve sustainability for society and itself. The Sustainability Committee shall meet at least twice a year to identify sustainability issues, review and recommend policies to address the identified sustainability issues, and review their implementation in execution. Based on discussions at the Sustainability Committee, the Board of Directors will determine management policies for promoting ESG management and achieving the SDGs. On the business execution side, the Corporate Planning Committee and the specialized committees in each sustainability field established within the Corporate Planning Committee, which are commissioned by the President, are responsible for formulating and promoting measures in line with the management policy decided by the Board of Directors, monitoring implementation status, disseminating information and promoting internal penetration, and promoting group-wide initiatives. The Environmental Management Expert Committee, chaired by the director in charge of the environment, was established within the above-mentioned specialized committees to formulate strategies and policies for the Obayashi Group's environmental management, review targets and activities based on performance evaluations of the EMS, and promote continuous improvement. Based on the plans and targets set by the Environmental Management Committee, the divisions in charge of the environment at the head office, each head office and branch, and group companies are promoting and implementing specific activities.

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Initiatives endorsed
Row 1	Yes, we have endorsed initiatives only	CBD - Global Biodiversity Framework

C15.3

(C15.3) Does your organization assess the impact of its value chain on biodiversity?

	Does your organization assess the impact of its value chain on biodiversity?
Row 1	No, and we do not plan to assess biodiversity-related impacts within the next two years

C15.4

(C15.4) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?
Row 1	No, and we do not plan to undertake any biodiversity-related actions

C15.5

(C15.5) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	No	

C15.6

(C15.6) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
No publications		

C16 Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Representative Director President	President

SC Supply chain

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual revenue
Row 1	1,374,132,000,000

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

Requesting member

KAO Corporation

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

Emissions in metric tons of CO2e

14.6226

Uncertainty (± %)

10

Major sources of emissions

Total CO2 emissions under Scope 1 and Scope 2.
Scope 1 and Scope 2 are CO2 emissions calculated from use of power, diesel, kerosene, gas, etc. consumed at the construction sites.

Verified

Yes

Allocation method

Other, please specify

It is calculated by multiplying the volume of completed construction in FY2022.3 in projects ordered by clients with CO2 emission intensity per construction project in FY2022.3 (construction).

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

We have tracked use of electricity, diesel, kerosene, and gas at our construction sites based on the calculation criteria in the Guidelines for Environmental Accounting in Construction (JFCC) with regard to Scope 1 and 2 emissions.
More concretely, we tally energy use through our own CO2 emission aggregation systems and calculate emissions as well as O2 emission intensity per construction project.

Requesting member

NEC Corporation

Scope of emissions

Scope 1

Allocation leve

Company wide

Allocation level detail

Emissions in metric tons of CO2e

260.6

Uncertainty (± %)

10

Major sources of emissions

Total CO2 emissions under Scope 1 and Scope 2.
Scope 1 and Scope 2 are CO2 emissions calculated from use of power, diesel, kerosene, gas, etc. consumed at the construction sites.

Verified

Yes

Allocation method

Other, please specify

It is calculated by multiplying the volume of completed construction in FY2022.3 in projects ordered by clients with CO2 emission intensity per construction project in FY2022.3 (construction).

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

We have tracked use of electricity, diesel, kerosene, and gas at our construction sites based on the calculation criteria in the Guidelines for Environmental Accounting in Construction (JFCC) with regard to Scope 1 and 2 emissions.
More concretely, we tally energy use through our own CO2 emission aggregation systems and calculate emissions as well as O2 emission intensity per construction project.

Requesting member

Toyota Motor Corporation

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

Emissions in metric tons of CO2e

4,029.77

Uncertainty (± %)

10

Major sources of emissions

Total CO2 emissions under Scope 1 and Scope 2.
Scope 1 and Scope 2 are CO2 emissions calculated from use of power, diesel, kerosene, gas, etc. consumed at the construction sites.

Verified

Yes

Allocation method

Other, please specify

It is calculated by multiplying the volume of completed construction in FY2022.3 in projects ordered by clients with CO2 emission intensity per construction project in FY2022.3 (construction).

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

We have tracked use of electricity, diesel, kerosene, and gas at our construction sites based on the calculation criteria in the Guidelines for Environmental Accounting in Construction (JFCC) with regard to Scope 1 and 2 emissions.
More concretely, we tally energy use through our own CO2 emission aggregation systems and calculate emissions as well as O2 emission intensity per construction project.

Requesting member

EQUINIX, INC.

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

Emissions in metric tons of CO2e

667.31

Uncertainty (± %)

10

Major sources of emissions

Total CO2 emissions under Scope 1 and Scope 2.

Scope 1 and Scope 2 are CO2 emissions calculated from use of power, diesel, kerosene, gas, etc. consumed at the construction sites.

Verified

Yes

Allocation method

Other, please specify

It is calculated by multiplying the volume of completed construction in FY2022.3 in projects ordered by clients with CO2 emission intensity per construction project in FY2022.3 (construction).

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

We have tracked use of electricity, diesel, kerosene, and gas at our construction sites based on the calculation criteria in the Guidelines for Environmental Accounting in Construction (JFCC) with regard to Scope 1 and 2 emissions.
More concretely, we tally energy use through our own CO2 emission aggregation systems and calculate emissions as well as O2 emission intensity per construction project.

Requesting member

Microsoft Corporation

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

Emissions in metric tons of CO2e

0

Uncertainty (± %)

10

Major sources of emissions

Total CO2 emissions under Scope 1 and Scope 2.
Scope 1 and Scope 2 are CO2 emissions calculated from use of power, diesel, kerosene, gas, etc. consumed at the construction sites.

Verified

Yes

Allocation method

Other, please specify

It is calculated by multiplying the volume of completed construction in FY2022.3 in projects ordered by clients with CO2 emission intensity per construction project in FY2022.3 (construction).

Market value or quantity of goods/services supplied to the requesting member

Unit for market value or quantity of goods/services supplied

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

We have tracked use of electricity, diesel, kerosene, and gas at our construction sites based on the calculation criteria in the Guidelines for Environmental Accounting in Construction (JFCC) with regard to Scope 1 and 2 emissions.
More concretely, we tally energy use through our own CO2 emission aggregation systems and calculate emissions as well as O2 emission intensity per construction project.

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

ESG Data Book

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges
Managing the different emission factors of diverse and numerous geographies makes calculating total footprint difficult	Construction offices and sites are set up and managed temporarily in the construction industry, so we calculate total emissions for the whole corporation based on project intensity in sampling surveys. It is possible to calculate emissions by individual client from their proportion (ratio) of annual projects, so we report these

	emissions to clients who request it, but do not calculate emissions for clients who do not need it themselves.

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

No

SC1.4b

(SC1.4b) Explain why you do not plan to develop capabilities to allocate emissions to your customers.

Construction offices and sites are set up and managed temporarily in the construction industry, so we estimate totals based on sampling surveys. Because of this, we cannot accurately calculate emissions by individual client.

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

Requesting member

KAO Corporation

Group type of project

Change to provision of goods and services

Type of project

Other, please specify

Proposal and provision of energy efficient buildings

Emissions targeted

Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized

Other, please specify

From product delivery to end of use

Estimated lifetime CO2e savings

0

Estimated payback

Details of proposal

Requesting member

NEC Corporation

Group type of project

Change to provision of goods and services

Type of project

Other, please specify

Proposal and provision of energy efficient buildings

Emissions targeted

Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized

Other, please specify

From product delivery to end of use

Estimated lifetime CO2e savings

0

Estimated payback

Details of proposal

Requesting member

Toyota Motor Corporation

Group type of project

Change to provision of goods and services

Type of project

Other, please specify

Proposal and provision of energy efficient buildings

Emissions targeted

Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realize

Other, please specify

From product delivery to end of use

Estimated lifetime CO2e savings

0

Estimated payback

Details of proposal

Requesting member

EQUINIX, INC.

Group type of project

Change to provision of goods and services

Type of project

Other, please specify

Proposal and provision of energy efficient buildings

Emissions targeted

Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realize

Other, please specify

From product delivery to end of use

Estimated lifetime CO2e savings

0

Estimated payback

Details of proposal

Requesting member

Microsoft Corporation

Group type of project

Change to provision of goods and services

Type of project

Other, please specify

Proposal and provision of energy efficient buildings

Emissions targeted

Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realize

Other, please specify

From product delivery to end of use

Estimated lifetime CO2e savings

0

Estimated payback

Details of proposal

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to undertake organizational-level emissions reduction initiatives?

No

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

No, I am not providing data

Submission of Your Response

In which language do you submit your response?

Japanese

Please confirm how you would like your response to be handled by the CDP.

	We understand that our response will be shared with all parties requesting the response	Publicly available/ Not publicly available
We submit the response.	Yes	Publicly available

Please confirm below.

I have read the terms and conditions and agree to them.