JGC Holdings Corporation

2024 CDP Corporate Questionnaire 2024

Word version

Important: this export excludes unanswered questions
This document is an export of your organization's CDP questionnaire response. It contains all data points for questions that are answered or in progress. There may be questions or data points that you have been requested to provide, which are missing from this document because they are currently unanswered. Please note that it is your responsibility to verify that your questionnaire response is complete prior to submission. CDP will not be liable for any failure to do so.
Terms of disclosure for corporate questionnaire 2024 - CDP

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10/01/2024, 02:02 am

Contents

C1. Introduction

(1.3) Provide an overview and introduction to your organization.

(1.3.2) Organization type

Select from:

☑ Publicly traded organization

(1.3.3) Description of organization

Under the holding company JGC HOLDINGS CORPORATION, the principal activity of the organization involves the total engineering business, which includes plant and facility design, equipment procurement, construction work, and maintenance, is handled by JGC CORPORATION (JGC Global) for overseas operations and JGC JAPAN CORPORATION for domestic operations. In the functional materials manufacturing business, JGC Catalysts and Chemicals Ltd. handles the development, manufacturing, and sales of catalysts and fine chemical products, while Japan Fine Ceramics Co., Ltd. is concerned with the development, manufacturing, and sales of fine ceramics products. Additionally, other businesses include JAPAN NUS CO., LTD., which engages in energy and environmental consulting business.

(1.4) State the end date of the year for which you are reporting data. For emissions data, indicate whether you will be providing emissions data for past reporting years.

	End date of reporting year	Alignment of this reporting period with your financial reporting period	Indicate if you are providing emissions data for past reporting years
	03/30/2024	*Select from:* ☑ Yes	*Select from:* ☑ No

(1.5) Provide details on your reporting boundary.

(1.5.1) Is your reporting boundary for your CDP disclosure the same as that used in your financial statements?

Select from:

☑ No

(1.5.2) How does your reporting boundary differ to that used in your financial statement?

This is limited to JGC HOLDINGS CORPORATION and its major subsidiaries: JGC Corporate Solutions, JGC CORPORATION (JGC Global), JGC JAPAN CORPORATION, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd., and JAPAN NUS CO., LTD., and does not include all consolidated subsidiaries. JGC Corporate Solutions, a 100% subsidiary of JGC HOLDINGS CORPORATION, was established on April 1, 2023, to consolidate the corporate functions of JGC HOLDINGS CORPORATION, JGC CORPORATION (JGC Global), and JGC JAPAN CORPORATION.

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

ISIN code - bond

(1.6.1) Does your organization use this unique identifier?

Select from:

☑ No

ISIN code - equity

(1.6.1) Does your organization use this unique identifier?

Select from:

☑ Yes

(1.6.2) Provide your unique identifier

JP3667600005

CUSIP number

(1.6.1) Does your organization use this unique identifier?

Select from:

☑ No

Ticker symbol

(1.6.1) Does your organization use this unique identifier?

Select from:

☑ No

SEDOL code

(1.6.1) Does your organization use this unique identifier?

Select from:

☑ No

LEI number

(1.6.1) Does your organization use this unique identifier?

Select from:

☑ No

D-U-N-S number

(1.6.1) Does your organization use this unique identifier?

Select from:

☑ No

Other unique identifier

(1.6.1) Does your organization use this unique identifier?

Select from:

☑ No

(1.24) Has your organization mapped its value chain?

(1.24.1) Value chain mapped

Select from:

☑ Yes, we have mapped or are currently in the process of mapping our value chain

(1.24.2) Value chain stages covered in mapping

Select all that apply

☑ Upstream value chain

☑ Downstream value chain

(1.24.3) Highest supplier tier mapped

Select from:

☑ Tier 1 suppliers

(1.24.4) Highest supplier tier known but not mapped

Select from:

☑ Tier 2 suppliers

(1.24.7) Description of mapping process and coverage

Our group monitors activities within the value chain to analyze and evaluate the environmental impacts of our business activities, as well as the associated risks and opportunities. Additionally, we include secondary and lower-tier suppliers as necessary.

C2. Identification, assessment, and management of dependencies, impacts, risks, and opportunities

(2.1) How does your organization define short-, medium-, and long-term time horizons in relation to the identification, assessment, and management of your environmental dependencies, impacts, risks, and opportunities?

Short-term

(2.1.1) From (years)

0

(2.1.3) To (years)

1

(2.1.4) How this time horizon is linked to strategic and/or financial planning

It is aligned with the fiscal year.

Medium-term

(2.1.1) From (years)

1

(2.1.3) To (years)

5

(2.1.4) How this time horizon is linked to strategic and/or financial planning

Our group formulates a medium-term business plan every five years.

Long-term

(2.1.1) From (years)

5

(2.1.2) Is your long-term time horizon open ended?

Select from:
☑ No

(2.1.3) To (years)

16

(2.1.4) How this time horizon is linked to strategic and/or financial planning

Our group has established a long-term management vision (2040 Vision) towards 2040.

(2.2) Does your organization have a process for identifying, assessing, and managing environmental dependencies and/or impacts?

(2.2.1) Process in place

Select from:
☑ Yes

(2.2.2) Dependencies and/or impacts evaluated in this process

Select from:
☑ Impacts only

(2.2.4) Primary reason for not evaluating dependencies and/or impacts

Select from:

☑ Lack of internal resources, capabilities, or expertise (e.g., due to organization size)

(2.2.5) Explain why you do not evaluate dependencies and/or impacts and describe any plans to do so in the future

As carbon emissions have a notable impact on nature related to climate change, we will evaluate our dependencies on natural capital, particularly in relation to biodiversity and water resources, in the future. Currently, in the construction industry, direct dependencies lie with our clients, but we respond to requests from clients, governments, and municipalities as needed. For example, in Canada, where regulations are stringent, we undertake construction projects to minimize environmental impacts and regularly submit related reports to clients. In the manufacturing industry, municipalities determine the necessity of environmental assessments when acquiring industrial land, and we comply accordingly.

(2.2.1) Does your organization have a process for identifying, assessing, and managing environmental risks and/or opportunities?

	Process in place	Risks and/or opportunities evaluated in this process	Is this process informed by the dependencies and/or impacts process?
	Select from: ☑ Yes	*Select from:* ☑ Both risks and opportunities	*Select from:* ☑ Yes

(2.2.2) Provide details of your organization's process for identifying, assessing, and managing environmental dependencies, impacts, risks, and/or opportunities.

Row 1

(2.2.2.1) Environmental issue

Select all that apply

☑ Climate change

(2.2.2.2) Indicate which of dependencies, impacts, risks, and opportunities are covered by the process for this environmental issue

Select all that apply

☑ Impacts

☑ Risks

☑ Opportunities

(2.2.2.3) Value chain stages covered

Select all that apply

☑ Direct operations

☑ Upstream value chain

☑ Downstream value chain

(2.2.2.4) Coverage

Select from:

☑ Full

(2.2.2.5) Supplier tiers covered

Select all that apply

☑ Tier 1 suppliers

(2.2.2.7) Type of assessment

Select from:

☑ Qualitative and quantitative

(2.2.2.8) Frequency of assessment

Select from:

☑ More than once a year

(2.2.2.9) Time horizons covered

Select all that apply

☑ Short-term

☑ Medium-term

☑ Long-term

(2.2.2.10) Integration of risk management process

Select from:

☑ Integrated into multi-disciplinary organization-wide risk management process

(2.2.2.11) Location-specificity used

Select all that apply

☑ National

(2.2.2.12) Tools and methods used

International methodologies and standards

☑ IPCC Climate Change Projections

☑ ISO 14001 Environmental Management Standard

Other

☑ Scenario analysis

(2.2.2.13) Risk types and criteria considered

Acute physical

☑ Flood (coastal, fluvial, pluvial, ground water)

Chronic physical

☑ Changing temperature (air, freshwater, marine water)

Policy

☑ Carbon pricing mechanisms

Market

☑ Changing customer behavior

Reputation

☑ Increased partner and stakeholder concern and partner and stakeholder negative feedback

☑ Stigmatization of sector

Technology

☑ Transition to lower emissions technology and products

Liability

☑ Exposure to litigation

(2.2.2.14) Partners and stakeholders considered

Select all that apply

☑ Customers

☑ Employees

☑ Investors

☑ Local communities

☑ Suppliers

(2.2.2.15) Has this process changed since the previous reporting year?

Select from:

☑ No

(2.2.2.16) Further details of process

We recognize that understanding the impacts on natural capital and appropriately managing related risks and opportunities can help reduce losses and increase profits for our group. By identifying and organizing risks and opportunities, including those related to climate change, and by building, maintaining, and improving a risk and opportunity management system, we strive to reduce risks, prevent issues, and realize opportunities from normal times. When risks materialize, we aim to minimize their impact and losses through prompt and appropriate responses. Specifically, we have established a Sustainability Committee, chaired by the Chairman and CEO, to deliberate on the formulation of policies and action plans related to sustainability, including climate change response, and to evaluate and promote actions. This committee reports to the Board of Directors on both the impacts of climate change and the evaluation and management of climate-related risks and opportunities. Under the Sustainability Committee, several subcommittees have been established to handle (1) responses to climate-related information disclosure, (2) formulation and management of CO2 emission reduction plans, and (3) identification and response to other sustainability issues.
Regarding risk management, based on the Group Risk Management Committee Regulations, we have established a Group Risk Management Committee, chaired by the COO of JGC HOLDINGS CORPORATION and including the heads of each business company as members. This committee aims to plan and deliberate on the construction, maintenance, and improvement of the group's overall risk management system and meets twice a year in principle. We define and evaluate short-term and long-term risks, including climate-related risks, across the entire value chain, including upstream and downstream operations, as one of the indicators of "significant impact on financial or strategic aspects." We identify and evaluate these risks in accordance with the timely disclosure requirements of the stock exchange. Our comprehensive risk management system, which includes the identification and evaluation of climate-related business risks, systematically captures short-term and long-term risks across the entire value chain, including upstream and downstream operations, and strives to further reduce our risks. Risks that are identified and evaluated as significant are organized into risk item tables by each business company and reported to the Group Risk Management Committee twice a year. Based on the evaluation of each risk, business companies take the lead in planning and implementing countermeasures, considering necessary instructions from the crisis management and compliance departments. Major topics are reported by the business companies to the Group Risk Management Committee, deliberated at the committee, and significant defects or deficiencies in the risk management system are reported to the Board of Directors of our group as necessary for deliberation on countermeasures.

(2.2.7) Are the interconnections between environmental dependencies, impacts, risks and/or opportunities assessed?

	Interconnections between environmental dependencies, impacts, risks and/or opportunities assessed	Description of how interconnections are assessed
	Select from: ☑ Yes	When addressing risks and opportunities based on climate change, we also consider the impacts on natural capital. For example, our SAF (Sustainable Aviation Fuel) manufacturing business is recognized as an opportunity for us, but from the perspective of reducing carbon emissions, it can also be seen as having a positive impact on natural capital. We evaluate risks and opportunities based on such interrelationships.

(2.3) Have you identified priority locations across your value chain?

	Identification of priority locations	Primary reason for not identifying priority locations	Explain why you do not identify priority locations
	Select from: ☑ No, but we plan to within the next two years	*Select from:* ☑ Lack of internal resources, capabilities, or expertise (e.g., due to organization size)	We will consider implementing initiatives to identify priority areas, taking into account biodiversity and natural capital.

(2.4) How does your organization define substantive effects on your organization?

Risks

(2.4.1) Type of definition

Select all that apply

☑ Qualitative

☑ Quantitative

(2.4.2) Indicator used to define substantive effect

Select from:

☑ Revenue

(2.4.3) Change to indicator

Select from:

☑ % decrease

(2.4.4) % change to indicator

Select from:

☑ 1-10

(2.4.6) Metrics considered in definition

Select all that apply

☑ Time horizon over which the effect occurs

(2.4.7) Application of definition

For our group, financially significant impacts occur when climate change disrupts the continuation of projects in our core total engineering business, such as through project plan changes, cancellations, or suspensions, leading to decreased sales and profits. Strategically significant impacts arise when climate change causes client companies to reduce investments or change their business content, significantly altering our group's order environment and reducing orders. One criterion for material significance for our publicly listed group is the timely disclosure requirements of the stock exchange, defined as changes of 10% or more in consolidated sales, and 30% or more in consolidated operating profit, consolidated ordinary profit, or net income attributable to parent company shareholders.

Opportunities

(2.4.1) Type of definition

Select all that apply

☑ Qualitative

☑ Quantitative

(2.4.2) Indicator used to define substantive effect

Select from:

☑ Revenue

(2.4.3) Change to indicator

Select from:

☑ % increase

(2.4.4) % change to indicator

Select from:

☑ 1-10

(2.4.6) Metrics considered in definition

Select all that apply

☑ Time horizon over which the effect occurs

(2.4.7) Application of definition

For our group, financially significant impacts occur when climate change affects projects in our core total engineering business, leading to increased sales and profits. Strategically significant impacts arise when climate change causes client companies to increase investments or change their business content, significantly altering our group's order environment and increasing orders. One criterion for material significance for our publicly listed group is the timely disclosure requirements of the stock exchange, defined as changes of 10% or more in consolidated sales, and 30% or more in consolidated operating profit, consolidated ordinary profit, or net income attributable to parent company shareholders.

C3. Disclosure of risks and opportunities

(3.1) Have you identified any environmental risks which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future?

Climate change

(3.1.1) Environmental risks identified

Select from:

☑ Yes, both in direct operations and upstream/downstream value chain

Plastics

(3.1.1) Environmental risks identified

Select from:

☑ No

(3.1.2) Primary reason why your organization does not consider itself to have environmental risks in your direct operations and/or upstream/downstream value chain

Select from:

☑ Not an immediate strategic priority

(3.1.3) Please explain

In our core total engineering business, there are very few opportunities to use plastics under our own initiative.

(3.1.1) Provide details of the environmental risks identified which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future.

Climate change

(3.1.1.1) Risk identifier

Select from:

☑ Risk1

(3.1.1.3) Risk types and primary environmental risk driver

Policy

☑ Carbon pricing mechanisms

(3.1.1.4) Value chain stage where the risk occurs

Select from:

☑ Direct operations

(3.1.1.6) Country/area where the risk occurs

Select all that apply

☑ Japan

(3.1.1.9) Organization-specific description of risk

To mitigate climate change, countries around the world are considering the introduction of a carbon tax, which taxes CO2 emissions. JGC HOLDINGS CORPORATION is the holding company of a group whose main businesses are total engineering, functional materials manufacturing, and energy and environmental consulting. In the total engineering business, which includes plant and facility design, equipment procurement, construction work, and maintenance, JGC CORPORATION (JGC Global) handles overseas operations, and JGC JAPAN CORPORATION handles domestic operations, accounting for approximately 90% of the group's sales. Given our extensive activities both domestically and internationally, we anticipate being affected if carbon taxes, emissions trading systems (Cap and Trade), and carbon border adjustment mechanisms are strengthened or introduced in the future.

(3.1.1.11) Primary financial effect of the risk

Select from:

☑ Increased indirect [operating] costs

(3.1.1.12) Time horizon over which the risk is anticipated to have a substantive effect on the organization

Select all that apply

☑ Long-term

(3.1.1.13) Likelihood of the risk having an effect within the anticipated time horizon

Select from:

☑ Likely

(3.1.1.14) Magnitude

Select from:

☑ High

(3.1.1.16) Anticipated effect of the risk on the financial position, financial performance and cash flows of the organization in the selected future time horizons

The large-scale oil and gas-related plant construction projects, primarily handled by JGC CORPORATION (JGC Global) in advanced countries such as North America and Australia, which may introduce or strengthen carbon pricing systems early, could potentially impact new orders and sales, particularly for LNG plants, which constitute a significant portion of our sales.

(3.1.1.17) Are you able to quantify the financial effect of the risk?

Select from:

☑ Yes

(3.1.1.23) Anticipated financial effect figure in the long-term – minimum (currency)

2285516025

(3.1.1.24) Anticipated financial effect figure in the long-term – maximum (currency)

2285516025

(3.1.1.25) Explanation of financial effect figure

We calculated the impact amount if a carbon tax were applied to our Scope 1 and 2 emissions for fiscal year 2023. Using the carbon tax rate of $130 per ton of CO2 from the IEA report's “Stated Policies Scenario” and the exchange rate of 131.5 yen per dollar as stated in the IEA report, the impact amount was calculated as follows:
133,695 t-CO2 (Scope 1 and 2 emissions) × $130 (carbon tax rate) × 131.5 yen/dollar = 2,285,516,025 yen.

(3.1.1.26) Primary response to risk

Infrastructure, technology and spending

☑ Increase investment in R&D

(3.1.1.27) Cost of response to risk

0

(3.1.1.28) Explanation of cost calculation

The costs incurred for measures to mitigate risks are unknown, so they cannot be specified.

(3.1.1.29) Description of response

Background: To mitigate climate change and reduce CO2 emissions, it is expected that carbon taxes, emissions trading systems (Cap and Trade), and carbon border adjustment mechanisms will be strengthened or introduced in various countries.
Issue: If the aforementioned carbon tax is introduced, our company could incur an additional cost of 2,285,516,025 yen. Therefore, the challenge is how to reduce this financial impact.
Action: Since the carbon tax is levied on the CO2 emissions produced by our company, we have implemented emission reduction activities to mitigate the carbon tax risk. Specific activities in the reporting year include the renewal of cooling towers at Japan Fine Ceramics and the electrification of forklifts at JGC Catalysts and Chemicals. Additionally, we have switched to LED lighting and introduced solar power generation.
Result: As a result, we successfully reduced CO2 emissions by 381 tons in fiscal year 2023, contributing to the mitigation of the financial impact.

Climate change

(3.1.1.1) Risk identifier

Select from:

☑ Risk2

(3.1.1.3) Risk types and primary environmental risk driver

Reputation

☑ Increased partner and stakeholder concern or negative partner and stakeholder feedback

(3.1.1.4) Value chain stage where the risk occurs

Select from:

☑ Downstream value chain

(3.1.1.6) Country/area where the risk occurs

Select all that apply

☑ Japan

(3.1.1.9) Organization-specific description of risk

To mitigate climate change, it is expected that low-carbon technologies will become more widespread and advanced. In our group's total engineering business, the construction of oil and gas plants has traditionally been our mainstay, and in fiscal year 2023, the overall sales in the oil and gas sector (including domestic and international oil and gas resource development, oil refining, LNG, and chemical-related projects) accounted for approximately 74% of the group's consolidated sales. The spread of electric and fuel cell vehicles will lead to a decrease in gasoline demand and a reduction in orders for oil refining plants. Additionally, the spread of decarbonized materials such as bioplastics will reduce the market size for petrochemical products, leading to a decrease in orders for oil refining plants. The spread of high-performance storage batteries will accelerate the shift to renewable energy, posing a risk of reduced sales as the existing oil and gas business declines.

(3.1.1.11) Primary financial effect of the risk

Select from:

☑ Decreased revenues due to reduced demand for products and services

(3.1.1.12) Time horizon over which the risk is anticipated to have a substantive effect on the organization

Select all that apply

☑ Long-term

(3.1.1.13) Likelihood of the risk having an effect within the anticipated time horizon

Select from:

☑ Likely

(3.1.1.14) Magnitude

Select from:

☑ High

(3.1.1.16) Anticipated effect of the risk on the financial position, financial performance and cash flows of the organization in the selected future time horizons

If we fail to meet the decarbonization demands of our major clients and our evaluation by clients declines, it could lead to a decrease in order opportunities for facilities construction, including oil and gas plants. This, in turn, could result in negative impacts such as reduced execution capacity due to talent outflow, inadequate project execution funding, and difficulties in securing human resources for corporate activities, ultimately leading to a risk of decreased sales.

(3.1.1.17) Are you able to quantify the financial effect of the risk?

Select from:

☑ Yes

(3.1.1.23) Anticipated financial effect figure in the long-term – minimum (currency)

0

(3.1.1.24) Anticipated financial effect figure in the long-term – maximum (currency)

494086000000

(3.1.1.25) Explanation of financial effect figure

If our business cannot transition to low-carbon operations, our evaluation by stakeholders, including clients, may decline, leading to a decrease in orders and sales in the total engineering business. On the other hand, an optimistic estimate assumes that sales in the oil and gas sector will not decrease at all. Therefore, based on the sales in the oil and gas sector of the total engineering business for the reporting year, the potential financial impact on future sales is estimated as follows:

- Maximum: 617,608 million yen × *80% = 494,086 million yen
- Minimum: 617,608 million yen × 0% = 0 yen

*80%: Considering that EPC (Engineering, Procurement, and Construction) projects in the oil and gas sector take about five years, the group's sales in 2040 will mainly consist of projects ordered around 2035. Additionally, since clients generally make investment decisions based on at least a 10-20 year demand forecast, it is expected that investment decisions made around 2035 will be based on the demand forecast for 2050. Therefore, assuming that demand and supply forecasts align, the supply forecast in the IEA's World Energy Outlook 2023 (Net Zero Emissions by 2050 Scenario) indicates that supply in 2050 will decrease by approximately 80% compared to 2022.

(3.1.1.26) Primary response to risk

Infrastructure, technology and spending

☑ Increase investment in R&D

(3.1.1.27) Cost of response to risk

10454000000

(3.1.1.28) Explanation of cost calculation

The research and development investment amount for the reporting year is approximately 10,454 million yen. This includes areas considered as "future growth engines," which are part of our risk mitigation measures, and thus, we recognize it as a risk mitigation cost. The breakdown is as follows: total engineering business: approximately 3,944 million yen, functional materials manufacturing business: approximately 2,970 million yen, other businesses: approximately 27 million yen, and costs that cannot be allocated to each segment: approximately 3,511 million yen.
Note that the total of the above figures is 10,452 million yen, and the difference from the total amount is due to rounding to the nearest million yen. However, the total amount and its breakdown are disclosed in the statutory disclosure document, the securities report, and there is no discrepancy between the total amount and the breakdown.

(3.1.1.29) Description of response

Background:
Due to the increasing demand for decarbonization, companies primarily engaged in oil and gas-related businesses face the risk of criticism for their activities in these sectors. Our group's total engineering business possesses the technological capabilities to contribute to climate change mitigation through decarbonization of oil and gas-related plants, construction of renewable energy facilities, and initiatives related to hydrogen and fuel ammonia as clean energy. However, failing to maintain and enhance these technologies could lead to a decline in our evaluation and reputation on the part of stakeholders and banks, negatively impacting opportunities for facility construction orders, project financing, and securing human resources for corporate activities.
Issue:
The challenge lies in formulating a management strategy focused on low-carbon and decarbonization businesses and transitioning to a group management structure to further diversify our business portfolio. This includes addressing low-carbon initiatives in the oil and gas sector, renewable energy, hydrogen and fuel ammonia, small modular reactors (SMR), resource recycling, life sciences, healthcare, advanced functional materials, and industrial and urban infrastructure.
Action:
To address this challenge, in fiscal year 2023, we promoted research and development and initiatives related to decarbonization in the natural gas sector, low-carbon and decarbonization sectors, the resource recycling sector, bio sector, nuclear sector, and offshore wind power sector using the resources and practical experience we have accumulated through our activities in the total engineering business. In the functional materials manufacturing business, we focused on environmental conservation, clean energy, and fine ceramics sectors. Specifically, we have joined a project for the development and production of sustainable aviation fuel (SAF) using waste cooking oil as a raw material called SAFFAIRE SKY ENERGY, a joint venture established by Cosmo Oil Co., Ltd., Revo International Inc., and our company, which is leading the first domestic large-scale production of SAF using only domestically sourced waste cooking oil. In May 2023, we began constructing production facilities at Cosmo Oil Co., Ltd.'s Sakai Refinery, aiming to supply approximately 30,000 kiloliters of SAF annually and demonstrate a supply chain model for SAF production using waste cooking oil. Additionally, we are working on the "Sarawak CCS Project" in Malaysia, which involves capturing and transporting CO2 emitted in Japan for large-scale storage at suitable sites, contributing to Japan's decarbonization efforts. This project also aims to store CO2 emitted from Malaysian LNG plants, thereby achieving low-carbon LNG. If realized, this project is expected to become a model for cross-border CCS projects in the Asia region.
Result:
By advancing decarbonization initiatives and implementing low-carbon next-generation businesses, we can avoid reputational risks associated with our primary oil and gas-related business. This is expected to reduce the risk of revenue decline in the total engineering business, including the oil and gas sector (oil and gas resource development, oil refining, LNG, and chemical sectors).

Climate change

(3.1.1.1) Risk identifier

Select from:
☑ Risk3

(3.1.1.3) Risk types and primary environmental risk driver

Technology

☑ Transition to lower emissions technology and products

(3.1.1.4) Value chain stage where the risk occurs

Select from:

☑ Direct operations

(3.1.1.6) Country/area where the risk occurs

Select all that apply

☑ Japan

(3.1.1.9) Organization-specific description of risk

It is expected that low-carbon technologies will proliferate and advance to mitigate climate change. In our total engineering business, the construction of oil and gas plants has traditionally been the main focus, and in fiscal year 2023, sales in the oil and gas sector (including domestic and international oil and gas resource development, oil refining, LNG, and chemical sectors) accounted for approximately 74% of the group's consolidated sales. The spread of electric and fuel cell vehicles leads to a decrease in gasoline demand and a reduction in orders for oil refining plants. Additionally, the adoption of decarbonized materials such as bioplastics reduces the market size for petrochemical products, resulting in fewer orders for oil refining plants. The widespread use of high-performance batteries accelerates the shift to renewable energy, posing a risk of declining sales in our existing oil and gas business.

(3.1.1.11) Primary financial effect of the risk

Select from:

☑ Decreased revenues due to reduced demand for products and services

(3.1.1.12) Time horizon over which the risk is anticipated to have a substantive effect on the organization

Select all that apply

☑ Long-term

(3.1.1.13) Likelihood of the risk having an effect within the anticipated time horizon

Select from:

☑ Likely

(3.1.1.14) Magnitude

Select from:

☑ High

(3.1.1.16) Anticipated effect of the risk on the financial position, financial performance and cash flows of the organization in the selected future time horizons

We recognize that the spread of electric and fuel cell vehicles leads to a decrease in gasoline demand and a reduction in orders for oil refining plants, posing a risk of reduced order opportunities and sales. Additionally, the shrinking market size for petrochemical products due to the adoption of decarbonized materials such as bioplastics results in fewer orders for oil refining plants and a decline in our existing oil and gas business, leading to a risk of decreased sales.

(3.1.1.17) Are you able to quantify the financial effect of the risk?

Select from:

☑ Yes

(3.1.1.23) Anticipated financial effect figure in the long-term – minimum (currency)

0

(3.1.1.24) Anticipated financial effect figure in the long-term – maximum (currency)

494086000000

(3.1.1.25) Explanation of financial effect figure

With the advancement of decarbonization, there is a possibility that new investments in the oil and gas sector, which is a major area of our group's total engineering business, will significantly decrease. Additionally, the difficulty in securing orders for the reduced number of projects may increase, leading to a potential decline in orders for oil and gas-related projects. On the other hand, an optimistic estimate assumes that sales in the oil and gas sector may not decrease at all.
Therefore, based on the sales of the oil and gas sector in the total engineering business for the reporting year, the potential financial impact on future sales is estimated as follows:

- Maximum: 617,608 million yen × *80% = 494,086 million yen
- Minimum: 617,608 million yen × 0% = 0 yen

*80%: Considering that EPC (Engineering, Procurement, and Construction) for oil and gas-related projects takes about five years, the sales of our group in 2040 will mainly consist of projects ordered around 2035. Additionally, since customers generally make investment decisions based on demand forecasts at least 10-20 years ahead, it is expected that investment decisions made around 2035 will be based on demand forecasts for 2050. Therefore, assuming that demand and supply forecasts align, referring to the World Energy Outlook 2023 by the IEA (International Energy Agency), the supply forecast for 2050 is approximately 80% lower when compared to the results in 2022.

(3.1.1.26) Primary response to risk

Infrastructure, technology and spending

☑ Increase investment in R&D

(3.1.1.27) Cost of response to risk

10454000000

(3.1.1.28) Explanation of cost calculation

The research and development investment amount for the reporting year is approximately 10,454 million yen. This includes areas considered as "future growth engines" as part of risk mitigation measures, and thus is recognized as risk mitigation costs. The breakdown is as follows: total engineering business: approximately 3,944 million yen, functional materials manufacturing business: approximately 2,970 million yen, other businesses: approximately 27 million yen, costs that cannot be allocated to each segment: approximately 3,511 million yen. The total of the above figures amounts to 10,452 million yen. The difference from the total amount is due to rounding to the nearest million yen. Both the total R&D investment amount and its breakdown are disclosed in the statutory disclosure document, the securities report, and there is no discrepancy between the total and the breakdown.

(3.1.1.29) Description of response

Background:
In our total engineering business, the construction of oil and gas plants has traditionally been the main focus. However, due to the increasing demand for decarbonization, there is a risk of reduced revenue caused by a decrease in gasoline demand and a reduction in orders for oil refining plants. However, our total engineering business possesses the technological capabilities to contribute to climate change mitigation through the decarbonization of oil and gas-related plants, construction of renewable energy facilities, and initiatives related to hydrogen and fuel ammonia as clean energy. Maintaining and enhancing these technologies is essential.
Issue:
The challenge lies in formulating a management strategy focused on low-carbon and decarbonization businesses and transitioning to a group management structure to further diversify our business portfolio. This includes addressing low-carbon initiatives in the oil and gas sector, renewable energy, hydrogen and fuel ammonia, small modular reactors (SMR), resource recycling, life sciences, healthcare, advanced functional materials, and industrial and urban infrastructure.
Action:
To address this challenge, in fiscal year 2023, we promoted research and development and initiatives related to decarbonization in the natural gas sector, low-carbon and decarbonization sectors, resource recycling sector, bio sector, nuclear sector, and offshore wind power sector within the total engineering business. In the functional materials manufacturing business, we focused on environmental conservation, clean energy, and fine ceramics sectors. Specifically, with the support of the New Energy and Industrial Technology Development Organization (NEDO), we are developing technology to thermally decompose imported ammonia to produce hydrogen. Currently, while many of the elemental technologies for decomposing ammonia to produce hydrogen have reached commercial levels, they are only commercially utilized in small-scale equipment and not on a large scale. Among these, further verification and development through elemental testing are needed for the ammonia decomposition tube and the single-stage gas production equipment (PSA method) that separates and purifies nitrogen gas and ammonia from the ammonia decomposition gas. Progress in this development is anticipated. Looking ahead to the social implementation of hydrogen utilization expected to expand domestically and internationally by 2030, we are developing large-scale hydrogen production technology essential for a carbon-neutral society.
Result:
By increasing the sales ratio of low-carbon next-generation businesses, we can cover the decline in sales due to reduced demand in the oil and gas-related business with increased sales from next-generation businesses, thereby mitigating the risk of revenue decline.

(3.1.2) Provide the amount and proportion of your financial metrics from the reporting year that are vulnerable to the substantive effects of environmental risks.

Climate change

(3.1.2.1) Financial metric

Select from:

☑ Revenue

(3.1.2.2) Amount of financial metric vulnerable to transition risks for this environmental issue (unit currency as selected in 1.2)

617608000000

(3.1.2.3) % of total financial metric vulnerable to transition risks for this environmental issue

Select from:

☑ 71-80%

(3.1.2.4) Amount of financial metric vulnerable to physical risks for this environmental issue (unit currency as selected in 1.2)

0

(3.1.2.5) % of total financial metric vulnerable to physical risks for this environmental issue

Select from:

☑ Less than 1%

(3.1.2.7) Explanation of financial figures

The potential revenue at risk due to the aforementioned climate change risks pertains to the oil and gas sector (oil and gas resource development, oil refining, LNG, and chemical sectors) within the total engineering business. In fiscal year 2023, sales from these sectors amounted to 617,608 million yen, accounting for approximately 74% of the total revenue of 832,595 million yen.

(3.5.3) Complete the following table for each of the tax systems you are regulated by.

Japan carbon tax

(3.5.3.1) Period start date

03/31/2023

(3.5.3.2) Period end date

03/30/2024

(3.5.3.3) % of total Scope 1 emissions covered by tax

73

(3.5.3.4) Total cost of tax paid

17668304

(3.5.3.5) Comment

No additional information

(3.6) Have you identified any environmental opportunities which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future?

	Environmental opportunities identified
Climate change	*Select from:* ☑ Yes, we have identified opportunities, and some/all are being realized

(3.6.1) Provide details of the environmental opportunities identified which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future.

Climate change

(3.6.1.1) Opportunity identifier

Select from:

☑ Opp1

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Markets

☑ Expansion into new markets

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☑ Downstream value chain

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☑ Japan

(3.6.1.8) Organization specific description

Amid the global trend towards decarbonization, the performance of power semiconductors is advancing to achieve higher output and energy efficiency in hybrid vehicles, electric vehicles, solar power generation, and LEDs. At the same time, the demands on insulating heat dissipation substrates are becoming more stringent. To meet these demands, we are strengthening and promoting open innovation and alliances to accelerate development in the fine ceramics field. Regarding intellectual property strategies aimed at entering new markets, Japan Fine Ceramics Co., Ltd. collaborates with our Governance Office's Intellectual Property Unit to plan and implement these strategies. We have promoted the development and commercialization of "high thermal conductivity silicon nitride substrates" with world-class heat dissipation and reliability, using a unique manufacturing method jointly developed with the National Institute of Advanced Industrial Science and Technology (AIST). By providing high-performance products in the semiconductor field, we can not only create opportunities for our company but also contribute to decarbonization across industries and society as a whole. This is expected to enhance our reputation and increase revenue due to growing demand.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☑ Increased revenues resulting from increased demand for products and services

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☑ Long-term

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☑ Very likely (90–100%)

(3.6.1.12) Magnitude

Select from:

☑ High

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

In the functional materials manufacturing business, considering the growth forecast of the market size, we aim to achieve sales of 10 billion yen by 2025. Therefore, we recognize this as a significant opportunity for revenue growth.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☑ Yes

(3.6.1.21) Anticipated financial effect figure in the long-term - minimum (currency)

10000000000

(3.6.1.22) Anticipated financial effect figure in the long-term – maximum (currency)

10000000000

(3.6.1.23) Explanation of financial effect figures

Our company aims to achieve sales of 10 billion yen by 2025 as part of our goal to expand the market for strategic products. The functional materials manufacturing business is also included in this "strategic product expansion."

(3.6.1.24) Cost to realize opportunity

2900000000

(3.6.1.25) Explanation of cost calculation

The costs for decarbonization projects, including the functional materials manufacturing business, are being covered by the eighth series of unsecured straight bonds (with inter-bond pari passu clause) (green bond) issued on September 19, 2023. The total expenses for fiscal year 2023 amount to 2.9 billion yen. The breakdown is 1.9 billion yen for SAF and 1 billion yen for biomanufacturing, totaling 2.9 billion yen.

(3.6.1.26) Strategy to realize opportunity

Background:
Amid the global trend towards decarbonization, the performance of power semiconductors is advancing to achieve higher output and energy efficiency in hybrid vehicles, electric vehicles, solar power generation, and LEDs. At the same time, the demands on insulating heat dissipation substrates, including energy efficiency, are becoming more stringent.
Issue:
Therefore, creating higher-performance fine ceramics, including semiconductors, is crucial not only to avoid lost opportunities but also to prevent setbacks in decarbonization and electrification efforts across society.
Action:
To meet these demands, we have invested in equipment to manufacture silicon nitride substrates with higher heat dissipation performance and mechanical strength. Silicon nitride substrates are used as substrates for power modules equipped with power semiconductors such as silicon carbide (SiC), which perform DC-AC power conversion and control in electric vehicles. When the electrical output in electric vehicles increases, power semiconductors generate heat, and if they are not properly cooled or the heat dissipated, it can lead to performance degradation of the semiconductors or damage to the substrates due to thermal stress. Traditionally, aluminum nitride with high thermal conductivity has been used as an insulating heat dissipation substrate, but it has low mechanical strength and reliability issues. Our silicon nitride substrates, compared to aluminum nitride and other ceramic substrates, offer both high heat dissipation performance and mechanical strength, making them essential for the high performance and widespread adoption of power semiconductors like SiC in electric vehicles. For this manufacturing and development of this material, we acquired land in January 2024 and began construction of the manufacturing plant. The plant building is scheduled for completion in January 2025, with manufacturing equipment to be installed sequentially, and production and sales of the products are expected to begin in the fall of 2025.
Result:
The use of power semiconductors equipped with our high thermal conductivity silicon nitride substrates in EVs is expected to improve fuel efficiency, and the overall project is anticipated to reduce CO2 emissions by 360,000 tons.

Climate change

(3.6.1.1) Opportunity identifier

Select from:
☑ Opp2

(3.6.1.3) Opportunity type and primary environmental opportunity driver

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

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☑ Downstream value chain

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☑ Japan

(3.6.1.8) Organization specific description

Due to the increasing social demand for chemicals and fuels derived from biomass from the perspectives of CO2 reduction and sustainability, we are developing technologies to efficiently convert non-edible biomass raw materials, which do not compete with food, into bioethanol and bioplastics. Specifically, we are working on developing a process to produce butadiene, a raw material for tires, using biomass-derived raw materials (ethanol). We possess a unique catalyst with a higher selectivity for butadiene, the raw material for tires, compared to competing technologies. Moving forward, we aim to establish the production process in collaboration with related companies and contribute to the realization of a sustainable society. In the biomanufacturing field, we are promoting the development of the Green Innovation Fund project adopted last year, "Promotion of Carbon Recycling Using CO2 from Biomanufacturing Technology as a Direct Raw Material/Development of Polymer Synthesis Technology by Microorganisms using CO2 as Direct Raw Material," in collaboration with Kaneka Corporation, Bacchus Bio innovation Co., Ltd., and Shimadzu Corporation, with the goal of social implementation. By advancing these initiatives, we recognize that we can meet the increasing demand for decarbonized products and services, contributing to increased sales.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☑ Increased revenues resulting from increased demand for products and services

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☑ Long-term

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☑ Very likely (90–100%)

(3.6.1.12) Magnitude

Select from:

☑ High

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

According to the OECD's "The Bioeconomy to 2030: designing a policy agenda," biomanufacturing is expected to have wide-ranging applications across various fields, with the market size projected to reach 200 trillion yen by 2030. Additionally, by 2040, we aim to achieve results worth several hundred billion yen in collaboration with our partner, Bacchus Bio innovation Co., Ltd., recognizing the significant financial impact in terms of investment and revenue. However, since this field is entirely new, we are unable to disclose the financial impact at this time.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☑ No

(3.6.1.24) Cost to realize opportunity

2900000000

(3.6.1.25) Explanation of cost calculation

The costs for decarbonization projects, including biomanufacturing, are being covered by the eighth series of unsecured straight bonds (with inter-bond pari passu clause) (green bond) issued on September 19, 2023. The total expenses for fiscal year 2023 amount to 2.9 billion yen. The breakdown is 1.9 billion yen for SAF and 1 billion yen for biomanufacturing, totaling 2.9 billion yen.

(3.6.1.26) Strategy to realize opportunity

Background:
From the perspective of CO2 reduction and sustainability, the social demand for chemicals and fuels derived from biomass is increasing.
Issue:
Therefore, addressing low-carbon production from a manufacturing perspective can be expected to increase revenue.
Action:
To seize this opportunity, our company is advancing technology development related to biomanufacturing. Specifically, we are working on developing technologies to produce various substances from CO2 using smart cells (artificially designed cells, mainly microorganisms, using genetic modification technology) to solve the issue of securing raw materials for biomanufacturing, which aims to realize a circular society. In response to the "Green Innovation Fund Project / Promotion of Carbon Recycling Using CO2 from Biomanufacturing Technology as a Direct Raw Material" solicited by the New Energy and Industrial Technology Development Organization (NEDO), we jointly proposed the "Development of Polymer Synthesis Technology by Microorganisms using CO2 as Direct Raw Material" with Kaneka Corporation, Bacchus Bio Innovation Co., Ltd., and Shimadzu Corporation, and it was accepted. Our company has extensive knowledge in safe gas handling and process scale-up cultivated in the EPC (Engineering, Procurement, and Construction) business in the oil and gas sector, as well as in the optimal design of bioreactors in the life sciences field. Therefore, we will establish an "Integrated Biofoundry" with Bacchus to conduct everything from microbial breeding to process development in a one-stop manner, in addition to developing and scaling up safe handling systems for mixed gases containing CO2, hydrogen (H2), and oxygen (O2), and high-efficiency gas fermentation processes. To build the research base for the Integrated Biofoundry, we have secured land on Kobe Port Island and are proceeding with the design of the research building. The facility is scheduled to start construction in the summer of 2024 and be completed in the winter of 2025.
Result:
The technology development of this project is progressing smoothly. Although small in scale, we have designed and manufactured a "gas bioreactor," which is highly challenging to develop, and it has been introduced and is operational at our Research & Development Center in Oarai.

Climate change

(3.6.1.1) Opportunity identifier

Select from:
☑ Opp3

(3.6.1.3) Opportunity type and primary environmental opportunity driver

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

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☑ Downstream value chain

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☑ Japan

(3.6.1.8) Organization specific description

Sustainable Aviation Fuel (SAF) is an aviation fuel that can significantly reduce greenhouse gas emissions compared to conventional aviation fuels throughout its lifecycle, from the production and collection of raw materials such as biomass, waste cooking oil, and municipal waste, to manufacturing and combustion. As the world demands action to reduce CO2 emissions, the aviation industry, particularly overseas, has already begun introducing SAF. In Japan, it is also necessary to accelerate the development, production, distribution, and use of SAF technology. Our company has identified the realization of “societies in harmony with the environment” as a critical issue (materiality) to address. We are focusing on the construction of environmentally friendly LNG (liquefied natural gas) plants, biomass power plants, solar power facilities, and other renewable energy plants, the manufacturing of functional materials such as microplastic alternatives and heat-dissipating silicon nitride substrates for HV/EVs, and the early commercialization of environmental technologies such as hydrogen energy (CO2-free ammonia) and the chemical recycling of waste plastics. Furthermore, JGC CORPORATION, our domestic EPC business company, has a proven track record as an engineering firm, having constructed numerous plants and facilities in the energy and general industrial sectors in Japan. Therefore, our involvement in the SAF business leverages our knowledge and experience in environmental initiatives and our achievements in the EPC business. This enables us to contribute to the optimization of the entire supply chain and the proposal and construction of efficient and economical manufacturing facilities, thereby enhancing our reputation and increasing our sales opportunities.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☑ Increased revenues resulting from increased demand for products and services

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☑ Long-term

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☑ Very likely (90–100%)

(3.6.1.12) Magnitude

Select from:

☑ High

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

In our medium-term management plan announced in 2021, SAF was defined as one of the future engines of growth. In our long-term management vision targeting 2040, resource recycling is also positioned as a major business area. We recognize that the future engines of growth will be central to our future revenue. Therefore, we have announced an investment plan totaling 80 billion yen over the five years from fiscal 2021 to fiscal 2025, and a sales target of 50 billion yen for fiscal 2025. This indicates that the impact on our finances in terms of investment and revenue is significant.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☑ Yes

(3.6.1.21) Anticipated financial effect figure in the long-term - minimum (currency)

50000000000

(3.6.1.22) Anticipated financial effect figure in the long-term – maximum (currency)

50000000000

(3.6.1.23) Explanation of financial effect figures

In our long-term management vision targeting 2040, resource recycling is also positioned as a major business area. We are particularly focused on establishing businesses that we expect to be the future engines of growth. The future engines of growth are planned to achieve sales of 50 billion yen in fiscal 2025, and SAF is included among these future engines of growth.

(3.6.1.24) Cost to realize opportunity

2900000000

(3.6.1.25) Explanation of cost calculation

The costs for decarbonization projects, including SAF, are being covered by the eighth series of unsecured straight bonds (with inter-bond pari passu clause) (green bond) issued on September 19, 2023. The total expenses for fiscal 2023 amount to 2.9 billion yen. The breakdown is 1.9 billion yen for SAF and 1 billion yen for biomanufacturing, totaling 2.9 billion yen.

(3.6.1.26) Strategy to realize opportunity

Background:
As we aim for carbon neutrality by 2050, the momentum for "carbon-neutral skies" is increasing in the aviation sector. For medium and large aircraft, it is said that the limits of weight reduction and efficiency have almost been reached. Therefore, SAF (Sustainable Aviation Fuel) is considered the key to achieving carbon-neutral skies, and its expanded use is urgently needed.
Issue:
Our company has identified the realization of societies in harmony with the environment as a critical issue (materiality) to address. We are focusing on the construction of environmentally friendly LNG (liquefied natural gas) plants, biomass power plants, solar power facilities, and other renewable energy plants, the manufacturing of functional materials such as microplastic alternatives and heat-dissipating silicon nitride substrates for HV/EVs, and the early commercialization of environmental technologies such as hydrogen energy (CO_2-free ammonia) and chemical recycling of waste plastics. Furthermore, JGC CORPORATION, our domestic EPC business company, has a proven track record as an engineering firm, having constructed numerous plants and facilities in the energy and general industrial sectors in Japan. Therefore, our involvement in the SAF business leverages our knowledge and experience in environmental initiatives and our achievements in the EPC business. This enables us to contribute to the optimization of the entire supply chain and the proposal and construction of efficient and economical manufacturing facilities, thereby enhancing our reputation and increasing our sales opportunities.
Action:
To seize this opportunity, our company aims to establish a production system for SAF using waste cooking oil as a raw material and to build a value chain. Specifically, we have established "SAFFAIRE SKY ENERGY LLC" through a joint investment with Cosmo Oil Co., Ltd. and Revo International Inc. for the large-scale domestic production of SAF. In May 2023, we began constructing production facilities within the Cosmo Oil Co., Ltd. Sakai Refinery, and we are working on demonstrating a supply chain model for SAF production using waste cooking oil as a raw material, with an annual supply target of approximately 30,000 kiloliters of SAF by 2025.
Result:
The increasing demand for resource recycling, including SAF, is expanding business opportunities, and timely provision of solutions is expected to increase sales. Specifically for SAF, we have established a new company for domestic SAF production and formed multiple alliances for the collection of waste cooking oil as a raw material, steadily progressing towards commercialization in fiscal 2025 and beyond.

(3.6.2) Provide the amount and proportion of your financial metrics in the reporting year that are aligned with the substantive effects of environmental opportunities.

Climate change

(3.6.2.1) Financial metric

Select from:

☑ Revenue

(3.6.2.2) Amount of financial metric aligned with opportunities for this environmental issue (unit currency as selected in 1.2)

67821000000

(3.6.2.3) % of total financial metric aligned with opportunities for this environmental issue

Select from:

☑ 1-10%

(3.6.2.4) Explanation of financial figures

The expected increase in revenue due to the above climate change opportunities is from clean energy-related businesses. In fiscal 2023, the sales from these businesses amounted to 67,821 million yen, accounting for approximately 8% of the total sales of 832,595 million yen.

C4. Governance

(4.1) Does your organization have a board of directors or an equivalent governing body?

(4.1.1) Board of directors or equivalent governing body

Select from:

☑ Yes

(4.1.2) Frequency with which the board or equivalent meets

Select from:

☑ More frequently than quarterly

(4.1.3) Types of directors your board or equivalent is comprised of

Select all that apply

☑ Executive directors or equivalent

☑ Non-executive directors or equivalent

☑ Independent non-executive directors or equivalent

(4.1.4) Board diversity and inclusion policy

Select from:

☑ Yes, and it is publicly available

(4.1.5) Briefly describe what the policy covers

Regarding the composition and basic policy on diversity of the Board of Directors, our company believes that it is important to have diverse perspectives. We consider backgrounds and areas of expertise, and we have a policy of appointing talented individuals to the Board of Directors regardless of nationality, race, or gender.

(4.1.6) Attach the policy (optional)

Corporate Governance _ Governance _ JGC HOLDINGS CORPORATION.pdf

(4.1.1) Is there board-level oversight of environmental issues within your organization?

	Board-level oversight of this environmental issue	Primary reason for no board-level oversight of this environmental issue	Explain why your organization does not have board-level oversight of this environmental issue
Climate change	*Select from:* ☑ Yes	*Select from:*	*Rich text input [must be under 2500 characters]*
Biodiversity	*Select from:* ☑ No, but we plan to within the next two years	*Select from:* ☑ Lack of internal resources, capabilities, or expertise (e.g., due to organization size)	We plan to make further efforts related to biodiversity in the future.

[Fixed row]

(4.1.2) Identify the positions (do not include any names) of the individuals or committees on the board with accountability for environmental issues and provide details of the board's oversight of environmental issues.

Climate change

(4.1.2.1) Positions of individuals or committees with accountability for this environmental issue

Select all that apply

☑ Chief Executive Officer (CEO)

(4.1.2.2) Positions' accountability for this environmental issue is outlined in policies applicable to the board

Select from:

☑ Yes

(4.1.2.3) Policies which outline the positions' accountability for this environmental issue

Select all that apply

☑ Other policy applicable to the board, please specify **:** It is stipulated that matters will be submitted and reported to the Board of Directors based on our company's Sustainability Committee regulations.

(4.1.2.4) Frequency with which this environmental issue is a scheduled agenda item

Select from:

☑ Scheduled agenda item in some board meetings – at least annually

(4.1.2.5) Governance mechanisms into which this environmental issue is integrated

Select all that apply

☑ Reviewing and guiding annual budgets
☑ Overseeing and guiding scenario analysis
☑ Overseeing the setting of corporate targets
☑ Monitoring progress towards corporate targets
☑ Approving corporate policies and/or commitments
☑ Overseeing reporting, audit, and verification processes
☑ Overseeing and guiding the development of a business strategy
☑ Overseeing and guiding acquisitions, mergers, and divestitures
☑ Monitoring supplier compliance with organizational requirements
☑ Monitoring compliance with corporate policies and/or commitments
☑ Reviewing and guiding the assessment process for dependencies, impacts, risks, and opportunities
☑ Overseeing and guiding public policy engagement
☑ Overseeing and guiding public policy engagement
☑ Reviewing and guiding innovation/R&D priorities
☑ Overseeing and guiding major capital expenditures
☑ Monitoring the implementation of the business strategy

(4.1.2.7) Please explain

The responsibility for explaining climate change-related matters to the Board of Directors lies with the Chairman and CEO. The Board of Directors, as the highest decision-making body, makes decisions on climate change issues, including identifying and assessing climate-related challenges, determining response policies that reflect these challenges in business strategies, and setting greenhouse gas emission reduction targets. The CEO is responsible for executing all these

actions, including integrating environmental issues into the management strategies and goals of our group. The Board of Directors meets regularly once a month and additionally as needed.

(4.2) Does your organization’s board have competency on environmental issues?

Climate change

(4.2.1) Board-level competency on this environmental issue

Select from:

☑ Yes

(4.2.2) Mechanisms to maintain an environmentally competent board

Select all that apply

☑ Consulting regularly with an internal, permanent, subject-expert working group

☑ Regular training for directors on environmental issues, industry best practice, and standards (e.g., TCFD, SBTi)

☑ Having at least one board member with expertise on this environmental issue

(4.2.3) Environmental expertise of the board member

Experience

☑ Executive-level experience in a role focused on environmental issues

☑ Management-level experience in a role focused on environmental issues

☑ Active member of an environmental committee or organization

(4.3) Is there management-level responsibility for environmental issues within your organization?

	Management-level responsibility for this environmental issue	Primary reason for no management-level responsibility for environmental issues	Explain why your organization does not have management-level responsibility for environmental issues
Climate change	*Select from:* ☑ Yes	*Select from:*	*Rich text input [must be under 2500 characters]*
Biodiversity	*Select from:* ☑ No, but we plan to within the next two years	*Select from:* ☑ Lack of internal resources, capabilities, or expertise (e.g., due to organization size)	To promote efforts related to biodiversity in the future.

(4.3.1) Provide the highest senior management-level positions or committees with resibility for environmental issues (do not include the names of individuals).

Climate change

(4.3.1.1) Position of individual or committee with responsibility

Executive level

☑ Chief Executive Officer (CEO)

(4.3.1.2) Environmental responsibilities of this position

Dependencies, impacts, risks and opportunities

☑ Assessing environmental dependencies, impacts, risks, and opportunities

Engagement

☑ Managing public policy engagement related to environmental issues

Policies, commitments, and targets

☑ Measuring progress towards environmental corporate targets

☑ Setting corporate environmental targets

Strategy and financial planning

☑ Conducting environmental scenario analysis

☑ Implementing the business strategy related to environmental issues

☑ Managing acquisitions, mergers, and divestitures related to environmental issues

☑ Managing major capital and/or operational expenditures relating to environmental issues

(4.3.1.4) Reporting line

Select from:

☑ Reports to the board directly

(4.3.1.5) Frequency of reporting to the board on environmental issues

Select from:

☑ More frequently than quarterly

(4.3.1.6) Please explain

The person responsible for addressing climate change issues in our company is the Chairman and CEO. The CEO is responsible for reflecting environmental issues in the management strategies and goals of our group, including the assessment and management of climate-related risks and opportunities. The monitoring of climate change-related issues is conducted by the Sustainability Committee, an advisory body to the CEO. This committee deliberates on and formulates policies and action plans related to sustainability, including our group's response to climate change, and evaluates and promotes these actions. The committee is chaired by the Chairman and CEO and consists of the presidents of the major business companies that make up our group. The deliberations and reports of the committee are appropriately reported to the Board of Directors through the Chairman and CEO and the President and COO. Under the Sustainability Committee, several subcommittees are established to handle: (1) Responses to climate change-related information disclosure, (2) Formulation and management of CO2 emission reduction plans, (3) Identification and response to other sustainability issues.

(4.5) Do you provide monetary incentives for the management of environmental issues, including the attainment of targets?

	Provision of monetary incentives related to this environmental issue	Please explain
Climate change	*Select from:* ☑ No, but we plan to introduce them in the next two years	We will consider introducing director compensation linked to sustainability, including climate change, in the future.

(4.6) Does your organization have an environmental policy that addresses environmental issues?

	Does your organization have any environmental policies?
	Select from: ☑ Yes

(4.6.1) Provide details of your environmental policies.

Row 1

(4.6.1.1) Environmental issues covered

Select all that apply

☑ Climate change

(4.6.1.2) Level of coverage

Select from:

☑ Organization-wide

(4.6.1.3) Value chain stages covered

Select all that apply

☑ Direct operations

☑ Upstream value chain

☑ Downstream value chain

(4.6.1.4) Explain the coverage

Our company is committed to enhancing corporate value sustainably through the creation of social value, based on our purpose of "Enhancing planetary health." To achieve this, we actively pursue sustainability in the areas of environment, society, governance, quality, safety, and health. As a global engineering company dedicated to creating a prosperous future for people and the planet, we have established the following environmental policies to contribute to the protection of the global environment:

1. Set and regularly review environmental goals for office activities and project execution, strive to achieve them, maintain the environmental management system, prevent pollution, and continuously improve.
2. Utilize our technology to make proposals to customers regarding global environmental protection.
3. Comply with various environmental protection laws and regulations, as well as agreements with customers and stakeholders.
4. Through office activities, reduce waste, promote reuse, reduce resource use, save energy, and reduce greenhouse gas emissions to minimize environmental impacts.
5. During project execution, implement the following at each stage of design, procurement, and construction:
    - In design, strive to reduce environmental impact through resource and energy conservation, prevention of air pollution, water pollution, soil contamination, and reduction of greenhouse gases.
    - In procurement, encourage partner companies to adopt proactive environmental protection measures, including the reduction of greenhouse gases.
    - In construction, minimize resource and energy use, reduce waste, promote reuse, and prevent air, water, and soil pollution, as well as reduce greenhouse gases emissions to minimize environmental impact.

(4.6.1.5) Environmental policy content

Environmental commitments

☑ Commitment to a circular economy strategy

☑ Commitment to comply with regulations and mandatory standards

☑ Commitment to take environmental action beyond regulatory compliance

☑ Commitment to stakeholder engagement and capacity building on environmental issues

Climate-specific commitments

☑ Commitment to net-zero emissions

(4.6.1.6) Indicate whether your environmental policy is in line with global environmental treaties or policy goals

Select all that apply

☑ Yes, in line with the Paris Agreement

(4.6.1.7) Public availability

Select from:

☑ Publicly available

(4.6.1.8) Attach the policy

Basic Policies _ About Us _ JGC HOLDINGS CORPORATION.pdf

(4.10) Are you a signatory or member of any environmental collaborative frameworks or initiatives?

(4.10.1) Are you a signatory or member of any environmental collaborative frameworks or initiatives?

Select from:

☑ Yes

(4.10.2) Collaborative framework or initiative

Select all that apply

☑ Task Force on Climate-related Financial Disclosures (TCFD)

☑ UN Global Compact

☑ Other, please specify :GX-League

(4.10.3) Describe your organization’s role within each framework or initiative

As a company supporting the TCFD, we disclose information in accordance with its guidelines. Additionally, with an eye on achieving Japan's 2050 carbon neutrality goal, we belong to the "GX League," a group of companies actively engaged in GX (Green Transformation) initiatives. This league, comprising government, academia, and finance sectors, collectively discusses and practices transforming the entire economic and social system and creating new markets. Our group not only strives to reduce its own CO2 emissions but also includes consulting firms specializing in environment and energy within the group. These firms support the design of systems, project formation, and social implementation aimed at building a decarbonized society. Furthermore, to contribute to global carbon neutrality, we participate in the "GX Business Working Group," part of the "market creation and rulemaking" initiative within the GX League. This initiative aims to establish mechanisms for forming rules between the public and private sectors, ensuring that the contributions of Japanese companies to climate change mitigation (such as emission reductions through products and services offered to the market) are appropriately evaluated.

(4.11) In the reporting year, did your organization engage in activities that could directly or indirectly influence policy, law, or regulation that may (positively or negatively) impact the environment?

(4.11.1) External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the environment

Select all that apply

☑ Yes, we engaged directly with policy makers

☑ Yes, we engaged indirectly through, and/or provided financial or in-kind support to a trade association or other intermediary organization or individual whose activities could influence policy, law, or regulation

(4.11.2) Indicate whether your organization has a public commitment or position statement to conduct your engagement activities in line with global environmental treaties or policy goals

Select from:

☑ Yes, we have a public commitment or position statement in line with global environmental treaties or policy goals

(4.11.3) Global environmental treaties or policy goals in line with public commitment or position statement

Select all that apply

☑ Paris Agreement

(4.11.4) Attach commitment or position statement

Joint Proposal for Japan's First Large-Scale Domestic SAF Production Selected in a Tokyo Project Promoting Recovery of Used Cooking Oil

(4.11.5) Indicate whether your organization is registered on a transparency register

Select from:

☑ Yes

(4.11.6) Types of transparency register your organization is registered on

Select all that apply

☑ Non-government register

(4.11.7) Disclose the transparency registers on which your organization is registered & the relevant ID numbers for your organization

Our company is a member of Keidanren (Japan Business Federation) and is listed in the directory of participating companies.

(4.11.8) Describe the process your organization has in place to ensure that your external engagement activities are consistent with your environmental commitments and/or transition plan

Regarding alignment with climate change response strategies, when joining external organizations, the person in charge drafts an "Application for Approval to Join External Organizations" that specifies the business content and reasons for joining. This application is then approved by the department manager, supervising officer, vice president, president, and chairman. During the approval process, it is considered whether the activities of the organization, including climate change strategies, align with our group's strategies. The Planning and Public Relations Department manages the affiliated organizations and monitors their activities. Particularly, the Clean Fuel Ammonia Association and the Public-Private Council on Fuel Ammonia are industry organizations aimed at the social implementation of technologies addressing climate change. We focus on their activities aligning with our group's climate change response strategies, actively contributing to them, and sharing activity statuses with relevant business companies and departments as needed. Additionally, in industry organizations such as Keidanren (Japan Business Federation) and the Engineering Advancement Association of Japan (ENAA), we actively participate in meetings to formulate climate change-related policies and collaborate with relevant business companies and departments in surveys and hearings to provide responses aligned with our group's climate change response strategies. Participation in the "Zero-Emission Challenge" and becoming a TCFD-supporting company are also handled through this process.

(4.11.1) On what policies, laws, or regulations that may (positively or negatively) impact the environment has your organization been engaging directly with policy makers in the reporting year?

Row 1

(4.11.1.1) Specify the policy, law, or regulation on which your organization is engaging with policy makers

Promotion of the used cooking oil collection campaign "Tokyo Fry to Fly Project" and strengthening public-private collaboration through Tokyo's participation in "ACT FOR SKY."

(4.11.1.2) Environmental issues the policy, law, or regulation relates to

Select all that apply

☑ Climate change

(4.11.1.3) Focus area of policy, law, or regulation that may impact the environment

Environmental impacts and pressures

☑ Emissions – CO2

(4.11.1.4) Geographic coverage of policy, law, or regulation

Select from:

☑ National

(4.11.1.5) Country/area/region the policy, law, or regulation applies to

Select all that apply

☑ Asia Pacific (or JAPA)

(4.11.1.6) Your organization’s position on the policy, law, or regulation

Select from:

☑ Support with no exceptions

(4.11.1.8) Type of direct engagement with policy makers on this policy, law, or regulation

Select all that apply

☑ Participation in voluntary government programs

(4.11.1.9) Funding figure your organization provided to policy makers in the reporting year relevant to this policy, law, or regulation (currency)

0

(4.11.1.10) Explain the relevance of this policy, law, or regulation to the achievement of your environmental commitments and/or transition plan, how this has informed your engagement, and how you measure the success of your engagement

Our company, in collaboration with the Tokyo Metropolitan Government, Cosmo Oil Co., Ltd., and Revo International Inc., is participating in the used cooking oil collection campaign "Tokyo Fry to Fly Project" to achieve "Zero Emission Tokyo," contributing to the global goal of net-zero CO2 emissions by 2050. This campaign aims to collect used cooking oil as a raw material for SAF (Sustainable Aviation Fuel). We recognize this as an initiative towards carbon neutrality by 2050, contributing not only to our own decarbonization strategy but also considering the entire value chain. We believe this effort also aligns with the goals of the international Paris Agreement.

(4.11.1.11) Indicate if you have evaluated whether your organization’s engagement on this policy, law, or regulation is aligned with global environmental treaties or policy goals

Select from:

☑ Yes, we have evaluated, and it is aligned

(4.11.1.12) Global environmental treaties or policy goals aligned with your organization's engagement on this policy, law or regulation

Select all that apply

☑ Paris Agreement

Row 2

(4.11.1.1) Specify the policy, law, or regulation on which your organization is engaging with policy makers

Industry-academia-government collaboration for the practical application of fusion power generation: Participation in the Japan Fusion Energy Council (J-Fusion).

(4.11.1.2) Environmental issues the policy, law, or regulation relates to

Select all that apply

☑ Climate change

(4.11.1.3) Focus area of policy, law, or regulation that may impact the environment

Environmental impacts and pressures

☑ Emissions – CO2

(4.11.1.4) Geographic coverage of policy, law, or regulation

Select from:

☑ National

(4.11.1.5) Country/area/region the policy, law, or regulation applies to

Select all that apply

☑ Asia Pacific (or JAPA)

(4.11.1.6) Your organization's position on the policy, law, or regulation

Select from:

☑ Support with no exceptions

(4.11.1.8) Type of direct engagement with policy makers on this policy, law, or regulation

Select all that apply

☑ Participation in voluntary government programs

(4.11.1.9) Funding figure your organization provided to policy makers in the reporting year relevant to this policy, law, or regulation (currency)

0

(4.11.1.10) Explain the relevance of this policy, law, or regulation to the achievement of your environmental commitments and/or transition plan, how this has informed your engagement, and how you measure the success of your engagement

Our company is participating in the Japan Fusion Energy Council (J-Fusion) under the Cabinet Office. This initiative aims to innovate the energy systems of our country and the world through the creation of a fusion energy industry, contributing to the future development of humanity with stable and clean energy. We are committed to promoting the widespread use of fusion power generation. Within our company, the creation of self-sustaining energy is positioned as crucial for achieving carbon neutrality by 2050. We believe that the practical application of fusion power generation will significantly impact the achievement of carbon neutrality. By participating in this initiative, we also recognize our contribution to global carbon neutrality.

(4.11.1.11) Indicate if you have evaluated whether your organization’s engagement on this policy, law, or regulation is aligned with global environmental treaties or policy goals

Select from:

☑ Yes, we have evaluated, and it is aligned

(4.11.1.12) Global environmental treaties or policy goals aligned with your organization's engagement on this policy, law or regulation

Select all that apply

☑ Paris Agreement

Row 3

(4.11.1.1) Specify the policy, law, or regulation on which your organization is engaging with policy makers

GX League (led by the Ministry of Economy, Trade and Industry): Aiming to transform the entire economic and social system to achieve carbon neutrality by 2050 and meet the national greenhouse gas emission reduction targets for 2030, viewing these efforts as opportunities for economic growth, and striving to achieve both emission reductions and enhanced industrial competitiveness.

(4.11.1.2) Environmental issues the policy, law, or regulation relates to

Select all that apply

☑ Climate change

(4.11.1.3) Focus area of policy, law, or regulation that may impact the environment

Environmental impacts and pressures

☑ Emissions – CO2

(4.11.1.4) Geographic coverage of policy, law, or regulation

Select from:

☑ National

(4.11.1.5) Country/area/region the policy, law, or regulation applies to

Select all that apply

☑ Asia Pacific (or JAPA)

(4.11.1.6) Your organization's position on the policy, law, or regulation

Select from:

☑ Support with no exceptions

(4.11.1.8) Type of direct engagement with policy makers on this policy, law, or regulation

Select all that apply

☑ Participation in voluntary government programs

(4.11.1.9) Funding figure your organization provided to policy makers in the reporting year relevant to this policy, law, or regulation (currency)

0

(4.11.1.10) Explain the relevance of this policy, law, or regulation to the achievement of your environmental commitments and/or transition plan, how this has informed your engagement, and how you measure the success of your engagement

The "GX League," aiming to achieve Japan's 2050 carbon neutrality goal, consists of a group of companies actively engaging in GX (Green Transformation). These companies, in collaboration with the government, academia, and financial institutions, challenge GX initiatives and collectively engage in discussions and practices to transform the entire economic and social system and create new markets. Our group not only strives to reduce its own CO2 emissions but also includes consulting firms related to the environment and energy within the group. These firms support the design of systems, project formation, and social implementation towards building a decarbonized society. Additionally, as part of the GX League's initiatives, we participate in the "GX Business Working Group" under the "market creation and rulemaking" mechanism, which demonstrates the formation of rules through public-private collaboration.
The goal is to establish a system where the opportunities for Japanese companies to contribute to climate change (such as emission reductions through products and services offered to the market) are appropriately evaluated, contributing to the realization of global carbon neutrality.

(4.11.1.11) Indicate if you have evaluated whether your organization’s engagement on this policy, law, or regulation is aligned with global environmental treaties or policy goals

Select from:

☑ Yes, we have evaluated, and it is aligned

(4.11.1.12) Global environmental treaties or policy goals aligned with your organization's engagement on this policy, law or regulation

Select all that apply

☑ Paris Agreement

(4.11.2) Provide details of your indirect engagement on policy, law, or regulation that may (positively or negatively) impact the environment through trade associations or other intermediary organizations or individuals in the reporting year.

Row 1

(4.11.2.1) Type of indirect engagement

Select from:

☑ Indirect engagement via a trade association

(4.11.2.4) Trade association

Asia and Pacific

☑ Japan Business Federation (Keidanren)

(4.11.2.5) Environmental issues relevant to the policies, laws, or regulations on which the organization or individual has taken a position

Select all that apply

☑ Climate change

(4.11.2.6) Indicate whether your organization's position is consistent with the organization or individual you engage with

Select from:

☑ Consistent

(4.11.2.7) Indicate whether your organization attempted to influence the organization or individual's position in the reporting year

Select from:

☑ Yes, we publicly promoted their current position

(4.11.2.8) Describe how your organization’s position is consistent with or differs from the organization or individual’s position, and any actions taken to influence their position

The government has indicated a policy to address climate change issues, and solving this problem requires a fundamental transformation of the entire economic and social system. Initiatives such as "Society 5.0 with Carbon Neutral" and "Challenge Zero" proposed by Keidanren (Japan Business Federation) aim to address this issue. As a top runner in the engineering industry, our group supports the policies advocated by Keidanren and actively participates in related meetings and committees to contribute to the realization of a low-carbon and decarbonized society. The annual membership fee is undisclosed, so it is listed as 0.

(4.11.2.9) Funding figure your organization provided to this organization or individual in the reporting year (currency)

0

(4.11.2.11) Indicate if you have evaluated whether your organization’s engagement is aligned with global environmental treaties or policy goals

Select from:

☑ Yes, we have evaluated, and it is aligned

(4.11.2.12) Global environmental treaties or policy goals aligned with your organization’s engagement on policy, law or regulation

Select all that apply

☑ Paris Agreement

Row 2

(4.11.2.1) Type of indirect engagement

Select from:

☑ Indirect engagement via a trade association

(4.11.2.4) Trade association

Global

☑ Other global trade association, please specify **:** Oil and Gas Climate Initiative

(4.11.2.5) Environmental issues relevant to the policies, laws, or regulations on which the organization or individual has taken a position

Select all that apply

☑ Climate change

(4.11.2.6) Indicate whether your organization's position is consistent with the organization or individual you engage with

Select from:

☑ Consistent

(4.11.2.7) Indicate whether your organization attempted to influence the organization or individual's position in the reporting year

Select from:

☑ Yes, we publicly promoted their current position

(4.11.2.8) Describe how your organization’s position is consistent with or differs from the organization or individual’s position, and any actions taken to influence their position

Methane is one of the major greenhouse gases, having approximately 2884 times the greenhouse effect compared to CO2. Reducing methane, which has a significant impact, can greatly alleviate the trend toward global warming, and efforts to reduce methane emissions are accelerating worldwide. The Oil and Gas Climate Initiative (OGCI) is a CEO-led initiative composed of 12 companies, including Saudi Aramco, ExxonMobil, and Shell, leading various activities to address climate change in the oil and gas industry since January 2014. Furthermore, this initiative, launched in March 2022, aims to achieve zero methane emissions from the oil and gas industry by 2030. Our group is the first Japanese company to participate in this initiative. Currently, more than 40 companies, including those from Europe and the United States that provide solutions for methane Measurement, Reporting, and Verification (MRV) and reduction, are actively taking actions towards achieving zero emissions. Our group has constructed a "methane emissions measurement technology evaluation facility" at our Research & Development Center (Oarai-machi, Higashi Ibaraki-gun, Ibaraki), assuming methane emissions from oil and gas-related facilities. This facility provides a place for evaluating detection capabilities and developing technologies for domestic and international measurement equipment manufacturers, thereby improving measurement technology through broad collaboration and realizing more effective methane emission countermeasures.

(4.11.2.9) Funding figure your organization provided to this organization or individual in the reporting year (currency)

0

(4.11.2.11) Indicate if you have evaluated whether your organization’s engagement is aligned with global environmental treaties or policy goals

Select from:

☑ Yes, we have evaluated, and it is aligned

(4.11.2.12) Global environmental treaties or policy goals aligned with your organization’s engagement on policy, law or regulation

Select all that apply

☑ Paris Agreement

Row 3

(4.11.2.1) Type of indirect engagement

Select from:

☑ Indirect engagement via a trade association

(4.11.2.4) Trade association

Global

☑ Other global trade association, please specify : ClEAN FUEL AMMONIA ASSOCIATION

(4.11.2.5) Environmental issues relevant to the policies, laws, or regulations on which the organization or individual has taken a position

Select all that apply

☑ Climate change

(4.11.2.6) Indicate whether your organization’s position is consistent with the organization or individual you engage with

Select from:

☑ Consistent

(4.11.2.7) Indicate whether your organization attempted to influence the organization or individual’s position in the reporting year

Select from:

☑ Yes, we publicly promoted their current position

(4.11.2.8) Describe how your organization’s position is consistent with or differs from the organization or individual’s position, and any actions taken to influence their position

To achieve sustainable growth that balances energy use and the environment while significantly reducing greenhouse gas emissions, particularly carbon dioxide, is an urgent issue. Many countries, including Japan, are accelerating their efforts to achieve carbon neutrality by 2050. Among the effective solutions being explored, fuel ammonia is gaining high expectations. In the "Green Growth Strategy Through Achieving Carbon Neutrality in 2050" formulated in December 2020, the fuel ammonia industry was identified as one of the 14 key sectors. Additionally, the "Sixth Strategic Energy Plan" approved by the Cabinet in October 2021 positioned hydrogen and ammonia to account for 1% of the power mix by 2030. While technological development for social implementation continues, the "Public-Private Council on Fuel Ammonia" was established in October 2020 to accelerate efforts towards the social implementation of fuel ammonia. This council, which includes both private companies and the government, aims to build a value chain from supply to utilization of fuel ammonia. The Clean Fuel Ammonia Association (CFAA) plays a central role in this initiative. Within this framework, an Executive Officer of JGC HOLDINGS CORPORATION serves as Vice Chairman, aiming to build a value chain for CO2-free ammonia from supply to utilization. This involves technology development/evaluation, economic assessment, policy recommendations, and international collaboration.

(4.11.2.9) Funding figure your organization provided to this organization or individual in the reporting year (currency)

1000000

(4.11.2.10) Describe the aim of this funding and how it could influence policy, law or regulation that may impact the environment

We pay an annual membership fee. This supports the activities of the Clean Fuel Ammonia Association (CFAA).

(4.11.2.11) Indicate if you have evaluated whether your organization’s engagement is aligned with global environmental treaties or policy goals

Select from:

☑ Yes, we have evaluated, and it is aligned

(4.11.2.12) Global environmental treaties or policy goals aligned with your organization’s engagement on policy, law or regulation

Select all that apply

☑ Paris Agreement
[Add row]

(4.12.1) Provide details on the information published about your organization's response to environmental issues for this reporting year in places other than your CDP response. Please attach the publication.

Row 1

(4.12.1.1) Publication

Select from:
☑ In mainstream reports, in line with environmental disclosure standards or frameworks

(4.12.1.2) Standard or framework the report is in line with

Select all that apply
☑ TCFD

(4.12.1.3) Environmental issues covered in publication

Select all that apply
☑ Climate change

(4.12.1.4) Status of the publication

Select from:
☑ Complete

(4.12.1.5) Content elements

Select all that apply

☑ Governance

☑ Risks & Opportunities

☑ Strategy

☑ Emissions figures

☑ Emission targets

(4.12.1.6) Page/section reference

18,19

(4.12.1.7) Attach the relevant publication

fy23_yukashoken.pdf

(4.12.1.8) Comment

No additional notes.
[Add row]

C5. Business strategy

(5.1) Does your organization use scenario analysis to identify environmental outcomes?

Climate change

(5.1.1) Use of scenario analysis

Select from:
☑ Yes

(5.1.2) Frequency of analysis

Select from:
☑ Every three years or less frequently
[Fixed row]

(5.1.1) Provide details of the scenarios used in your organization's scenario analysis.

Climate change

(5.1.1.1) Scenario used

Climate transition scenarios
☑ IEA SDS

(5.1.1.3) Approach to scenario

Select from:
☑ Qualitative and quantitative

(5.1.1.4) Scenario coverage

Select from:

☑ Organization-wide

(5.1.1.5) Risk types considered in scenario

Select all that apply

☑ Policy

☑ Market

☑ Reputation

☑ Technology

☑ Liability

(5.1.1.6) Temperature alignment of scenario

Select from:

☑ 1.6°C - 1.9°C

(5.1.1.7) Reference year

2021

(5.1.1.8) Timeframes covered

Select all that apply

☑ 2040

(5.1.1.9) Driving forces in scenario

Stakeholder and customer demands

☑ Consumer attention to impact

Regulators, legal and policy regimes

☑ Global regulation

(5.1.1.10) Assumptions, uncertainties and constraints in scenario

For our group, whose main business area is the energy sector, the World Energy Outlook (WEO) published by the IEA always serves as a reference material. It is well-known and widely referred to by the general public. Therefore, we selected the Sustainable Development Scenario (SDS) from the IEA WEO 2020 as the scenario where transition risks become severe. As parameters and assumptions for the scenario analysis, we input current values and future values indicated in the scenario where transition risks become severe, such as the rise in carbon prices, the strengthening of GHG emission targets, changes in the energy mix (reduction of fossil fuels/increase in renewable energy and nuclear power), trends in energy demand (decrease in gasoline demand), and the increase in demand for renewable energy generation. The analysis timeline was set to 2040, aligning with our long-term management vision "2040 Vision," and both qualitative and quantitative analyses were conducted. For analytical choices, we appropriately referred to the "Guide to Business Strategic Planning Leveraging the TCFD Recommendations: Practical Guide to Scenario Analysis in Disclosure of Climate-related Risks and Opportunities" published by the Ministry of the Environment. Additionally, in fiscal year 2024, we plan to conduct a 1.5-degree scenario analysis targeting 2050.

(5.1.1.11) Rationale for choice of scenario

In conducting scenario analysis, our company analyzed the impact on our business under two extreme future world assumptions: one where the world progresses the most towards decarbonization, and the other where climate change advances the most. For the society moving towards decarbonization, we used the IEA's Sustainable Development Scenario (SDS).

Climate change

(5.1.1.1) Scenario used

Physical climate scenarios

☑ RCP 6.0

(5.1.1.2) Scenario used SSPs used in conjunction with scenario

Select from:

☑ No SSP used

(5.1.1.3) Approach to scenario

Select from:

☑ Qualitative and quantitative

(5.1.1.4) Scenario coverage

Select from:

☑ Organization-wide

(5.1.1.5) Risk types considered in scenario

Select all that apply

☑ Policy

☑ Market

☑ Liability

☑ Reputation

☑ Technology

☑ Acute physical

☑ Chronic physical

(5.1.1.6) Temperature alignment of scenario

Select from:

☑ 4.0°C and above

(5.1.1.7) Reference year

2021

(5.1.1.8) Timeframes covered

Select all that apply

☑ 2040

(5.1.1.9) Driving forces in scenario

Local ecosystem asset interactions, dependencies and impacts

☑ Changes to the state of nature

(5.1.1.10) Assumptions, uncertainties and constraints in scenario

For our group, whose main business area is the energy sector, the World Energy Outlook (WEO) published by the IEA is always a reference material. It is well-known and widely referred to by the general public. Therefore, we selected the Stated Policy Scenario (STEPS) as the scenario where physical risks become severe. STEPS corresponds to a temperature range similar to RCP6.0. For the scenario analysis, we input current values and future values indicated in the scenario where physical risks become severe, such as the increased severity of extreme weather events like cyclones and floods, rising average temperatures, sea level rise, changes in precipitation patterns, and extreme fluctuations in weather patterns. The analysis timeline was set to 2040, aligning with our long-term management vision "2040 Vision," and both qualitative and quantitative analyses were conducted. For analytical choices, we appropriately referred to the "Guide to Business Strategic Planning Leveraging the TCFD Recommendations: Practical Guide to Scenario Analysis in Disclosure of Climate-related Risks and Opportunities" published by the Ministry of the Environment.

(5.1.1.11) Rationale for choice of scenario

In conducting scenario analysis, our company analyzed the impact on our business under two extreme future world assumptions: one where the world progresses the most towards decarbonization, and the other where climate change advances the most. For the world where climate change becomes most severe, we used the RCP6.0 scenario for our analysis.

(5.1.2) Provide details of the outcomes of your organization’s scenario analysis.

Climate change

(5.1.2.1) Business processes influenced by your analysis of the reported scenarios

Select all that apply

☑ Risk and opportunities identification, assessment and management

☑ Strategy and financial planning

☑ Resilience of business model and strategy

☑ Capacity building

(5.1.2.2) Coverage of analysis

Select from:

☑ Organization-wide

(5.1.2.3) Summarize the outcomes of the scenario analysis and any implications for other environmental issues

1. **Period and Relevance to Our Business** The analysis timeline was set to 2040, aligning with our long-term management vision "2040 Vision." The reason for setting the vision timeline to 2040 is that, even considering the IPCC 1.5 scenario, it is necessary to capture the process of energy transition from the existing fossil fuel-centered energy system to the utilization of renewable energy and CO2 reduction measures such as CCS when examining the impact on our business.
2. **Boundary** The analysis covered all areas, including overseas, as the JGC Group's business scope includes all regions worldwide, such as Asia, Africa, Europe, and the Americas. Limiting the analysis to a specific region would not align with our objectives. The business scope included the five companies: JGC CORPORATION (JGC Global), JGC JAPAN CORPORATION, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd., and JAPAN NUS CO., LTD. Although JGC Global is most significantly affected by climate change based on sales, the profits of JJPN, C&C, JFC, and JANUS also impact the entire group, so they were included in the analysis. The corporate scope was within the consolidated financial statements. However, if there were significant risks or opportunities in the upstream and downstream supply chain, efforts were made to qualitatively grasp them as much as possible.
3. **Summary of Scenario Analysis Results (Specific to Our Group)**

    - **Transition Scenario**: In the IEA-SDS scenario, where transition risks become severe, the introduction of carbon pricing, strengthening of carbon emission targets by countries, changes in the energy mix, and trends in energy demand are risk factors as they reduce the demand for oil & gas plant construction, which is a mainstay of our group's total engineering business. On the other hand, the demand for facilities such as those for renewable energy generation, CCS-equipped LNG/natural gas, hydrogen energy, bio-based chemical industries, small modular reactors, and resource recycling is expected to increase, presenting significant opportunities for our company to engage in their social implementation.
    - **Physical Scenario**: In the RCP6.0 scenario, where physical risks become severe, the demand for oil & gas plant construction is not expected to decrease. However, there are risks to our business due to increased extreme weather events such as heavy rains, storms, typhoons, and floods, which are attributed to global warming, causing physical damage to materials and our group's facilities, human damage to employees, and delays in material procurement. Chronic physical risks include the generalization of construction delays due to decreased labor productivity at construction sites in temperate and tropical regions due to rising average temperatures. There are also concerns about increased costs for safety measures and disaster compensation due to increased labor safety risks. Additionally, if sea levels rise in coastal areas, there is a risk of increased transportation costs due to ports having become unusable.
4. **Case Study Showing How Scenario Analysis Results Directly Impacted Business Objectives and Strategies**

    - **Background/Challenges**: According to the scenario analysis results, the demand for oil & gas plant construction, which is currently a mainstay of our group's total engineering business, is expected to significantly decrease due to the increasing need for decarbonization. If our company delays in responding to the societal shift towards decarbonization, it could lead to a decline in our corporate value.

Conversely, the development of decarbonization initiatives and services necessary for their realization could enhance our corporate value. Therefore, appropriate responses and strategy formulation are required for these risks and opportunities.

- **Actions/Results**: Our company formulated a long-term management vision called "2040 Vision," which spans the decade and a half until 2040. This vision aims to solve three social issues: "managing both energy stability and decarbonization," "reducing the environmental impact of resource consumption," and "building and maintaining vital infrastructure and services." Additionally, one of the business areas supporting this vision is "Energy Transition," aiming for the decarbonization and expansion of clean energy, including low-carbon and decarbonized oil & gas. Through these analyses and visions, our company aims to generate an operating profit of 60 billion yen by 2025, over 100 billion yen by 2030, and 150-200 billion yen by 2040. Furthermore, recognizing the business environment surrounding our company, we aim to secure and expand profits through the "transformation of EPC operations" and the "expansion of high-performance functional materials manufacturing business," and challenge the "establishment of future engines of growth" for long-term growth towards 2040. In particular, regarding the "establishment of future engines of growth" related to climate change, we decided to establish the following businesses, which are particularly expected in the business areas defined in the "2040 Vision," planning to achieve sales of 50 billion yen in fiscal year 2025 and grow into a business with sales of 500 billion yen in 10 years:
    - **Energy Transition**: Carbon management, offshore wind power, hydrogen and fuel ammonia, small modular reactors (SMR), smart O&M
    - **Healthcare and Life Sciences**: Smart hospitals, smart factories, digital healthcare
    - **Functional Materials**: Catalysts for carbon recycling and chemical recycling, bone regeneration materials/OCP, etc.
    - **Resource Circulation**: Recycling of waste plastics and waste fibers, SAF (next-generation aviation fuel)
    - **Industrial and Urban Infrastructure**: Water treatment, railways

The scenario analysis results have broadly influenced our medium- to long-term business strategies, financial plans, and specific measures for their realization. As of March 2024, our climate change initiatives related to the above are progressing smoothly.

(5.2) Does your organization’s strategy include a climate transition plan?

(5.2.1) Transition plan

Select from:

☑ No, but we are developing a climate transition plan within the next two years

(5.2.15) Primary reason for not having a climate transition plan that aligns with a 1.5°C world

Select from:

☑ Lack of internal resources, capabilities, or expertise (e.g., due to organization size)

(5.2.16) Explain why your organization does not have a climate transition plan that aligns with a 1.5°C world

In the long-term management vision announced in 2021, we declared our Commitment to Carbon Neutrality by 2050. Our goals include reducing Scope 1 and 2 CO2 emissions intensity by 30% by 2030 and achieving net-zero CO2 emissions by 2050. Specific initiatives include promoting energy efficiency in our corporate activities and the use of renewable energy to achieve low-carbon and decarbonization. These plans are expected to be formulated within the next two years.

(5.3) Have environmental risks and opportunities affected your strategy and/or financial planning?

(5.3.1) Environmental risks and/or opportunities have affected your strategy and/or financial planning

Select from:

☑ Yes, both strategy and financial planning

(5.3.2) Business areas where environmental risks and/or opportunities have affected your strategy

Select all that apply

☑ Products and services

☑ Upstream/downstream value chain

☑ Investment in R&D

☑ Operations

(5.3.1) Describe where and how environmental risks and opportunities have affected your strategy.

Products and services

(5.3.1.1) Effect type

Select all that apply

☑ Risks

☑ Opportunities

(5.3.1.2) Environmental issues relevant to the risks and/or opportunities that have affected your strategy in this area

Select all that apply

☑ Climate change

(5.3.1.3) Describe how environmental risks and/or opportunities have affected your strategy in this area

Background: According to the scenario analysis results, the increasing need for decarbonization is expected to reduce the demand for oil & gas plant construction, which is currently a mainstay of our group's total engineering business. On the other hand, an increase in demand for the low-carbon energy market is anticipated. The rising need for decarbonization poses a risk for companies primarily engaged in oil & gas-related businesses, as their activities in the related industrial sectors may become targets of criticism. While our group's total engineering business possesses the technological capabilities to contribute to climate change measures, such as the decarbonization of oil & gas-related plants, construction of renewable energy facilities, and initiatives related to hydrogen and fuel ammonia as clean energy, failing to maintain and improve these technologies could lead to a decline in evaluation and reputation from stakeholders and banks. This could negatively impact various aspects, including order opportunities for facility construction, project financing, and securing human resources for corporate activities.

Challenges: The challenge lies in formulating a management strategy focused on low-carbon and decarbonization businesses and transitioning to a group management structure to further diversify the business portfolio. This includes addressing low-carbon measures in the oil & gas sector, renewable energy, hydrogen and fuel ammonia, small modular reactors (SMR), resource circulation, life sciences, healthcare, high-performance functional materials, and industrial and urban infrastructure.

Actions: To address these challenges, in fiscal year 2023, we promoted decarbonization-related initiatives in the natural gas sector, low-carbon and decarbonization sectors, resource circulation sector, bio sector, nuclear sector, and offshore wind power sector within the total engineering business, as well as in the environmental conservation and clean energy sectors and fine ceramics sector within the functional materials manufacturing business. Specifically, we received orders for a hydrogen production plant in Australia in July and a grid battery installation project in Japan in August, among other projects. We also steadily executed previously received EPC projects related to decarbonization, including hydrogen and ammonia.

Additionally, our company aims to socially implement the production and supply of CO2-free ammonia from renewable energy and fossil resources. We are conducting research and development to find more efficient production methods and cost reductions for CO2-free ammonia, as well as developing technology to thermally decompose ammonia to produce hydrogen. Looking ahead to the social implementation of hydrogen utilization expected by 2030, both domestically and internationally, we aim to expand decarbonization-related services by developing large-scale hydrogen production technologies essential for a carbon-neutral society.

Results: The expansion of products and services through next-generation low-carbon businesses helps avoid reputation risks for our company, which primarily engages in oil & gas-related businesses. It is expected to reduce the risk of declining sales in the total engineering business, including the oil & gas sector, and also respond to the increasing demand for decarbonization-related needs, recognizing it as an opportunity. Even at present, EPC projects in the decarbonization sector are gradually contributing to our group's revenue.

Upstream/downstream value chain

(5.3.1.1) Effect type

Select all that apply

☑ Risks

☑ Opportunities

(5.3.1.2) Environmental issues relevant to the risks and/or opportunities that have affected your strategy in this area

Select all that apply

☑ Climate change

(5.3.1.3) Describe how environmental risks and/or opportunities have affected your strategy in this area

Background: According to the results of scenario analysis, the introduction of carbon pricing and the strengthening of carbon emission regulations in various countries are expected to emphasize efforts towards decarbonization not only within our company but also across the value chain.
Issue: Our company is no exception, and it is required to promote efforts towards decarbonization within the value chain.
Action: From fiscal year 2023, our company is working on reducing CO2 emissions at construction sites. The continuing reduction of CO2 emissions at construction sites will be achieved through the introduction of low-emission construction machinery, the promotion of idling and revving stop, and the saving of energy usage. These measures will be implemented in cooperation with our group companies and partner companies. The success indicator for this engagement is set as achieving a target CO2 emission intensity of 0.7 kg-CO2/MH (emissions per unit working hour) at construction sites in Japan.
Specific Impact of the Engagement: At large domestic construction sites, our group will issue the "Construction Site Environmental Management Plan" to partner companies and provide environmental education, including environmental policies, to construction personnel entering the site. Additionally, in accordance with the "Environmental Goals and Implementation Plan" issued by our group to partner companies, environmental items are monitored and recorded using the "Checklist for Confirming Environmental Considerations at Site Offices and Surrounding Areas" and the "Survey Form for Operating Rates of Low-Emission Construction Machinery, Heavy Equipment, and Transport Vehicles, and Idling Stop Form."
As a result of this engagement, changes in daily operations and behaviors such as idling and revving stop and energy saving at construction sites have occurred, leading to the execution of construction work that reduces CO2 emissions and activities that consider the surrounding environment of construction sites. We will continue this engagement in the future to reduce CO2 emissions at construction sites.
Outcome: By advancing such initiatives, we recognize that it will contribute not only to risk reduction but also to the acquisition of opportunities as a company promoting decarbonization across the value chain.

Investment in R&D

(5.3.1.1) Effect type

Select all that apply

☑ Risks

☑ Opportunities

(5.3.1.2) Environmental issues relevant to the risks and/or opportunities that have affected your strategy in this area

Select all that apply

☑ Climate change

(5.3.1.3) Describe how environmental risks and/or opportunities have affected your strategy in this area

Background: According to the results of scenario analysis, the demand for CO2 reduction is expected to accelerate further. The spread of low-carbon technologies and the advancement of next-generation technologies may create new opportunities in the low-carbon energy market, such as hydrogen, CCU, bio-based chemicals, and decentralized utility supply.
Issue: The technology development of our group's total engineering business has been centered on oil and gas-related fields. It has become necessary to review the priorities of research and development themes to create new business opportunities in the low-carbon energy market.
Action: As part of our actions, we are conducting research and development from the perspectives of promoting the introduction of CO2-free fuels, carbon recycling, and EMS (Energy Management Systems). Our company aims to implement the social deployment of CO2-free ammonia produced from renewable energy and fossil resources. We are conducting research and development to find more efficient production methods and cost reductions for CO2-free ammonia. Additionally, with the support of the New Energy and Industrial Technology Development Organization (NEDO), we are developing technology to thermally decompose imported ammonia to produce hydrogen. Currently, while many of the elemental technologies for producing hydrogen by decomposing ammonia have reached commercial levels, they are only commercially used in small-scale equipment and not on a large scale. Among these, further verification and development through elemental testing are required for the ammonia decomposition tube and the single-stage gas production equipment (PSA method) that separates and purifies nitrogen gas and ammonia from the ammonia decomposition gas. Progress in this development is anticipated. Looking ahead to the social implementation of hydrogen utilization expansion in 2030, we will develop large-scale hydrogen production technology essential for a carbon-neutral society.
Furthermore, we are also advancing technology development related to biomanufacturing. As a project for sustainable aviation fuel (SAF) using waste cooking oil as a raw material, SAFFAIRE SKY ENERGY, a joint venture established by Cosmo Oil Co., Ltd., Revo International Inc., and our company, is working on the first large-scale domestic production of SAF using only domestically discharged waste cooking oil. In May 2023, we started constructing manufacturing equipment within the Cosmo Oil Co., Ltd. Sakai Refinery, aiming to supply approximately 30,000 kiloliters of SAF annually and demonstrate the supply chain model for SAF production using waste cooking oil as a raw material.

Additionally, we are promoting technology development related to biomanufacturing. Using smart cells (artificially designed cells using genetic modification technology, mainly microorganisms) to produce various substances, we aim to solve the issue of securing raw materials in biomanufacturing, a technology that realizes a circular society. Together with Kaneka Corporation, Bacchus BioInnovation Co., Ltd., and Shimadzu Corporation, we jointly proposed and were selected for the "Green Innovation Fund Project/Promotion of Carbon Recycling Using CO2 from Biomanufacturing Technology as a Direct Raw Material" under the "Green Innovation Fund Project/Promotion of Carbon Recycling Using CO2 from Biomanufacturing Technology as a Direct Raw Material" solicited by NEDO. Our company has extensive knowledge in safe gas handling and process scale-up of hydrogen gas, etc., cultivated in the EPC (Engineering, Procurement, and Construction) business in the oil and gas field, as well as in optimizing the design of culture tanks in the life sciences field. Therefore, we will establish an "integrated biofoundry®" with Bacchus to conduct one-stop breeding of microorganisms and process development, in addition to developing and scaling up safe handling systems for mixed gases containing CO2, hydrogen (H2), and oxygen (O2), and high-efficiency gas fermentation processes.
In this consolidated fiscal year, positioned as the third year of the medium-term management plan "BSP2025"(the five years of challenge), which is the first phase of the long-term management vision "2040 Vision," we will continue to focus on the three key strategies: ① further deepening of the EPC business, ② expansion of the high-performance functional materials manufacturing business, and ③ establishment of future engines of growth. We have allocated a total of 10,454 million yen for research and development, including decarbonization-related efforts.
Outcome: By engaging in research and development to create new businesses, we aim to mitigate the risk of losing revenue from the oil and gas sector due to the energy transition, while capturing climate-related opportunities and expanding our business in the low-carbon energy market.

Operations

(5.3.1.1) Effect type

Select all that apply

☑ Risks

☑ Opportunities

(5.3.1.2) Environmental issues relevant to the risks and/or opportunities that have affected your strategy in this area

Select all that apply

☑ Climate change

(5.3.1.3) Describe how environmental risks and/or opportunities have affected your strategy in this area

Background: According to the results of scenario analysis, the increasing demand for decarbonization is expected to reduce the demand for oil and gas plant construction, which is currently the mainstay of our group's total engineering business. In the future, as society as a whole transitions to decarbonization, a delay in response could lead to a decline in our company's value. On the other hand, decarbonization efforts and services could enhance our company's value.
Issue: Therefore, it is necessary to formulate appropriate responses and strategies to address these risks and opportunities.
Action: Our company has formulated a long-term management vision called "2040 Vision," which spans the period until 2040. This vision aims to solve three social issues: "balancing stable energy supply and decarbonization," "reducing the environmental impact of resource use," and "building and maintaining vital infrastructure and services." Additionally, we have set five business areas to support this vision: Energy Transition, Healthcare/Life Sciences, High-Performance Materials, Resource Circulation, and Industrial/Urban Infrastructure. In particular, in the Energy Transition area, we aim to achieve net-zero by promoting the decarbonization of oil and gas and expanding clean energy.
Through these transformations, we aim to become a company that generates an operating profit of 60 billion yen by 2025, over 100 billion yen by 2030, and 150-200 billion yen by 2040. Based on this business environment recognition, our company has decided to challenge the "further deepening of the EPC business," "expansion of the high-performance materials manufacturing business," and "establishment of future engines of growth" for long-term growth towards 2040.
In particular, in the "establishment of future engines of growth" related to climate change, we will focus on establishing the following businesses in the five business areas defined in the "2040 Vision." We plan to achieve sales of 50 billion yen in fiscal 2025 and grow it into a business with sales of 500 billion yen in 10 years.

- **Energy Transition**: Carbon management, offshore wind power, hydrogen and fuel ammonia, small modular reactors (SMR), smart O&M
- **Healthcare/Life Sciences**: Smart hospitals, smart factories, digital healthcare
- **High-Performance Materials**: Catalysts for carbon recycling and chemical recycling, bone regeneration materials/OCP, etc.
- **Resource Circulation**: Recycling of waste plastics and waste fibers, SAF (next-generation aviation fuel)
- **Industrial/Urban Infrastructure**: Water treatment, railways

Outcome: The initiatives related to climate change mentioned above are progressing smoothly.

(5.3.2) Describe where and how environmental risks and opportunities have affected your financial planning.

Row 1

(5.3.2.1) Financial planning elements that have been affected

Select all that apply
☑ Capital expenditures

(5.3.2.2) Effect type

Select all that apply

☑ Risks

☑ Opportunities

(5.3.2.3) Environmental issues relevant to the risks and/or opportunities that have affected these financial planning elements

Select all that apply

☑ Climate change

(5.3.2.4) Describe how environmental risks and/or opportunities have affected these financial planning elements

Background: As society as a whole progresses towards achieving a low-carbon and decarbonized society through energy transition, there are significant business opportunities for our company in the decarbonization of the oil and gas sector, renewable energy such as solar power, energy storage, and biomass, as well as new fields like offshore wind power, hydrogen, fuel ammonia, and chemical recycling. In the medium-term management plan for fiscal years 2016-2020, we established a framework for the commercialization of these clean energy and resource recycling-related technologies as a foundation for growth, but the business materialization remained limited.
Issue: To capture the expanding business opportunities driven by accelerated climate change measures domestically and internationally, a new financial plan, including increased investment, was necessary.
Action: In light of this, our company has been significantly influenced in revising the strategic investment policy in the long-term management vision announced in May 2021 and the medium-term management plan, anticipating the necessary investments. Specifically, we plan to allocate 80 billion yen in strategic investments for the establishment of future engines of growth, including carbon management, offshore wind power, hydrogen, and fuel ammonia. Additionally, in the reporting year, we issued 10 billion yen in green bonds as a funding method to promote new investments and projects related to the key strategies of "expansion of the high-performance materials manufacturing business" and "establishment of future engines of growth" in the medium-term management plan "BSP2025."
Outcome: Significant business expansion is expected in the areas of clean energy and resource circulation.

(5.4) In your organization’s financial accounting, do you identify spending/revenue that is aligned with your organization’s climate transition?

	Identification of spending/revenue that is aligned with your organization’s climate transition	Methodology or framework used to assess alignment with your organization’s climate transition
	Select from: ☑ Yes	*Select all that apply* ☑ Other methodology or framework

(5.4.1) Quantify the amount and percentage share of your spending/revenue that is aligned with your organization’s climate transition.

Row 1

(5.4.1.1) Methodology or framework used to assess alignment

Select from:
☑ Other, please specify **:** ICMA ”GBP 2021”, Ministry of the Environment “Green Bond Guidelines 2022”

Select from:
☑ CAPEX

(5.4.1.6) Amount of selected financial metric that is aligned in the reporting year (currency)

2900000000

(5.4.1.7) Percentage share of selected financial metric aligned in the reporting year (%)

15

(5.4.1.8) Percentage share of selected financial metric planned to align in 2025 (%)

15

(5.4.1.9) Percentage share of selected financial metric planned to align in 2030 (%)

15

(5.4.1.12) Details of the methodology or framework used to assess alignment with your organization’s climate transition

This Green Bond Framework is formulated in accordance with the four elements defined by the International Capital Market Association (ICMA) in the "Green Bond Principles (GBP) 2021" and the Ministry of the Environment's "Green Bond Guidelines 2022 Edition." Our company will conduct financing through green bonds based on this framework.

(5.10) Does your organization use an internal price on environmental externalities?

	Use of internal pricing of environmental externalities	Primary reason for not pricing environmental externalities	Explain why your organization does not price environmental externalities
	Select from: ☑ No, but we plan to in the next two years	*Select from:* ☑ Lack of internal resources, capabilities, or expertise (e.g., due to organization size)	We will consider future initiatives regarding internal carbon pricing.

(5.11) Do you engage with your value chain on environmental issues?

	Engaging with this stakeholder on environmental issues	Environmental issues covered
Suppliers	*Select from:* ☑ Yes	*Select all that apply* ☑ Climate change
Customers	*Select from:* ☑ Yes	*Select all that apply* ☑ Climate change
Investors and shareholders	*Select from:* ☑ Yes	*Select all that apply* ☑ Climate change
Other value chain stakeholders	*Select from:* ☑ Yes	*Select all that apply* ☑ Climate change

(5.11.1) Does your organization assess and classify suppliers according to their dependencies and/or impacts on the environment?

	Assessment of supplier dependencies and/or impacts on the environment
Climate change	*Select from:* ☑ No, we do not currently assess the dependencies and/or impacts of our suppliers, but we plan to do so within the next two years

(5.11.2) Does your organization prioritize which suppliers to engage with on environmental issues?

Climate change

(5.11.2.1) Supplier engagement prioritization on this environmental issue

Select from:

☑ No, we do not prioritize which suppliers to engage with on this environmental issue

(5.11.2.3) Primary reason for no supplier prioritization on this environmental issue

Select from:

☑ No standardized procedure

(5.11.2.4) Please explain

Although our company has established environmental policies for dealing with suppliers, it is sometimes difficult for us to select suppliers due to operational constraints where suppliers are designated. Therefore, we have not been able to prioritize engagement. On the other hand, our environmental management system, which includes our environmental policies, is ISO 14001 certified and is widely applied to suppliers of materials and equipment, as well as construction partners.

(5.11.5) Do your suppliers have to meet environmental requirements as part of your organization's purchasing process?

	Suppliers have to meet specific environmental requirements related to this environmental issue as part of the purchasing process	Policy in place for addressing supplier non-compliance	Comment
Climate change	*Select from:* ☑ Yes, suppliers have to meet environmental requirements related to this environmental issue, but they are not included in our supplier contracts	*Select from:* ☑ Yes, we have a policy in place for addressing non-compliance	No additional notes

(5.11.6) Provide details of the environmental requirements that suppliers have to meet as part of your organization's purchasing process, and the compliance measures in place.

Climate change

(5.11.6.1) Environmental requirement

Select from:

☑ Implementation of emissions reduction initiatives

(5.11.6.2) Mechanisms for monitoring compliance with this environmental requirement

Select all that apply

☑ Supplier self-assessment

(5.11.6.3) % tier 1 suppliers by procurement spend required to comply with this environmental requirement

Select from:

☑ 76-99%

(5.11.6.4) % tier 1 suppliers by procurement spend in compliance with this environmental requirement

Select from:

☑ 100%

(5.11.6.7) % tier 1 supplier-related scope 3 emissions attributable to the suppliers required to comply with this environmental requirement

Select from:

☑ 76-99%

(5.11.6.8) % tier 1 supplier-related scope 3 emissions attributable to the suppliers in compliance with this environmental requirement

Select from:
☑ 100%

(5.11.6.9) Response to supplier non-compliance with this environmental requirement

Select from:
☑ Retain and engage

(5.11.6.10) % of non-compliant suppliers engaged

Select from:
☑ None

(5.11.6.11) Procedures to engage non-compliant suppliers

Select all that apply
☑ Assessing the efficacy and efforts of non-compliant supplier actions through consistent and quantified metrics

(5.11.6.12) Comment

No additional notes

(5.11.7) Provide further details of your organization's supplier engagement on environmental issues.

Climate change

(5.11.7.2) Action driven by supplier engagement

Select from:
☑ Emissions reduction

(5.11.7.3) Type and details of engagement

Innovation and collaboration

☑ Run a campaign to encourage innovation to reduce environmental impacts on products and services

(5.11.7.4) Upstream value chain coverage

Select all that apply

☑ Tier 1 suppliers

(5.11.7.5) % of tier 1 suppliers by procurement spend covered by engagement

Select from:

☑ 26-50%

(5.11.7.6) % of tier 1 supplier-related scope 3 emissions covered by engagement

Select from:

☑ 26-50%

(5.11.7.9) Describe the engagement and explain the effect of your engagement on the selected environmental action

The reduction of CO2 emissions at construction sites is achieved through the introduction of low-emission construction machinery, the promotion of idling and revving stop, and the saving of energy usage. These measures are implemented in cooperation with our group companies and partner companies. The success indicator for this engagement is set as achieving a target CO2 emission intensity of 0.7 kg-CO2/MH (emissions per unit working hour) at construction sites in Japan. As part of this engagement, at large domestic construction sites, our group issues the "Construction Site Environmental Management Plan" to partner companies and provides environmental education, including environmental policies, to construction personnel entering the site. Additionally, in accordance with the "Environmental Goals and Implementation Plan" issued by our group to partner companies, environmental items are monitored and recorded using the "Checklist for Confirming Environmental Considerations at Site Offices and Surrounding Areas" and the "Survey Form for Operating Rates of Low-Emission Construction Machinery, Heavy Equipment, and Transport Vehicles, and Idling Stop Form." As a result of this engagement, in the reporting year, the CO2 emission intensity was 0.55 kg-CO2/MH, achieving the target value of 0.7 kg-CO2/MH or less. Changes in daily operations and behaviors such as idling and revving stop and energy saving at construction sites have occurred, leading to the execution of construction work that reduces CO2 emissions and activities that consider the surrounding environment of construction sites. We will continue this engagement in the future to reduce CO2 emissions at construction sites.

(5.11.7.10) Engagement is helping your tier 1 suppliers meet an environmental requirement related to this environmental issue

Select from:

☑ Yes, please specify the environmental requirement **:** This is related to the environmental requirements we demand from our suppliers.

(5.11.7.11) Engagement is helping your tier 1 suppliers engage with their own suppliers on the selected action

Select from:

☑ Yes

(5.11.9) Provide details of any environmental engagement activity with other stakeholders in the value chain.

Climate change

(5.11.9.1) Type of stakeholder

Select from:

☑ Customers

(5.11.9.2) Type and details of engagement

Education/Information sharing

☑ Run an engagement campaign to educate stakeholders about the environmental impacts about your products, goods and/or services

(5.11.9.3) % of stakeholder type engaged

Select from:

☑ 76-99%

(5.11.9.4) % stakeholder-associated scope 3 emissions

Select from:

☑ 100%

(5.11.9.5) Rationale for engaging these stakeholders and scope of engagement

In our group's sales, the total engineering business accounts for 90%. Therefore, we have calculated the customer ratio as 90%. The business activities of these customers involve the operation of energy and manufacturing plants, which emit CO2 due to the use of fuels, etc. Therefore, all customers are included in the scope of collaboration. Our group, with the understanding of our customers, proposes energy-saving measures at the design stage, including the operational period after the start of operations, to suppress CO2 emissions associated with the use of heat and electricity during the operation of LNG facilities and other plants that we design and construct.

(5.11.9.6) Effect of engagement and measures of success

Our group actively engages in reducing the environmental impact of fossil energy and improving global energy efficiency to address the social issue of reducing greenhouse gas emissions. We do this by proposing and discussing with our customers the construction of fossil energy plants with lower environmental impact and the energy-saving and efficiency improvements of energy plants. In a refinery project currently under construction, we proposed and received approval from the customer in 2020 to redesign the FEED (Front-End Engineering Design) for energy savings. Once operational, it is expected to achieve approximately 65% energy savings compared to the original FEED design.

Climate change

(5.11.9.1) Type of stakeholder

Select from:

☑ Other value chain stakeholder, please specify **: Three Affiliated Companies**

(5.11.9.2) Type and details of engagement

Innovation and collaboration

☑ Collaborate with stakeholders on innovations to reduce environmental impacts in products and services

(5.11.9.3) % of stakeholder type engaged

Select from:

☑ None

(5.11.9.4) % stakeholder-associated scope 3 emissions

Select from:

☑ None

(5.11.9.5) Rationale for engaging these stakeholders and scope of engagement

In the aviation industry, the International Civil Aviation Organization (ICAO) has adopted the CORSIA system, which mandates the use of bio-based fuels and the purchase of CO2 emission credits. There is increasing anticipation for the development and stable supply of SAF (Sustainable Aviation Fuel, next-generation aviation fuel) made from biomass-derived materials such as municipal waste, plant and animal fats, used cooking oil, and wood, as well as from exhaust gases from steel mills and refineries. The scope of involvement for the development and stable supply of SAF includes the aviation industry, fuel manufacturing and sales industry, general trading companies, heavy industry, the railway industry, and the food industry.

(5.11.9.6) Effect of engagement and measures of success

In Europe and the United States, the practical use of aviation fuel utilizing SAF (Sustainable Aviation Fuel) is already progressing, and in Japan, airlines have begun procuring SAF from overseas. Efforts to expand SAF demand in the aviation industry are steadily advancing. However, for SAF produced domestically in Japan, manufacturing costs and supply stability remain challenges. Establishing a cost-effective SAF production system and building a stable supply chain from raw material procurement to supply are urgent tasks. To address these challenges, our group leverages its knowledge and achievements in environmental initiatives, various engineering technologies accumulated through the EPC business, and project management capabilities to contribute to the optimization of the entire supply chain and the proposal and construction of efficient and economical manufacturing facilities. Our group, in collaboration with three related companies (Revo International, Cosmo Oil, and Odakyu), is working on establishing a domestic SAF production system and building a supply chain. This includes planning for the procurement of used cooking oil as raw material, introducing manufacturing processes with proven technology from Europe and the United States, estimating manufacturing equipment costs, and constructing a specific supply chain model for product transportation and sales. We are also strengthening cooperation with relevant government agencies involved in aviation fuel supply and airlines as users. In November 2022, we established a new company, "SAFFAIRE SKY ENERGY LLC," with two related companies (Cosmo Oil and Revo International) to manufacture and supply domestically produced SAF using waste cooking oil as raw material. Through these efforts, we have started constructing SAF production facilities within the Cosmo Oil Sakai Refinery in Sakai City, Osaka Prefecture, with completion expected by the end of 2024 and the start of operations planned for the second half of fiscal 2024 to early fiscal 2025. This is expected to contribute to the stable supply of SAF.

Climate change

(5.11.9.1) Type of stakeholder

Select from:

☑ Investors and shareholders

(5.11.9.2) Type and details of engagement

Education/Information sharing

☑ Share information on environmental initiatives, progress and achievements

(5.11.9.3) % of stakeholder type engaged

Select from:

☑ None

(5.11.9.4) % stakeholder-associated scope 3 emissions

Select from:

☑ None

(5.11.9.5) Rationale for engaging these stakeholders and scope of engagement

Our company recognizes that sustainable growth and enhancement of corporate value require engagement with various stakeholders in all aspects of business activities. Therefore, we actively engage in communication activities. The content of dialogues with shareholders and investors is regularly fed back to management and relevant departments to inform management strategies. In addition to financial information, we strive to actively disclose non-financial information to create an environment where our group's management policies can be understood in the long term and stably. When conducting dialogues, the CFO (Chief Financial Officer), Public Relations and IR departments, and General Affairs department take the lead in engaging in constructive dialogues with shareholders and investors. Questions and opinions received from participants are fed back to the management and the Board of Directors. The content of the dialogues includes not only matters related to performance and stock prices but also the enhancement of information disclosure on human resources and gender diversity, as well as initiatives on ESG and materiality. In conducting these dialogues, we ensure the thorough management of insider information by confirming in advance the information that can be publicly disclosed by the relevant departments.

(5.11.9.6) Effect of engagement and measures of success

At the Board of Directors meetings and other relevant forums, we report the summary of feedback, including ESG, as appropriate. We explain our commitment to continuing constructive dialogue with shareholders and investors. The feedback received is shared with internal relevant departments, including the Strategic Planning Unit, and we have begun considering responses, including enhancing information disclosure such as in the form of integrated reports. We believe that ongoing dialogue will contribute to enhancing corporate value, including our sustainability efforts.

(5.13) Has your organization already implemented any mutually beneficial environmental initiatives due to CDP Supply Chain member engagement?

	Environmental initiatives implemented due to CDP Supply Chain member engagement
	Select from: ☑ Yes

(5.13.1) Specify the CDP Supply Chain members that have prompted your implementation of mutually beneficial environmental initiatives and provide information on the initiatives.

Row 1

(5.13.1.1) Requesting member

Select from:

(5.13.1.2) Environmental issues the initiative relates to

Select all that apply

☑ Climate change

(5.13.1.4) Initiative ID

Select from:

☑ Ini1

(5.13.1.5) Initiative category and type

Other, please specify

☑ Other initiative type, please specify **:** In response to requests for sustainability-related information disclosure from supply chain members, we provide the necessary information.

(5.13.1.6) Details of initiative

Sharing EcoVadis score card.

(5.13.1.7) Benefits achieved

Select all that apply

☑ Other, please specify **:** *Sharing EcoVadis score card.*

(5.13.1.8) Are you able to provide figures for emissions savings or water savings in the reporting year?

Select from:

☑ No

(5.13.1.11) Please explain how success for this initiative is measured

Unclear

(5.13.1.12) Would you be happy for CDP Supply Chain members to highlight this work in their external communication?

Select from:

☑ No

C6. Environmental Performance - Consolidation Approach

(6.1) Provide details on your chosen consolidation approach for the calculation of environmental performance data.

Climate change

(6.1.1) Consolidation approach used

Select from:

☑ Other, please specify **:** JGC HOLDINGS CORPORATION, JGC Corporate Solutions Co., Ltd., JGC CORPORATION, JGC JAPAN CORPORATION, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd. (JFC), JAPAN NUS CO., LTD.

(6.1.2) Provide the rationale for the choice of consolidation approach

This is limited to JGC HOLDINGS CORPORATION and its major subsidiaries: JGC Corporate Solutions Co., Ltd., JGC CORPORATION (JGC Global), JGC JAPAN CORPORATION, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd., and JAPAN NUS CO., LTD., and does not include all consolidated subsidiaries. JGC Corporate Solutions Co., Ltd., a 100% subsidiary of JGC HOLDINGS CORPORATION, was established on April 1, 2023, to consolidate the corporate functions of JGC HOLDINGS CORPORATION, JGC CORPORATION (JGC Global), and JGC JAPAN CORPORATION.

Plastics

(6.1.1) Consolidation approach used

Select from:

☑ Other, please specify **:** JGC HOLDINGS CORPORATION, JGC Corporate Solutions Co., Ltd., JGC CORPORATION, JGC JAPAN CORPORATION, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd. (JFC), JAPAN NUS CO., LTD.

(6.1.2) Provide the rationale for the choice of consolidation approach

This is limited to JGC HOLDINGS CORPORATION and its major subsidiaries: JGC Corporate Solutions Co., Ltd., JGC CORPORATION (JGC Global), JGC JAPAN CORPORATION, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd., and JAPAN NUS CO., LTD., and does not include all consolidated subsidiaries. JGC Corporate Solutions Co., Ltd., a 100% subsidiary of JGC HOLDINGS CORPORATION, was established on April 1, 2023, to consolidate the corporate functions of JGC HOLDINGS CORPORATION, JGC CORPORATION (JGC Global), and JGC JAPAN CORPORATION.

Biodiversity

(6.1.1) Consolidation approach used

Select from:

☑ Other, please specify **:** JGC HOLDINGS CORPORATION, JGC Corporate Solutions Co., Ltd., JGC CORPORATION, JGC JAPAN CORPORATION, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd. (JFC), JAPAN NUS CO., LTD.

(6.1.2) Provide the rationale for the choice of consolidation approach

This is limited to JGC HOLDINGS CORPORATION and its major subsidiaries: JGC Corporate Solutions Co., Ltd., JGC CORPORATION (JGC Global), JGC JAPAN CORPORATION, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd., and JAPAN NUS CO., LTD., and does not include all consolidated subsidiaries. JGC Corporate Solutions Co., Ltd., a 100% subsidiary of JGC HOLDINGS CORPORATION, was established on April 1, 2023, to consolidate the corporate functions of JGC HOLDINGS CORPORATION, JGC CORPORATION (JGC Global), and JGC JAPAN CORPORATION.

C7. Environmental performance - Climate Change

(7.1.1) 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?

	Has there been a structural change?	Name of organization(s) acquired, divested from, or merged with	Details of structural change(s), including completion dates
	Select all that apply ☑ Yes, other structural change, please specify : Newly established	JGC Corporate Solutions Co., Ltd.	JGC Corporate Solutions Co., Ltd., a 100% subsidiary of JGC HOLDINGS CORPORATION, was established on April 1, 2023, to consolidate the corporate functions of JGC HOLDINGS CORPORATION, JGC CORPORATION (JGC Global), and JGC JAPAN CORPORATION.

(7.1.2) 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?	Details of methodology, boundary, and/or reporting year definition change(s)
	Select all that apply ☑ Yes, a change in boundary	We have decided to include JGC Corporate Solutions Co., Ltd., established on April 1, 2023, within the boundary.

(7.1.3) Have your organization's base year emissions and past years' emissions been recalculated as a result of any changes or errors reported in 7.1.1 and/or 7.1.2?

	Base year recalculation	Base year emissions recalculation policy, including significance threshold	Past years' recalculation
	Select from: ☑ No, because the operations acquired or divested did not exist in the base year	JGC Corporate Solutions Co., Ltd., established on April 1, 2023, is a 100% subsidiary of JGC HOLDINGS CORPORATION. Since there is no change in the total emissions of our group for the base year, recalculation has not been conducted. The emissions of this company are included in the emissions of JGC HOLDINGS CORPORATION.	*Select from:* ☑ No

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

	Scope 2, location-based	Scope 2, market-based	Comment
	Select from: ☑ We are reporting a Scope 2, location-based figure	*Select from:* ☑ We are reporting a Scope 2, market-based figure	No additional notes

(7.4.1) Provide details of the sources of Scope 1, Scope 2, or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure.

Row 1

(7.4.1.1) Source of excluded emissions

The emissions from the business activities of JGC CORPORATION (JGC Global)'s overseas sales offices, the emissions from the business activities of JGC JAPAN CORPORATION's regional offices, and the emissions from the research institutes of JGC HOLDINGS CORPORATION.

(7.4.1.2) Scope(s) or Scope 3 category(ies)

Select all that apply

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

(7.4.1.3) Relevance of Scope 1 emissions from this source

Select from:

☑ Emissions are not relevant

(7.4.1.4) Relevance of location-based Scope 2 emissions from this source

Select from:

☑ Emissions are not relevant

(7.4.1.5) Relevance of market-based Scope 2 emissions from this source

Select from:

☑ Emissions are not relevant

(7.4.1.6) Relevance of Scope 3 emissions from this source

Select from:

☑ Emissions are not relevant

(7.4.1.8) Estimated percentage of total Scope 1+2 emissions this excluded source represents

0

(7.4.1.9) Estimated percentage of total Scope 3 emissions this excluded source represents

1

(7.4.1.10) Explain why this source is excluded

We prioritize the calculation and reporting of emissions for our major operating companies, which account for over 90% of our group's sales. The Scope 1 and 2 emissions from our total engineering business account for approximately 25% of the group's total emissions. The overseas sales offices and regional offices of the total engineering business companies, which are excluded from disclosure, serve office functions at each location and account for less than 1% of the group's total emissions, thus deemed irrelevant and excluded. Similarly, the emissions from the research institutes of JGC HOLDINGS CORPORATION are also excluded as they account for less than 1% of the group's total emissions and are considered irrelevant.

(7.4.1.11) Explain how you estimated the percentage of emissions this excluded source represents

We confirmed that there are no Scope 1 emissions at the research institutes, and calculated Scope 2 emissions by multiplying the electricity usage by the emission factor. Additionally, since the regional offices of JGC JAPAN CORPORATION and the overseas sales offices of JGC CORPORATION (JGC Global) serve office functions at each location, we assumed the emission intensity per employee to be equivalent to that of JGC HOLDINGS CORPORATION. We calculated the emissions by multiplying the number of employees at each office by the emission intensity of Scope 1, 2, and 3 of JGC HOLDINGS CORPORATION. Similarly, the Scope 3 emissions of the research institutes were calculated by multiplying the number of employees at the research institutes by the emission intensity of JGC HOLDINGS CORPORATION.

(7.5) Provide your base year and base year emissions.

Scope 1

(7.5.1) Base year end

03/31/2021

(7.5.2) Base year emissions (metric tons CO2e)

84325.0

(7.5.3) Methodological details

We calculated by multiplying fuel consumption by the emission factor.

Scope 2 (location-based)

(7.5.1) Base year end

03/31/2021

(7.5.2) Base year emissions (metric tons CO2e)

48221.0

(7.5.3) Methodological details

We calculated by multiplying energy consumption by the emission factor.

Scope 2 (market-based)

(7.5.1) Base year end

03/31/2021

(7.5.2) Base year emissions (metric tons CO2e)

48221.0

(7.5.3) Methodological details

We calculated by multiplying energy consumption by the emission factor.

Scope 3 category 1: Purchased goods and services

(7.5.1) Base year end

03/31/2021

(7.5.2) Base year emissions (metric tons CO2e)

332982.0

(7.5.3) Methodological details

For JGC HOLDINGS CORPORATION and JGC CORPORATION (JGC Global), calculations were made for products procured as plant materials. The procurement volume used was the actual value* for the reporting year. The emission factor was determined using IDEA v2.3 and internal statistical data.
*The total order volume for each ongoing project was collected as the actual value. Then, based on the order date/order amount, the procurement progress rate for each year was calculated, and the order volume corresponding to the procurement progress rate for the reporting year was used as the actual value. Additionally, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd., and JAPAN NUS CO., LTD. were excluded from Scope 3

Scope 3 category 2: Capital goods

(7.5.1) Base year end

03/31/2021

(7.5.2) Base year emissions (metric tons CO2e)

34772.0

(7.5.3) Methodological details

We calculated using the emission factors listed in the industry-specific tables of the emission factor database for calculating organizational greenhouse gas emissions through the supply chain, and the consolidated capital goods purchase prices.

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

(7.5.1) Base year end

03/31/2022

(7.5.2) Base year emissions (metric tons CO2e)

22183.0

(7.5.3) Methodological details

We calculated by multiplying the activity data (energy consumption) used in the calculation of Scope 1 and 2 emissions by the emission factors for Category 3 listed in the emission factor database.

Scope 3 category 4: Upstream transportation and distribution

(7.5.1) Base year end

03/31/2021

(7.5.2) Base year emissions (metric tons CO2e)

11833.0

(7.5.3) Methodological details

For JGC HOLDINGS CORPORATION and JGC CORPORATION (JGC Global), the transportation of the above procured products was targeted. The transportation distance used generalized values for each construction area based on internal statistical data. The emission factors referred to IDEA v2.3.

Scope 3 category 5: Waste generated in operations

(7.5.1) Base year end

03/31/2021

(7.5.2) Base year emissions (metric tons CO2e)

25074.0

(7.5.3) Methodological details

For JGC CORPORATION (JGC Global), the amount of waste generated was calculated based on actual data collected at each site. The emission factors referred to IDEA v2.3.

Scope 3 category 6: Business travel

(7.5.1) Base year end

03/31/2021

(7.5.2) Base year emissions (metric tons CO2e)

161496.0

(7.5.3) Methodological details

For JGC CORPORATION (JGC Global), CO2 emissions from the temporary return of construction site workers (by airplane) were accounted for. The travel distance was calculated based on statistics of the number of workers at the site, the average return frequency, and flight distance. The emission factors referred to IDEA v2.3. Additionally, those by JGC HOLDINGS CORPORATION, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd., and JAPAN NUS CO., LTD. were excluded from Scope 3.

Scope 3 category 7: Employee commuting

(7.5.1) Base year end

03/31/2022

(7.5.2) Base year emissions (metric tons CO2e)

3990.0

(7.5.3) Methodological details

We calculated by multiplying the transportation expenses for each mode of transport used for commuting (passenger aircraft, passenger rail, passenger ships, and automobiles) by the emission factors.

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

(7.5.1) Base year end

03/31/2022

(7.5.2) Base year emissions (metric tons CO2e)

41094

(7.5.3) Methodological details

In the engineering business, the fuel consumption of heavy machinery required for the demolition of plants (including the fuel used for dismantling structures and equipment) was calculated based on the quantity of concrete, and emissions from fuel consumption were considered.

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

	Gross global Scope 1 emissions (metric tons CO2e)	Methodological details
Reporting year	*83729*	We calculated by multiplying fuel consumption by the emission factor.

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

	Gross global Scope 2, location-based emissions (metric tons CO2e)	Gross global Scope 2, market-based emissions (metric tons CO2e) (if applicable)	Methodological details
Reporting year	*49966*	*53218*	We calculated by multiplying energy consumption by the emission factor.

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

Purchased goods and services

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

1285375

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Hybrid method

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

0

(7.8.5) Please explain

For JGC HOLDINGS CORPORATION and JGC CORPORATION (JGC Global), calculations were made for products procured as plant materials. The procurement volume used was the actual value* for the reporting year. The emission factor was determined using IDEA v2.3 and internal statistical data.
*The total order volume for each ongoing project was collected as the actual value. Then, based on the order date/order amount, the procurement progress rate for each year was calculated, and the order volume corresponding to the procurement progress rate for the reporting year was used as the actual value. Additionally, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd., and JAPAN NUS CO., LTD. were excluded from Scope 3

Capital goods

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

56956

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Average spend-based method

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

0

(7.8.5) Please explain

We calculated using the emission factors listed in the industry-specific tables of the emission factor database for calculating organizational greenhouse gas emissions through the supply chain, and the consolidated capital goods purchase prices.

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

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

21347

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Average data method

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

0

(7.8.5) Please explain

We calculated by multiplying the activity data (energy consumption) used in the calculation of Scope 1 and 2 emissions by the emission factors for Category 3 listed in the emission factor database.

Upstream transportation and distribution

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

63865

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Distance-based method

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

0

(7.8.5) Please explain

For JGC HOLDINGS CORPORATION and JGC CORPORATION (JGC Global), the transportation of the above procured products was targeted. The transportation distance used generalized values for each construction area based on internal statistical data. The emission factors referred to IDEA v2.3.

Waste generated in operations

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

34244

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Average data method

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

0

(7.8.5) Please explain

For JGC CORPORATION (JGC Global), the amount of waste generated was calculated based on actual data collected at each site. The emission factors referred to IDEA v2.3.

Business travel

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

15869

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Spend-based method

☑ Fuel-based method

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

0

(7.8.5) Please explain

For JGC CORPORATION (JGC Global), CO2 emissions from the temporary return of construction site workers (by airplane) were accounted for. The travel distance was calculated based on statistics of the number of workers at the site, the average return frequency, and flight distance. The emission factors referred to IDEA v2.3. Additionally, those by JGC HOLDINGS CORPORATION, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd., and JAPAN NUS CO., LTD. were excluded from Scope 3.

Employee commuting

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

9947

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Average data method

☑ Distance-based method

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

0

(7.8.5) Please explain

We calculated by multiplying the transportation expenses for each mode of transport used for commuting (passenger aircraft, passenger rail, passenger ships, and automobiles) by the emission factors.

Upstream leased assets

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

In our group's total engineering business, we lease construction machinery and vehicles. Additionally, at the headquarters and other business companies, buildings and computers are also leased. However, since these emissions are operational and reported under Scope 1 and 2, they are not relevant.

Downstream transportation and distribution

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

In our group's total engineering business, which accounts for 80% of our sales, the main task is to construct and deliver plants on the client's premises. Therefore, downstream transportation does not occur. Consequently, it is estimated to be less than 5% of Scope 3 emissions, and thus deemed irrelevant.

Processing of sold products

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

In our group's total engineering business, which accounts for 80% of our sales, the main task is to construct and deliver plants on the client's premises. Therefore, the processing of products for sale does not occur. Consequently, it is estimated to be less than 5% of Scope 3 emissions, and thus deemed irrelevant.

Use of sold products

(7.8.1) Evaluation status

Select from:

☑ Relevant, not yet calculated

(7.8.5) Please explain

Since this information is specific to the client, it cannot be disclosed.

End of life treatment of sold products

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

9706

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Average data method

☑ Waste-type-specific method

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

0

(7.8.5) Please explain

In the engineering business, the fuel consumption of heavy machinery required for the demolition of plants (including the fuel used for dismantling structures and equipment) was calculated based on the quantity of concrete, and emissions from fuel consumption were considered.

Downstream leased assets

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

Emissions from the operation of leased assets owned by the company and rented to other companies are subject to calculation. However, since our group's main businesses are engineering and functional materials manufacturing, there are no applicable businesses.

Franchises

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

Our group's main businesses are engineering and functional materials manufacturing, and we do not engage in any franchising activities.

Investments

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

Our group's main businesses are engineering and functional materials manufacturing, and we do not engage in investment or financial services.

Other (upstream)

(7.8.1) Evaluation status

Select from:

☑ Not evaluated

(7.8.5) Please explain

No additional notes

Other (downstream)

(7.8.1) Evaluation status

Select from:
☑ Not evaluated

(7.8.5) Please explain

No additional notes

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

	Verification/assurance status
Scope 1	*Select from:* ☑ No third-party verification or assurance
Scope 2 (location-based or market-based)	*Select from:* ☑ No third-party verification or assurance
Scope 3	*Select from:* ☑ No third-party verification or assurance

(7.10.1) 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.

Change in renewable energy consumption

(7.10.1.1) Change in emissions (metric tons CO2e)

207

(7.10.1.2) Direction of change in emissions

Select from:
☑ Decreased

(7.10.1.3) Emissions value (percentage)

0.15

(7.10.1.4) Please explain calculation

The introduction of solar power has successfully reduced CO2 emissions by 207 tons. Last year's Scope 1 and 2 emissions were 134,004 tons of CO2, and this reduction corresponds to a 0.15% decrease.

Other emissions reduction activities

(7.10.1.1) Change in emissions (metric tons CO2e)

174

(7.10.1.2) Direction of change in emissions

Select from:
☑ Decreased

(7.10.1.3) Emissions value (percentage)

0.13

(7.10.1.4) Please explain calculation

The introduction of LEDs, electrification of forklifts, and updating of cooling towers have successfully reduced CO2 emissions by 174 tons. Last year's Scope 1 and 2 emissions were 134,004 tons of CO2, and this reduction corresponds to a 0.13% decrease.

Divestment

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:
☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

There is no change in emissions resulting from increased investment.

Acquisitions

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:
☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

There is no change in emissions resulting from increased investment.

Mergers

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:
☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

There is no change in emissions resulting from mergers.

Change in output

(7.10.1.1) Change in emissions (metric tons CO2e)

5140

(7.10.1.2) Direction of change in emissions

Select from:
☑ Increased

(7.10.1.3) Emissions value (percentage)

3.84

(7.10.1.4) Please explain calculation

Japan Fine Ceramics Co., Ltd. has increased production due to the full-scale manufacturing of high thermal conductivity silicon nitride (SN) substrates.

Change in methodology

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:
☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

There is no change in emissions resulting from changes in methodology.

Change in boundary

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:
☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

There is no change in emissions resulting from changes in boundaries.

Change in physical operating conditions

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:
☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

There is no change in emissions resulting from changes in physical operating conditions.

Unidentified

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:
☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

There is no change in emissions resulting from unknown factors.

Other

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:
☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

There is no change in emissions resulting from other factors.

(7.12) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

Select from:
☑ No

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

Select from:
☑ No

(7.16) Break down your total gross global Scope 1 and 2 emissions by country/area.

China

(7.16.1) Scope 1 emissions (metric tons CO2e)

561

(7.16.2) Scope 2, location-based (metric tons CO2e)

3665

(7.16.3) Scope 2, market-based (metric tons CO2e)

3665

Iraq

(7.16.1) Scope 1 emissions (metric tons CO2e)

6945

(7.16.2) Scope 2, location-based (metric tons CO2e)

4356

(7.16.3) Scope 2, market-based (metric tons CO2e)

4356

Japan

(7.16.1) Scope 1 emissions (metric tons CO2e)

61136

(7.16.2) Scope 2, location-based (metric tons CO2e)

39905

(7.16.3) Scope 2, market-based (metric tons CO2e)

43157

Malaysia

(7.16.1) Scope 1 emissions (metric tons CO2e)

159

(7.16.2) Scope 2, location-based (metric tons CO2e)

411

(7.16.3) Scope 2, market-based (metric tons CO2e)

411

Saudi Arabia

(7.16.1) Scope 1 emissions (metric tons CO2e)

13076

(7.16.2) Scope 2, location-based (metric tons CO2e)

0

(7.16.3) Scope 2, market-based (metric tons CO2e)

0

Taiwan, China

(7.16.1) Scope 1 emissions (metric tons CO2e)

9

(7.16.2) Scope 2, location-based (metric tons CO2e)

107

(7.16.3) Scope 2, market-based (metric tons CO2e)

107

Thailand

(7.16.1) Scope 1 emissions (metric tons CO2e)

1843

(7.16.2) Scope 2, location-based (metric tons CO2e)

1522

(7.16.3) Scope 2, market-based (metric tons CO2e)

1522

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

Select all that apply
☑ By business division

(7.17.1) Break down your total gross global Scope 1 emissions by business division.

	Business division	Scope 1 emissions (metric ton CO2e)
Row 1	Total Engineering（JGC HOLDINGS CORPORATION、JGC Corporate Solutions Co., Ltd.、JGC CORPORATION、JGC JAPAN CORPORATION）	*25172*

	Business division	Scope 1 emissions (metric ton CO2e)
Row 2	Functional Materials Manufacturing（JGC Catalysts and Chemicals Ltd.、Japan Fine Ceramics Co., Ltd. (JFC)）	*58545*
Row 4	Environmental Consulting（JAPAN NUS CO., LTD.）	*12*

(7.20.1) 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)
Row 1	Total Engineering（JGC HOLDINGS CORPORATION、JGC Corporate Solutions Co., Ltd.、JGC CORPORATION、JGC JAPAN CORPORATION）	*14329*	*13998*
Row 2	Functional Materials Manufacturing（JGC Catalysts and Chemicals Ltd.、Japan Fine Ceramics Co., Ltd. (JFC)）	*35577*	*39156*
Row 3	Environmental Consulting（JAPAN NUS CO., LTD.）	*60*	*64*

(7.22) Break down your gross Scope 1 and Scope 2 emissions between your consolidated accounting group and other entities included in your response.

Consolidated accounting group

(7.22.1) Scope 1 emissions (metric tons CO2e)

83729

(7.22.2) Scope 2, location-based emissions (metric tons CO2e)

49966

(7.22.3) Scope 2, market-based emissions (metric tons CO2e)

53218

(7.22.4) Please explain

The companies included in our consolidated calculations are only those within the boundary specified in this response.

All other entities

(7.22.1) Scope 1 emissions (metric tons CO2e)

0

(7.22.2) Scope 2, location-based emissions (metric tons CO2e)

0

(7.22.3) Scope 2, market-based emissions (metric tons CO2e)

0

(7.22.4) Please explain

There are no calculation sites outside the scope of consolidation.

(7.23.1) Break down your gross Scope 1 and Scope 2 emissions by subsidiary.

Row 1

(7.23.1.1) Subsidiary name

JGC CORPORATION

(7.23.1.2) Primary activity

Select from:
☑ Energy infrastructure construction

(7.23.1.3) Select the unique identifier you are able to provide for this subsidiary

Select all that apply
☑ No unique identifier

(7.23.1.12) Scope 1 emissions (metric tons CO2e)

22594

(7.23.1.13) Scope 2, location-based emissions (metric tons CO2e)

10061

(7.23.1.14) Scope 2, market-based emissions (metric tons CO2e)

10061

(7.23.1.15) Comment

No additional notes

Row 2

(7.23.1.1) Subsidiary name

JGC JAPAN CORPORATION

(7.23.1.2) Primary activity

Select from:

☑ Energy infrastructure construction

(7.23.1.3) Select the unique identifier you are able to provide for this subsidiary

Select all that apply

☑ No unique identifier

(7.23.1.12) Scope 1 emissions (metric tons CO2e)

2579

(7.23.1.13) Scope 2, location-based emissions (metric tons CO2e)

1097

(7.23.1.14) Scope 2, market-based emissions (metric tons CO2e)

1097

(7.23.1.15) Comment

No additional notes

Row 3

(7.23.1.1) Subsidiary name

JGC Catalysts and Chemicals Ltd.

(7.23.1.2) Primary activity

Select from:
☑ Inorganic base chemicals

(7.23.1.3) Select the unique identifier you are able to provide for this subsidiary

Select all that apply
☑ No unique identifier

(7.23.1.12) Scope 1 emissions (metric tons CO2e)

57717

(7.23.1.13) Scope 2, location-based emissions (metric tons CO2e)

24007

(7.23.1.14) Scope 2, market-based emissions (metric tons CO2e)

26519

(7.23.1.15) Comment

No additional notes

Row 5

(7.23.1.1) Subsidiary name

Japan Fine Ceramics Co., Ltd. (JFC)

(7.23.1.2) Primary activity

Select from:
☑ Ceramics

(7.23.1.3) Select the unique identifier you are able to provide for this subsidiary

Select all that apply
☑ No unique identifier

(7.23.1.12) Scope 1 emissions (metric tons CO2e)

828

(7.23.1.13) Scope 2, location-based emissions (metric tons CO2e)

11570

(7.23.1.14) Scope 2, market-based emissions (metric tons CO2e)

12637

(7.23.1.15) Comment

No additional notes

Row 6

(7.23.1.1) Subsidiary name

JAPAN NUS CO., LTD.

(7.23.1.2) Primary activity

Select from:

☑ Other professional services

(7.23.1.3) Select the unique identifier you are able to provide for this subsidiary

Select all that apply

☑ No unique identifier

(7.23.1.12) Scope 1 emissions (metric tons CO2e)

12

(7.23.1.13) Scope 2, location-based emissions (metric tons CO2e)

60

(7.23.1.14) Scope 2, market-based emissions (metric tons CO2e)

64

(7.23.1.15) Comment

No additional notes

Row 7

(7.23.1.1) Subsidiary name

JGC Corporate Solutions Co., Ltd.

(7.23.1.2) Primary activity

Select from:

☑ Other professional services

(7.23.1.3) Select the unique identifier you are able to provide for this subsidiary

Select all that apply

☑ No unique identifier

(7.23.1.12) Scope 1 emissions (metric tons CO2e)

0

(7.23.1.13) Scope 2, location-based emissions (metric tons CO2e)

0

(7.23.1.14) Scope 2, market-based emissions (metric tons CO2e)

0

(7.23.1.15) Comment

JGC Corporate Solutions Co., Ltd. is a wholly-owned subsidiary of JGC HOLDINGS CORPORATION, established on April 1, 2023, to consolidate the corporate functions of JGC HOLDINGS CORPORATION, JGC CORPORATION (JGC Global), and JGC JAPAN CORPORATION. Therefore, its emissions are included in those of JGC HOLDINGS CORPORATION, resulting in Scope 1 and Scope 2 emissions being zero.

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

Row 1

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:

☑ Scope 1

(7.26.4) Allocation level

Select from:

☑ Business unit (subsidiary company)

(7.26.6) Allocation method

Select from:

☑ Other allocation method, please specify **:** Japan Fine Ceramics Co., Ltd. and the requesting company have transactions between two business divisions. The Scope 1 and Scope 2 emissions for each division were calculated, and the CO2 emissions intensity per sales revenue for each division was determined. This intensity was then multiplied by the sales revenue to the requesting member to calculate and total the CO2 emissions for each division.

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:

☑ Currency

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

885000000

(7.26.9) Emissions in metric tonnes of CO2e

32

(7.26.10) Uncertainty (±%)

0

(7.26.11) Major sources of emissions

Fuel used in the manufacturing process of the product.

(7.26.12) Allocation verified by a third party?

Select from:
☑ No

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

The business division that transacts with the requesting company was identified, and the Scope 1 emissions for that division were calculated. The emissions intensity per sales revenue in that division is uniform regardless of the customer. The CO2 emissions intensity per sales revenue for each division was calculated, and this was multiplied by the sales to the requesting company.

(7.26.14) Where published information has been used, please provide a reference

None

Row 2

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:

☑ Scope 1

(7.26.4) Allocation level

Select from:

☑ Commodity

(7.26.6) Allocation method

Select from:

☑ Other allocation method, please specify **:** The emissions intensity was multiplied by the production volume of the products traded between the requesting company and JGC Catalysts and Chemicals Ltd.

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:

☑ Metric tons

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

0

(7.26.9) Emissions in metric tonnes of CO2e

486.277

(7.26.10) Uncertainty (±%)

0

(7.26.11) Major sources of emissions

Fuel used in the product manufacturing process.

(7.26.12) Allocation verified by a third party?

Select from:
☑ No

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

The CO2 emissions from the fuel used in the manufacturing of products for the requesting company were aggregated.

(7.26.14) Where published information has been used, please provide a reference

None

Row 3

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:
☑ Scope 2: market-based

(7.26.4) Allocation level

Select from:
☑ Business unit (subsidiary company)

(7.26.6) Allocation method

Select from:

☑ Other allocation method, please specify **:** Japan Fine Ceramics Co., Ltd. and the requesting company have transactions between two business divisions. The Scope 2 emissions for each division were calculated, and the CO2 emissions intensity per sales revenue for each division was determined. This intensity was then multiplied by the sales revenue to the requesting member to calculate and total the CO2 emissions for each division.

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:

☑ Currency

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

885000000

(7.26.9) Emissions in metric tonnes of CO2e

1841

(7.26.10) Uncertainty (±%)

0

(7.26.11) Major sources of emissions

Electricity, gas, and chilled water used in the product manufacturing process.

(7.26.12) Allocation verified by a third party?

Select from:

☑ No

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

The business division that transacts with the requesting company was identified, and the Scope 2 emissions for that division were calculated. The emissions intensity per sales revenue in that division is uniform regardless of the customer. The CO2 emissions intensity per sales revenue for each division was calculated, and this was multiplied by the sales to the requesting company.

(7.26.14) Where published information has been used, please provide a reference

None

Row 4

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:

☑ Scope 2: market-based

(7.26.4) Allocation level

Select from:

☑ Commodity

(7.26.6) Allocation method

Select from:

☑ Other allocation method, please specify **:** The emissions intensity was multiplied by the production volume of the products traded between the requesting company and JGC Catalysts and Chemicals Ltd.

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:

☑ Metric tons

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

0

(7.26.9) Emissions in metric tonnes of CO2e

158.977

(7.26.10) Uncertainty (±%)

0

(7.26.11) Major sources of emissions

Electricity used in the product manufacturing process.

(7.26.12) Allocation verified by a third party?

Select from:

☑ No

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

The CO2 emissions from the electricity used in the manufacturing of products for the requesting company were aggregated.

(7.26.14) Where published information has been used, please provide a reference

Nothing

Row 5

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:

☑ Scope 3

(7.26.3) Scope 3 category(ies)

Select all that apply

☑ Category 2: Capital goods

☑ Category 6: Business travel

☑ Category 7: Employee commuting

☑ Category 1: Purchased goods and services

☑ Category 5: Waste generated in operations

☑ Category 12: End-of-life treatment of sold products

☑ Category 4: Upstream transportation and distribution

☑ Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2)

(7.26.4) Allocation level

Select from:

☑ Business unit (subsidiary company)

(7.26.6) Allocation method

Select from:

☑ Other allocation method, please specify **:** Japan Fine Ceramics Co., Ltd. and the requesting company have transactions between two business divisions. The Scope 3 emissions for each division were calculated, and the CO2 emissions intensity per sales revenue for each division was determined. This intensity was then multiplied by the sales revenue to the requesting member to calculate and total the CO2 emissions for each division.

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:

☑ Currency

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

885000000

(7.26.9) Emissions in metric tonnes of CO2e

2248

(7.26.10) Uncertainty (±%)

30

(7.26.11) Major sources of emissions

Purchased products and services, capital goods, fuel and energy-related activities not included in Scope 1 and 2, upstream transportation and distribution, waste generated from operations, business travel, employee commuting, and disposal of sold products.

(7.26.12) Allocation verified by a third party?

Select from:

☑ No

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

The company's total Scope 3 emissions were calculated, assuming that the emissions intensity per unit of sales revenue is uniform across all customers. The CO2 emissions intensity for the entire company was determined, and this was multiplied by the sales to the requesting company.

(7.26.14) Where published information has been used, please provide a reference

Nothing

Row 6

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:
☑ Scope 1

(7.26.4) Allocation level

Select from:
☑ Commodity

(7.26.6) Allocation method

Select from:
☑ Other allocation method, please specify **:** The emissions intensity was multiplied by the production volume of the products traded between the requesting company and JGC Catalysts and Chemicals Ltd.

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:
☑ Metric tons

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

0

(7.26.9) Emissions in metric tonnes of CO2e

3159.394

(7.26.10) Uncertainty (±%)

0

(7.26.11) Major sources of emissions

Fuel used in the product manufacturing process.

(7.26.12) Allocation verified by a third party?

Select from:
☑ No

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

The CO2 emissions from the fuel used in the manufacturing of products for the requesting company were aggregated.

(7.26.14) Where published information has been used, please provide a reference

Nothing

Row 7

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:

☑ Scope 2: market-based

(7.26.4) Allocation level

Select from:

☑ Commodity

(7.26.6) Allocation method

Select from:

☑ Other allocation method, please specify **:** The emissions intensity was multiplied by the production volume of the products traded between the requesting company and JGC Catalysts and Chemicals Ltd.

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:

☑ Metric tons

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

0

(7.26.9) Emissions in metric tonnes of CO2e

1123.835

(7.26.10) Uncertainty (±%)

0

(7.26.11) Major sources of emissions

Electricity used in the product manufacturing process.

(7.26.12) Allocation verified by a third party?

Select from:

☑ No

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

The CO2 emissions from the electricity used in the manufacturing of products for the requesting company were aggregated.

(7.26.14) Where published information has been used, please provide a reference

Nothing

Row 8

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:

☑ Scope 1

(7.26.4) Allocation level

Select from:

☑ Commodity

(7.26.6) Allocation method

Select from:

☑ Other allocation method, please specify **:** The emissions intensity was multiplied by the production volume of the products traded between the requesting company and JGC Catalysts and Chemicals Ltd.

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:

☑ Metric tons

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

0

(7.26.9) Emissions in metric tonnes of CO2e

5833.5

(7.26.10) Uncertainty (±%)

0

(7.26.11) Major sources of emissions

Fuel used in the product manufacturing process.

(7.26.12) Allocation verified by a third party?

Select from:

☑ No

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

The CO2 emissions from the fuel used in the manufacturing of products for the requesting company were aggregated.

(7.26.14) Where published information has been used, please provide a reference

Nothing

Row 9

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:
☑ Scope 2: market-based

(7.26.4) Allocation level

Select from:
☑ Commodity

(7.26.6) Allocation method

Select from:
☑ Other allocation method, please specify **:** The emissions intensity was multiplied by the production volume of the products traded between the requesting company and JGC Catalysts and Chemicals Ltd.

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:
☑ Metric tons

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

0

(7.26.9) Emissions in metric tonnes of CO2e

1129.916

(7.26.10) Uncertainty (±%)

0

(7.26.11) Major sources of emissions

Electricity used in the product manufacturing process.

(7.26.12) Allocation verified by a third party?

Select from:
☑ No

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

The CO2 emissions from the electricity used in the manufacturing of products for the requesting company were aggregated.

(7.26.14) Where published information has been used, please provide a reference

Nothing

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

Row 1

(7.27.1) Allocation challenges

Select from:

☑ Diversity of product lines makes accurately accounting for each product/product line cost ineffective

(7.27.2) Please explain what would help you overcome these challenges

For products with high-mix low-volume production, it is difficult to individually calculate emissions because the processes vary for each product.

Row 2

(7.27.1) Allocation challenges

Select from:

☑ Customer base is too large and diverse to accurately track emissions to the customer level

(7.27.2) Please explain what would help you overcome these challenges

- Obtain the necessary information for emissions calculation from the customer.
- Ensure the customer agrees to disclose emissions and related information.
- Maintain a level of information disclosure that does not directly allow the inferring of the customer's confidential information from the emissions data.

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

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

Select from:

☑ No

(7.28.3) Primary reason for no plans to develop your capabilities to allocate emissions to your customers

Select from:

☑ Lack of internal resources, capabilities, or expertise (e.g., due to organization size)

(7.28.4) Explain why you do not plan to develop capabilities to allocate emissions to your customers

Due to a lack of internal resources, capabilities, and expertise, there are no plans to develop this function.

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

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

	Indicate whether your organization undertook this energy-related activity in the reporting year
	☑ Yes
Consumption of purchased or acquired cooling	*Select from:* ☑ Yes
Generation of electricity, heat, steam, or cooling	*Select from:* ☑ Yes

(7.30.1) Report your organization’s energy consumption totals (excluding feedstocks) in MWh.

Consumption of fuel (excluding feedstock)

(7.30.1.1) Heating value

Select from:

☑ HHV (higher heating value)

(7.30.1.2) MWh from renewable sources

0

(7.30.1.3) MWh from non-renewable sources

401339.57

(7.30.1.4) Total (renewable and non-renewable) MWh

401339.57

Consumption of purchased or acquired electricity

(7.30.1.1) Heating value

Select from:

☑ Unable to confirm heating value

(7.30.1.2) MWh from renewable sources

754.36

(7.30.1.3) MWh from non-renewable sources

104388.22

(7.30.1.4) Total (renewable and non-renewable) MWh

105142.58

Consumption of purchased or acquired steam

(7.30.1.1) Heating value

Select from:

☑ Unable to confirm heating value

(7.30.1.2) MWh from renewable sources

0

(7.30.1.3) MWh from non-renewable sources

2244.91

(7.30.1.4) Total (renewable and non-renewable) MWh

2244.91

Consumption of purchased or acquired cooling

(7.30.1.1) Heating value

Select from:
☑ Unable to confirm heating value

(7.30.1.2) MWh from renewable sources

0

(7.30.1.3) MWh from non-renewable sources

4391.6

(7.30.1.4) Total (renewable and non-renewable) MWh

4391.6

Consumption of self-generated non-fuel renewable energy

(7.30.1.1) Heating value

Select from:
☑ Unable to confirm heating value

(7.30.1.2) MWh from renewable sources

403.27

(7.30.1.4) Total (renewable and non-renewable) MWh

403.27

Total energy consumption

(7.30.1.1) Heating value

Select from:
☑ Unable to confirm heating value

(7.30.1.2) MWh from renewable sources

1157.63

(7.30.1.3) MWh from non-renewable sources

512364.29

(7.30.1.4) Total (renewable and non-renewable) MWh

513521.92

(7.30.6) Select the applications of your organization’s consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	*Select from:* ☑ Yes
Consumption of fuel for the generation of heat	*Select from:* ☑ Yes
Consumption of fuel for the generation of steam	*Select from:* ☑ Yes
Consumption of fuel for the generation of cooling	*Select from:* ☑ No
Consumption of fuel for co-generation or tri-generation	*Select from:* ☑ No

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

Sustainable biomass

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

0

(7.30.7.3) MWh fuel consumed for self-generation of electricity

0

(7.30.7.4) MWh fuel consumed for self-generation of heat

0

(7.30.7.5) MWh fuel consumed for self-generation of steam

0

(7.30.7.8) Comment

No additional notes

Other biomass

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

0

(7.30.7.3) MWh fuel consumed for self-generation of electricity

0

(7.30.7.4) MWh fuel consumed for self-generation of heat

0

(7.30.7.5) MWh fuel consumed for self-generation of steam

0

(7.30.7.8) Comment

No additional notes

Other renewable fuels (e.g. renewable hydrogen)

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

0

(7.30.7.3) MWh fuel consumed for self-generation of electricity

0

(7.30.7.4) MWh fuel consumed for self-generation of heat

0

(7.30.7.5) MWh fuel consumed for self-generation of steam

0

(7.30.7.8) Comment

No additional notes

Coal

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

0

(7.30.7.3) MWh fuel consumed for self-generation of electricity

0

(7.30.7.4) MWh fuel consumed for self-generation of heat

0

(7.30.7.5) MWh fuel consumed for self-generation of steam

0

(7.30.7.8) Comment

No additional notes

Oil

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

90631.62

(7.30.7.3) MWh fuel consumed for self-generation of electricity

75643.11

(7.30.7.4) MWh fuel consumed for self-generation of heat

14988.51

(7.30.7.5) MWh fuel consumed for self-generation of steam

0

(7.30.7.8) Comment

No additional notes

Gas

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

308448.93

(7.30.7.3) MWh fuel consumed for self-generation of electricity

0

(7.30.7.4) MWh fuel consumed for self-generation of heat

169070.04

(7.30.7.5) MWh fuel consumed for self-generation of steam

139378.89

(7.30.7.8) Comment

No additional notes

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

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

2259.02

(7.30.7.3) MWh fuel consumed for self-generation of electricity

0

(7.30.7.4) MWh fuel consumed for self-generation of heat

2259.02

(7.30.7.5) MWh fuel consumed for self-generation of steam

0

(7.30.7.8) Comment

No additional notes

Total fuel

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

401339.57

(7.30.7.3) MWh fuel consumed for self-generation of electricity

75643.11

(7.30.7.4) MWh fuel consumed for self-generation of heat

186317.57

(7.30.7.5) MWh fuel consumed for self-generation of steam

139378.89

(7.30.7.8) Comment

No additional notes

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

Electricity

(7.30.9.1) Total Gross generation (MWh)

75951.63

(7.30.9.2) Generation that is consumed by the organization (MWh)

75951.63

(7.30.9.3) Gross generation from renewable sources (MWh)

403.27

(7.30.9.4) Generation from renewable sources that is consumed by the organization (MWh)

403.27

Heat

(7.30.9.1) Total Gross generation (MWh)

189501.99

(7.30.9.2) Generation that is consumed by the organization (MWh)

189501.99

(7.30.9.3) Gross generation from renewable sources (MWh)

0

(7.30.9.4) Generation from renewable sources that is consumed by the organization (MWh)

0

Steam

(7.30.9.1) Total Gross generation (MWh)

156367.22

(7.30.9.2) Generation that is consumed by the organization (MWh)

156367.22

(7.30.9.3) Gross generation from renewable sources (MWh)

0

(7.30.9.4) Generation from renewable sources that is consumed by the organization (MWh)

0

Cooling

(7.30.9.1) Total Gross generation (MWh)

0

(7.30.9.2) Generation that is consumed by the organization (MWh)

0

(7.30.9.3) Gross generation from renewable sources (MWh)

0

(7.30.9.4) Generation from renewable sources that is consumed by the organization (MWh)

0

(7.30.14) 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 7.7.

Row 1

(7.30.14.1) Country/area

Select from:
☑ Japan

(7.30.14.2) Sourcing method

Select from:
☑ Unbundled procurement of energy attribute certificates (EACs)

(7.30.14.3) Energy carrier

Select from:
☑ Electricity

(7.30.14.4) Low-carbon technology type

Select from:
☑ Solar

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

754.36

(7.30.14.6) Tracking instrument used

Select from:
☑ Contract

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

Select from:
☑ Japan

(7.30.14.8) Are you able to report the commissioning or re-powering year of the energy generation facility?

Select from:
☑ No

(7.30.14.10) Comment

No additional notes

(7.30.16) Provide a breakdown by country/area of your electricity/heat/steam/cooling consumption in the reporting year.

China

(7.30.16.1) Consumption of purchased electricity (MWh)

4474.8

(7.30.16.2) Consumption of self-generated electricity (MWh)

342

(7.30.16.4) Consumption of purchased heat, steam, and cooling (MWh)

0

(7.30.16.5) Consumption of self-generated heat, steam, and cooling (MWh)

1625

(7.30.16.6) Total electricity/heat/steam/cooling energy consumption (MWh)

6441.80

Iraq

(7.30.16.1) Consumption of purchased electricity (MWh)

1789

(7.30.16.2) Consumption of self-generated electricity (MWh)

23109.4

(7.30.16.4) Consumption of purchased heat, steam, and cooling (MWh)

0

(7.30.16.5) Consumption of self-generated heat, steam, and cooling (MWh)

1179.2

(7.30.16.6) Total electricity/heat/steam/cooling energy consumption (MWh)

26077.60

Japan

(7.30.16.1) Consumption of purchased electricity (MWh)

95727.88

(7.30.16.2) Consumption of self-generated electricity (MWh)

449.03

(7.30.16.4) Consumption of purchased heat, steam, and cooling (MWh)

6636.5

(7.30.16.5) Consumption of self-generated heat, steam, and cooling (MWh)

340109.92

(7.30.16.6) Total electricity/heat/steam/cooling energy consumption (MWh)

442923.33

Malaysia

(7.30.16.1) Consumption of purchased electricity (MWh)

463.8

(7.30.16.2) Consumption of self-generated electricity (MWh)

539.9

(7.30.16.4) Consumption of purchased heat, steam, and cooling (MWh)

0

(7.30.16.5) Consumption of self-generated heat, steam, and cooling (MWh)

28.5

(7.30.16.6) Total electricity/heat/steam/cooling energy consumption (MWh)

1032.20

Saudi Arabi

(7.30.16.1) Consumption of purchased electricity (MWh)

0

(7.30.16.2) Consumption of self-generated electricity (MWh)

44971.7

(7.30.16.4) Consumption of purchased heat, steam, and cooling (MWh)

0

(7.30.16.5) Consumption of self-generated heat, steam, and cooling (MWh)

2843.7

(7.30.16.6) Total electricity/heat/steam/cooling energy consumption (MWh)

47815.40

Taiwan, China

(7.30.16.1) Consumption of purchased electricity (MWh)

163.7

(7.30.16.2) Consumption of self-generated electricity (MWh)

25.8

(7.30.16.4) Consumption of purchased heat, steam, and cooling (MWh)

0

(7.30.16.5) Consumption of self-generated heat, steam, and cooling (MWh)

8.1

(7.30.16.6) Total electricity/heat/steam/cooling energy consumption (MWh)

197.60

Thailand

(7.30.16.1) Consumption of purchased electricity (MWh)

2523.4

(7.30.16.2) Consumption of self-generated electricity (MWh)

6513.8

(7.30.16.4) Consumption of purchased heat, steam, and cooling (MWh)

0

(7.30.16.5) Consumption of self-generated heat, steam, and cooling (MWh)

74.8

(7.30.16.6) Total electricity/heat/steam/cooling energy consumption (MWh)

9112.00

(7.45) 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.

Row 1

(7.45.1) Intensity figure

1.606e-7

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

133695

(7.45.3) Metric denominator

Select from:
☑ unit total revenue

(7.45.4) Metric denominator: Unit total

832595000000

(7.45.5) Scope 2 figure used

Select from:
☑ Location-based

(7.45.6) % change from previous year

27

(7.45.7) Direction of change

Select from:
☑ Decreased

(7.45.8) Reasons for change

Select all that apply
☑ Other emissions reduction activities

(7.45.9) Please explain

During the reporting year, emissions decreased due to reduction activities such as the adoption of LED lighting and the electrification of forklifts.

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

Row 1

(7.52.1) Description

Select from:
☑ Waste

(7.52.2) Metric value

97

(7.52.3) Metric numerator

Recycling amount (tons)

(7.52.4) Metric denominator (intensity metric only)

Total industrial waste (tons)

(7.52.5) % change from previous year

0.96

(7.52.6) Direction of change

Select from:

☑ Decreased

(7.52.7) Please explain

Our company is also working on reducing environmental impacts by focusing on waste. However, we were unable to achieve our recycling rate target for FY2023. This is because, although high recycling rate items such as concrete debris, asphalt debris, wood waste, and construction sludge were disposed of, the disposal of five items with low recycling rates—waste plastics, mixed waste (stable and controlled types), other debris, and glass ceramics—was high, resulting in an overall decrease in the recycling rate. In FY2023, many projects were in their final stages or completed, leading to an increase in the proportion of mixed waste. For the five items with low recycling rates, which remain significantly below the national average as shown in the table below, we plan to continue further separation and selection of intermediate disposal companies with higher recycling rates.

(7.53.1) Provide details of your absolute emissions targets and progress made against those targets.

Row 1

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

0.000

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

0.000

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

0.000

Row 2

(7.53.1.1) Target reference number

Select from:
☑ Abs 1

(7.53.1.8) Scopes

Select all that apply
☑ Scope 1
☑ Scope 2

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

0.000

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

132546.000

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

100.0

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

0.000

(7.53.1.78) Land-related emissions covered by target

Select from:

☑ No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

(7.53.2) Provide details of your emissions intensity targets and progress made against those targets.

Row 1

(7.53.2.1) Target reference number

Select from:

☑ Int 1

(7.53.2.2) Is this a science-based target?

Select from:

☑ No, and we do not anticipate setting one in the next two years

(7.53.2.5) Date target was set

03/31/2021

(7.53.2.6) Target coverage

Select from:

☑ Organization-wide

(7.53.2.7) Greenhouse gases covered by target

Select all that apply

☑ Methane (CH4)
☑ Nitrous oxide (N2O)
☑ Carbon dioxide (CO2)
☑ Perfluorocarbons (PFCs)
☑ Hydrofluorocarbons (HFCs)
☑ Nitrogen trifluoride (NF3)
☑ Sulphur hexafluoride (SF6)

(7.53.2.8) Scopes

Select all that apply

☑ Scope 1
☑ Scope 2

(7.53.2.9) Scope 2 accounting method

Select from:

☑ Location-based

(7.53.2.11) Intensity metric

Select from:

☑ Metric tons CO2e per unit revenue

(7.53.2.12) End date of base year

03/30/2021

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

1.94e-7

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

1.11e-7

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

0.0000003050

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

100

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

100

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

100

(7.53.2.55) End date of target

03/30/2031

(7.53.2.56) Targeted reduction from base year (%)

30

(7.53.2.57) Intensity figure at end date of target for all selected Scopes (metric tons CO2e per unit of activity)

0.0000002135

(7.53.2.58) % change anticipated in absolute Scope 1+2 emissions

-4.2

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

1.01e-7

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

6e-8

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

0.0000001610

(7.53.2.81) Land-related emissions covered by target

Select from:

☑ No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

(7.53.2.82) % of target achieved relative to base year

157.38

(7.53.2.83) Target status in reporting year

Select from:

☑ Achieved

(7.53.2.85) Explain target coverage and identify any exclusions

In May 2021, JGC HOLDINGS CORPORATION and its major subsidiaries (JGC CORPORATION (JGC Global), JGC JAPAN CORPORATION, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd., and JAPAN NUS CO., LTD.) set a target to reduce Scope 1 and 2 CO2 emissions intensity by 30% by 2030, using 2020 as the base year. In the reporting year, they achieved a 47% reduction, surpassing the target.

(7.53.2.86) Target objective

JGC HOLDINGS CORPORATION and its major subsidiaries (JGC CORPORATION (JGC Global), JGC JAPAN CORPORATION, JGC Catalysts and Chemicals Ltd., Japan Fine Ceramics Co., Ltd., and JAPAN NUS CO., LTD.) have set a target to reduce Scope 1 and 2 CO2 emissions intensity by 30% by 2030, using 2020 as the base year. This target is part of our initial goal towards achieving carbon neutrality by 2050.

(7.53.2.88) Target derived using a sectoral decarbonization approach

Select from:

☑ No

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

We achieved this target by switching to LED lighting, installing solar power systems, and electrifying forklifts.

(7.54.2) Provide details of any other climate-related targets, including methane reduction targets.

Row 1

(7.54.2.1) Target reference number

Select from:

☑ Oth 1

(7.54.2.2) Date target was set

03/31/2023

(7.54.2.3) Target coverage

Select from:

☑ Business division

(7.54.2.4) Target type: absolute or intensity

Select from:

☑ Intensity

(7.54.2.5) Target type: category & Metric (target numerator if reporting an intensity target)

Waste management

☑ Percentage of total waste generated that is recycled

(7.54.2.6) Target denominator (intensity targets only)

Select from:

☑ metric ton of waste

(7.54.2.7) End date of base year

03/30/2023

(7.54.2.8) Figure or percentage in base year

0

(7.54.2.9) End date of target

03/30/2024

(7.54.2.10) Figure or percentage at end of date of target

97

(7.54.2.11) Figure or percentage in reporting year

94.8

(7.54.2.12) % of target achieved relative to base year

97.7319587629

(7.54.2.13) Target status in reporting year

Select from:

☑ Underway

(7.54.2.15) Is this target part of an emissions target?

No

(7.54.2.16) Is this target part of an overarching initiative?

Select all that apply

☑ No, it's not part of an overarching initiative

(7.54.2.18) Please explain target coverage and identify any exclusions

The target scope includes all construction sites in Japan where JGC JAPAN CORPORATION, which handles domestic engineering business within our group, executed projects during the target year.

(7.54.2.19) Target objective

This target aims for a 97% recycling rate at all domestic construction sites where JGC JAPAN CORPORATION executed projects during the target year. It is an annual goal, focusing on promoting waste recycling and quantitatively measuring the progress of these efforts to reduce environmental impacts.

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

Although high recycling rate items such as concrete debris, asphalt debris, wood waste, and construction sludge were disposed of, the disposal of five items with low recycling rates—waste plastics, mixed waste (stable and controlled types), other debris, and glass ceramics—was high, resulting in an overall decrease in the recycling rate, and the target was not achieved.

Row 2

(7.54.2.1) Target reference number

Select from:
☑ Oth 2

(7.54.2.2) Date target was set

03/31/2019

(7.54.2.3) Target coverage

Select from:
☑ Business division

(7.54.2.4) Target type: absolute or intensity

Select from:
☑ Intensity

(7.54.2.5) Target type: category & Metric (target numerator if reporting an intensity target)

Energy consumption or efficiency
☑ Other energy consumption or efficiency, please specify **:** Crude oil equivalent (kl)

(7.54.2.6) Target denominator (intensity targets only)

Select from:
☑ metric ton of product

(7.54.2.7) End date of base year

03/30/2021

(7.54.2.8) Figure or percentage in base year

100

(7.54.2.9) End date of target

03/30/2024

(7.54.2.10) Figure or percentage at end of date of target

95

(7.54.2.11) Figure or percentage in reporting year

103.2

(7.54.2.12) % of target achieved relative to base year

-64.0000000000

(7.54.2.13) Target status in reporting year

Select from:
☑ Underway

(7.54.2.15) Is this target part of an emissions target?

No

(7.54.2.16) Is this target part of an overarching initiative?

Select all that apply
☑ No, it's not part of an overarching initiative

(7.54.2.18) Please explain target coverage and identify any exclusions

The target scope includes all business areas of JGC Catalysts and Chemicals Ltd., a group company engaged in the functional materials manufacturing business.

(7.54.2.19) Target objective

JGC Catalysts and Chemicals Ltd., a group company engaged in the functional materials manufacturing business, is designated as a specified business operator under the Act on the Rational Use of Energy (Energy Conservation Act). As a target for the company, it is required to achieve an average annual reduction of more than 1% in energy consumption intensity over the medium to long term.

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

In FY2023, although we implemented CO2 reduction measures such as electrifying forklifts and switching to LED lighting, the average annual change in energy consumption intensity over the five-year period from 2019 to 2023 was 100.8% compared to the previous year, and we did not achieve the target.

Row 3

(7.54.2.1) Target reference number

Select from:

☑ Oth 3

(7.54.2.2) Date target was set

03/31/2019

(7.54.2.3) Target coverage

Select from:

☑ Business division

(7.54.2.4) Target type: absolute or intensity

Select from:

☑ Intensity

(7.54.2.5) Target type: category & Metric (target numerator if reporting an intensity target)

Energy consumption or efficiency

☑ Other energy consumption or efficiency, please specify **:** Crude oil equivalent (kl)

(7.54.2.6) Target denominator (intensity targets only)

Select from:

☑ unit revenue

(7.54.2.7) End date of base year

03/30/2021

(7.54.2.8) Figure or percentage in base year

100

(7.54.2.9) End date of target

03/30/2024

(7.54.2.10) Figure or percentage at end of date of target

95

(7.54.2.11) Figure or percentage in reporting year

156.7

(7.54.2.12) % of target achieved relative to base year

-1134.0000000000

(7.54.2.13) Target status in reporting year

Select from:

☑ Underway

(7.54.2.15) Is this target part of an emissions target?

No

(7.54.2.16) Is this target part of an overarching initiative?

Select all that apply

☑ No, it's not part of an overarching initiative

(7.54.2.18) Please explain target coverage and identify any exclusions

The target scope includes all business areas of Japan Fine Ceramics Co., Ltd., a group company engaged in the functional materials manufacturing business.

(7.54.2.19) Target objective

Japan Fine Ceramics Co., Ltd., a group company engaged in the functional materials manufacturing business, is designated as a specified business operator under the Act on the Rational Use of Energy (Energy Conservation Act). As a target for the company, it is required to achieve an average annual reduction of more than 1% in energy consumption intensity over the medium to long term.

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

In FY2023, the startup of a new plant led to an increase in electricity consumption. As a result, the energy consumption intensity worsened, and the target was not achieved.

(7.54.3) Provide details of your net-zero target(s).

Row 1

(7.54.3.1) Target reference number

Select from:

☑ NZ1

(7.54.3.2) Date target was set

03/31/2021

(7.54.3.3) Target Coverage

Select from:

☑ Organization-wide

(7.54.3.4) Targets linked to this net zero target

Select all that apply

☑ Int1

(7.54.3.5) End date of target for achieving net zero

03/30/2051

(7.54.3.6) Is this a science-based target?

Select from:

☑ No, and we do not anticipate setting one in the next two years

(7.54.3.8) Scopes

Select all that apply

☑ Scope 1

☑ Scope 2

(7.54.3.9) Greenhouse gases covered by target

Select all that apply

☑ Methane (CH4)

☑ Nitrous oxide (N2O)

☑ Carbon dioxide (CO2)

☑ Perfluorocarbons (PFCs)

☑ Hydrofluorocarbons (HFCs)

☑ Sulphur hexafluoride (SF6)

☑ Nitrogen trifluoride (NF3)

(7.54.3.10) Explain target coverage and identify any exclusions

In the Group's long-term management vision announced in May 2021, we declared our commitment to achieving carbon neutrality by 2050. The target scope is as follows:

1. Net zero Scope 1 and 2 CO2 emissions by 2050.
2. A 30% reduction in Scope 1 and 2 CO2 emissions intensity by 2030 to achieve this goal.
3. Reduction of Scope 3 CO2 emissions in collaboration with stakeholders.

(7.54.3.11) Target objective

In the Group's long-term management vision announced in May 2021, we declared our commitment to achieving carbon neutrality by 2050.

(7.54.3.12) Do you intend to neutralize any residual emissions with permanent carbon removals at the end of the target?

Select from:

☑ Yes

(7.54.3.13) Do you plan to mitigate emissions beyond your value chain?

Select from:

☑ No, but we plan to within the next two years

(7.54.3.14) Do you intend to purchase and cancel carbon credits for neutralization and/or beyond value chain mitigation?

Select all that apply

☑ Yes, we plan to purchase and cancel carbon credits for neutralization at the end of the target

(7.54.3.15) Planned milestones and/or near-term investments for neutralization at the end of the target

We will first strive to reduce GHG emissions through our own efforts. However, if this proves challenging, we will also consider options such as carbon credits to achieve carbon neutrality.

(7.54.3.17) Target status in reporting year

Select from:

☑ Underway

(7.54.3.19) Process for reviewing target

We will review our targets as needed, based on the circumstances of our company and society.

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

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	*0*	*`Numeric input*
To be implemented	*3*	*80*
Implementation commenced	*0*	*0*
Implemented	*4*	*381*
Not to be implemented	*0*	*`Numeric input*

(7.55.2) Provide details on the initiatives implemented in the reporting year in the table below.

Row 1

(7.55.2.1) Initiative category & Initiative type

Energy efficiency in buildings

☑ Lighting

(7.55.2.2) Estimated annual CO2e savings (metric tonnes CO2e)

25

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

Select all that apply

☑ Scope 2 (location-based)

☑ Scope 2 (market-based)

(7.55.2.4) Voluntary/Mandatory

Select from:
☑ Voluntary

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

0

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

0

(7.55.2.7) Payback period

Select from:
☑ No payback

(7.55.2.8) Estimated lifetime of the initiative

Select from:
☑ Ongoing

(7.55.2.9) Comment

No additional notes

Row 2

(7.55.2.1) Initiative category & Initiative type

Low-carbon energy consumption
☑ Solar PV

(7.55.2.2) Estimated annual CO2e savings (metric tonnes CO2e)

207

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

Select all that apply

☑ Scope 2 (location-based)

☑ Scope 2 (market-based)

(7.55.2.4) Voluntary/Mandatory

Select from:

☑ Voluntary

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

0

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

0

(7.55.2.7) Payback period

Select from:

☑ No payback

(7.55.2.8) Estimated lifetime of the initiative

Select from:

☑ Ongoing

(7.55.2.9) Comment

No additional notes

Row 3

(7.55.2.1) Initiative category & Initiative type

Non-energy industrial process emissions reductions

☑ Process equipment replacement

(7.55.2.2) Estimated annual CO2e savings (metric tonnes CO2e)

148

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

Select all that apply

☑ Scope 1

(7.55.2.4) Voluntary/Mandatory

Select from:

☑ Voluntary

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

0

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

0

(7.55.2.7) Payback period

Select from:

☑ No payback

(7.55.2.8) Estimated lifetime of the initiative

Select from:

☑ Ongoing

(7.55.2.9) Comment

No additional notes

Row 4

(7.55.2.1) Initiative category & Initiative type

Energy efficiency in production processes

☑ Electrification

(7.55.2.2) Estimated annual CO2e savings (metric tonnes CO2e)

1

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

Select all that apply

☑ Scope 1

(7.55.2.4) Voluntary/Mandatory

Select from:

☑ Voluntary

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

0

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

0

(7.55.2.7) Payback period

Select from:
☑ No payback

(7.55.2.8) Estimated lifetime of the initiative

Select from:
☑ Ongoing

(7.55.2.9) Comment

No additional notes

(7.55.3) What methods do you use to drive investment in emissions reduction activities?

Row 1

(7.55.3.1) Method

Select from:
☑ Compliance with regulatory requirements/standards

(7.55.3.2) Comment

No additional notes

Row 2

(7.55.3.1) Method

Select from:

☑ Dedicated budget for low-carbon product R&D

(7.55.3.2) Comment

No additional notes

Row 3

(7.55.3.1) Method

Select from:

☑ Employee engagement

(7.55.3.2) Comment

No additional notes

Row 4

(7.55.3.1) Method

Select from:

☑ Internal incentives/recognition programs

(7.55.3.2) Comment

No additional notes

Row 5

(7.55.3.1) Method

Select from:

☑ Partnering with governments on technology development

(7.55.3.2) Comment

No additional notes

(7.73.2) Complete the following table for the goods/services for which you want to provide data.

Row 1

(7.73.2.1) Requesting member

Select from:

(7.73.2.2) Name of good/ service

High thermal conductivity silicon nitride substrate

(7.73.2.3) Description of good/ service

Japan Fine Ceramics Co., Ltd. develops, produces, and sells insulating and heat-dissipating ceramic substrates for power semiconductors that control the power of various devices necessary for energy-saving electric vehicles (EVs). Silicon nitride substrates are used as substrates for power modules equipped with power semiconductors such as silicon carbide (SiC), which perform DC/AC power conversion and control. This project involves capital investment in silicon nitride substrates used in power modules for electric vehicles. The practical application of power semiconductors such as SiC enables the miniaturization of devices and the high output of electric vehicles, contributing to the expansion of EV adoption through improved energy efficiency and extended driving range. Silicon nitride substrates are essential for the high performance and widespread use of power semiconductors such as SiC in electric vehicles.
When increasing the power output in electric vehicles, power semiconductors generate heat, and if not properly cooled or dissipated, it can lead to performance degradation of the semiconductors and damage to the substrates due to thermal stress. Traditionally, aluminum nitride, which has high thermal conductivity, was used as an insulating heat-dissipating substrate, but its low mechanical strength posed reliability issues. The silicon nitride substrates manufactured by Japan Fine Ceramics Co., Ltd. combine both high heat dissipation performance and mechanical strength compared to aluminum nitride and other ceramic substrates, making them indispensable for the high performance and widespread use of power semiconductors such as SiC in electric vehicles.

(7.73.2.4) Type of product

Select from:
☑ Intermediate

(7.73.2.5) Unique product identifier

We believe that by using the reaction sintering method, our silicon nitride (SN) substrates emit approximately 15% less CO2 compared to those of our competitors.

(7.73.2.6) Total emissions in kg CO2e per unit

4121

(7.73.2.7) ±% change from previous figure supplied

0

(7.73.2.9) Explanation of change

Since this is the first year of calculation, there is no data for comparison.

(7.73.2.10) Methods used to estimate lifecycle emissions

Select from:
☑ GHG Protocol Product Accounting & Reporting Standard

(7.73.5) Have any of the initiatives described in 7.73.4 been driven by requesting CDP Supply Chain members?

Select from:
☑ No

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

Row 1

(7.74.1.1) Level of aggregation

Select from:
☑ Product or service

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

Select from:
☑ Green Bond Principles (ICMA)

(7.74.1.3) Type of product(s) or service(s)

Biofuels
☑ Bioethanol

(7.74.1.4) Description of product(s) or service(s)

Sustainable Aviation Fuel (SAF) is an aviation fuel that can significantly reduce greenhouse gas emissions compared to conventional aviation fuel throughout its lifecycle, from the production and collection of raw materials such as biomass, waste cooking oil, and municipal waste, to manufacturing and combustion. It can also utilize existing infrastructure. As the world demands CO2 emission reductions, the aviation industry has already begun adopting SAF, particularly overseas. In Japan, it is also necessary to accelerate the development, production, distribution, and use of SAF.

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

Select from:

☑ Yes

(7.74.1.6) Methodology used to calculate avoided emissions

Select from:

☑ Other, please specify **:**CORSIA（Carbon Offsetting and Reduction Scheme for International Aviation）

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

Select from:

☑ Cradle-to-grave

(7.74.1.8) Functional unit used

To compare the CO2 emissions of fossil fuel-derived jet fuel and SAF, we set the standard calorific value as the functional unit.

(7.74.1.9) Reference product/service or baseline scenario used

The emission intensity of jet fuel derived from fossil fuels

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

Select from:

☑ Cradle-to-grave

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

73687

(7.74.1.12) Explain your calculation of avoided emissions, including any assumptions

Using the life cycle CO2 emission intensity published by ICAO (International Civil Aviation Organization) for certification of compliance with the CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation) sustainability criteria, the CO2 emission reduction amount is calculated by multiplying the difference in emission intensity between fossil fuel-derived jet fuel and the SAF produced in this project by the annual SAF production amount of this project.

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

0

Row 2

(7.74.1.1) Level of aggregation

Select from:

☑ Product or service

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

Select from:

☑ Green Bond Principles (ICMA)

(7.74.1.3) Type of product(s) or service(s)

Other

☑ Induction heating for large-scale industrial processes

(7.74.1.4) Description of product(s) or service(s)

Silicon nitride substrates are used as substrates for power modules equipped with power semiconductors such as silicon carbide (SiC), which perform DC/AC power conversion and control in electric vehicles. When the power output in electric vehicles increases, heat is generated in the power semiconductors. If proper cooling and heat dissipation are not achieved, it may lead to performance degradation of the semiconductors or damage to the substrates due to thermal stress. Traditionally, aluminum nitride, which has high thermal conductivity, was used as an insulating heat-dissipating substrate, but it had low mechanical strength and reliability issues. The silicon nitride substrates manufactured by our company combine both high heat dissipation performance and mechanical strength compared to aluminum nitride and other ceramic substrates. They are essential products for enhancing the performance and expanding the adoption of power semiconductors such as SiC used in electric vehicles. Based on the baseline of using conventional gasoline vehicles, the CO2 emission reduction effect due to improved electric efficiency of electric vehicles (EVs) equipped with power semiconductors using high thermal conductivity silicon nitride substrates produced by Japan Fine Ceramics is estimated to be 360,000 tons of CO2.

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

Select from:

☑ Yes

(7.74.1.6) Methodology used to calculate avoided emissions

Select from:

☑ Other, please specify **:** Keidanren, Contributing to Avoided Emissions through the Global Value Chain (Sixth Edition)

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

Select from:

☑ Use stage

(7.74.1.8) Functional unit used

Assuming both conventional vehicles and electric vehicles travel 10,000 km annually, set the annual mileage as the functional unit.

(7.74.1.9) Reference product/service or baseline scenario used

CO2 emissions from conventional vehicles: t/year per 10,000 km

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

Select from:

☑ Use stage

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

360000

(7.74.1.12) Explain your calculation of avoided emissions, including any assumptions

Estimation of the CO2 emissions reduction effect of improved energy efficiency in electric vehicles (EVs) equipped with power semiconductors using high thermal conductivity silicon nitride substrates produced by Japan Fine Ceramics Co., Ltd., using conventional gasoline vehicles as the baseline.

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

0

C11. Environmental performance - Biodiversity

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

	Actions taken in the reporting period to progress your biodiversity-related commitments
	Select from: ☑ No, we are not taking any actions to progress our biodiversity-related commitments, but we plan to within the next two years

(11.3) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?
	Select from: ☑ No, we do not use indicators, but plan to within the next two years

(11.4) Does your organization have activities located in or near to areas important for biodiversity in the reporting year?

	Indicate whether any of your organization's activities are located in or near to this type of area important for biodiversity	Comment
Legally protected areas	*Select from:* ☑ No	No additional notes
UNESCO World Heritage sites	*Select from:* ☑ No	No additional notes
UNESCO Man and the Biosphere Reserves	*Select from:* ☑ No	No additional notes
Ramsar sites	*Select from:* ☑ No	No additional notes
Key Biodiversity Areas	*Select from:* ☑ No	No additional notes
Other areas important for biodiversity	*Select from:* ☑ Yes	No additional notes

(11.4.1) Provide details of your organization’s activities in the reporting year located in or near to areas important for biodiversity.

Row 1

(11.4.1.2) Types of area important for biodiversity

Select all that apply

☑ Other areas important for biodiversity

(11.4.1.4) Country/area

Select from:

☑ Canada

(11.4.1.5) Name of the area important for biodiversity

Kitimat, British Columbia

(11.4.1.6) Proximity

Select from:

☑ Data not available

(11.4.1.8) Briefly describe your organization's activities in the reporting year located in or near to the selected area

JGC CORPORATION (JGC Global), which handles the total engineering business, is executing an LNG plant construction project.

(11.4.1.9) Indicate whether any of your organization's activities located in or near to the selected area could negatively affect biodiversity

Select from:

☑ Yes, but mitigation measures have been implemented

(11.4.1.10) Mitigation measures implemented within the selected area

Select all that apply

☑ Physical controls

(11.4.1.11) Explain how your organization's activities located in or near to the selected area could negatively affect biodiversity, how this was assessed, and describe any mitigation measures implemented

At the construction site of the LNG Canada project, which our group is currently building, special consideration is given to the richness of the natural environment, including biodiversity. We are engaged in activities such as altering river courses to mitigate environmental impacts and improving habitats for native fish.

C13. Further information & sign off

(13.1) Indicate if any environmental information included in your CDP response (not already reported in 7.9.1/2/3, 8.9.1/2/3/4, and 9.3.2) is verified and/or assured by a third party?

	Other environmental information included in your CDP response is verified and/or assured by a third party	Primary reason why other environmental information included in your CDP response is not verified and/or assured by a third party	Explain why other environmental information included in your CDP response is not verified and/or assured by a third party
	Select from: ☑ No, but we plan to obtain third-party verification/assurance of other environmental information in our CDP response within the next two years	*Select from:* ☑ Lack of internal resources, capabilities, or expertise (e.g., due to organization size)	We will consider future efforts regarding third-party verification of aspects other than emissions.

(13.3) Provide the following information for the person that has signed off (approved) your CDP response.

(13.3.1) Job title

Chairman and Chief Executive Officer (CEO) of JGC HOLDINGS CORPORATION, the holding company of our group.

(13.3.2) Corresponding job category

Select from:
☑ Chief Executive Officer (CEO)