

C0. Introduction

C0.1

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

The Asahi Kasei Group operates in the three business sectors of "Material", encompassing fibers & textiles, chemicals and electronic devices businesses, "Homes", covering homes and construction materials businesses, and "Health Care", including pharmaceuticals and medical devices businesses. With "contributing to life and living for people around the world" as our Group Mission, we strive to heighten resource and energy efficiency with outstanding production technology, providing products and services that meet customer needs.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date

April 1 2022

End date

March 31 2023

Indicate if you are providing emissions data for past reporting years

Yes

Select the number of past reporting years you will be providing Scope 1 emissions data for

3 years

Select the number of past reporting years you will be providing Scope 2 emissions data for

3 years

Select the number of past reporting years you will be providing Scope 3 emissions data for

3 years

C0.3

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

Australia
Brazil
China
Czechia
France
Germany
India
Italy
Japan
Mexico
Morocco
Poland
Republic of Korea
Romania
Singapore
Spain
Sweden
Taiwan, China
Thailand
United States of America
Viet Nam

C0.4

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

JPY

C0.5

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

Financial control

C-CH0.7

(C-CH0.7) Which part of the chemicals value chain does your organization operate in?

Row 1

Bulk organic chemicals

Polymers
Adipic acid

Bulk inorganic chemicals

Nitric acid
Chlorine and Sodium hydroxide
Hydrogen

Other chemicals

Specialty chemicals
Specialty organic chemicals

C-CN0.7/C-RE0.7

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

Please select

C0.8

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

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	JP3111200006

C1. Governance

C1.1

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

Yes

C1.1a

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

Position of individual or committee	Responsibilities for climate-related issues
President	The highest responsibility for climate-related issues lies with the president of the Asahi Kasei Group. The president is directly responsible for promoting sustainability and also accountable for its promotion and results. Our GHG emission reduction targets have been discussed and decided by the board. The board has actively addressed climate change as part of its medium-term business plan, which is currently in effect, and it deliberates and makes decisions on climate-related issues on a continuous basis. Discussions in the Task Force on Climate-related Financial Disclosures (TCFD) are also handled by the board. Accordingly, the highest level of responsibility for climate-related issues after the president lies with the board. All the board members check and oversee the president in his duties as chief operating officer, which include climate-related issues.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – all meetings	Overseeing acquisitions, mergers, and divestitures Reviewing and guiding strategy Overseeing the setting of corporate targets Monitoring progress towards corporate targets Reviewing and guiding the risk management process	<Not Applicable>	The company has three committees for specialist discussions of climate-related issues. These are the Sustainability Promotion Committee, the Global Environment Measures Promotion Committee, and the Environmental Safety and Quality Assurance Committee. The discussions and policies of these committees are reported to the board and reflected in group management discussions. For example, discussions held by the company's board based on the reports of these committees led to the declaration in 2021 of our aim of achieving carbon neutrality by 2050. Additionally, in our new medium-term business plan, taking effect in 2022, we set the goal of doubling the number of our products that promote GHG emission reductions, in line with our "Care for Earth" concept. The board also discusses ways to enhance the company's resilience. Such discussions include analysis and countermeasures to address physical and transition risks, along with pursuit of opportunities, in accordance with the TCFD framework. The highest responsibility for overall risk management lies with the president, who is assisted by the director in charge of Risk and Compliance under the supervision of the board. The Risk and Compliance Committee, chaired by the President, ensures that the heads of each department are notified of all management-level decisions and instructions relating to risk management, including climate change risk. Important investments are decided by the board, with internal carbon pricing reflected to confirm profitability and determine the pros and cons of any investment. In its oversight role for climate-related issues, the board meets once a month, as a rule, or as and when necessary.

C1.1d

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

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1	Yes	The chairman of the board has a deep knowledge and competence in climate-related issues, having chaired the environment-related committee of the Japan Business Federation (Keidanren).	<Not Applicable>	<Not Applicable>

C1.2

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

Position or committee

President

Climate-related responsibilities of this position

Developing a climate transition plan
Implementing a climate transition plan
Assessing climate-related risks and opportunities
Managing climate-related risks and opportunities

Coverage of responsibilities

<Not Applicable>

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

Quarterly

Please explain

Asahi Kasei Group has established four committees under the president in order to promote individual priority activities including for climate issues. They are the Sustainability Promotion Committee, the Environmental Safety and Quality Assurance Committee, the Risk Compliance Committee, and the Global Environment Measures Promotion Committee. Climate-related issues are mainly discussed by the Sustainability Promotion Committee and the Environmental Safety and the Quality Assurance Committee. Depending on the issues, two other committees may deal with climate change-related issues.

The Sustainability Promotion Committee, chaired by the President and comprised of members including the Executive Officer for Technology Functions, the Executive Officer for Business Functions, and the Executive Officers for the 3 business sectors discusses the most important strategic themes related with Sustainability such as carbon neutrality. The Sustainability Promotion Committee works closely with the Environmental Safety and Quality Assurance Committee, the Risk Compliance Committee, and other related committees to discuss general ESG issues and formulate policies.

The Environmental Safety and Quality Assurance Committee is chaired by the President and consists of the Director in charge of the Environment, Health, Safety, and Quality Assurance (EHS&QA) activities and EHS&QA managers. It is the core organization for EHS&QA management planning, target setting, taking actions, monitoring, auditing, reporting and reviewing. Their tasks include responding to climate change problems and serve as the basis of the promotion system to work with all the business departments. Specifically, the committee submits an action plan specifying concrete measures and achievement dates to achieve the goals, and along with the organization's EHS&QA implementation report to the Environmental Safety & Quality Assurance Director, is also reported to the board. It deliberates EHS&QA plans and results, which include those related to climate issues, in EHS&QA meetings. The EHS&QA Promotion Council, which is chaired by the Lead Executive Officer in charge of EHS&QA, is held four times a year.

The Asahi Kasei EHS&QA officer, nominated by the president who is the chairman of the Environmental Safety and Quality Assurance Committee, has organized the audit team and has managed a monitoring system to conduct the EHS&QA audit for the EHS&QA supervisor in accordance with the audit program. The monitoring items also include the implementation status of the degree of achievement to the GHG emission reduction target.

In addition, the Risk Compliance Committee conducts appropriate measures including prevention and handling, ensuring continuation and stable development of our businesses, and we are planning and implementing a response plan for our businesses through each business segment's risk assessment / analysis of the project. Discussion results at this committee are also reported to the Board.

C1.3

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

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	

C1.3a

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

Entitled to incentive

Board/Executive board

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary

Performance indicator(s)

Achievement of climate transition plan KPI

Progress towards a climate-related target

Achievement of a climate-related target

Incentive plan(s) this incentive is linked to

Both Short-Term and Long-Term Incentive Plan

Further details of incentive(s)

In terms of performance-based remuneration, which constitutes a part of the remuneration of executive directors, from the perspective of providing incentives linked to performance and management strategies as senior management, both the degree of achievement of financial targets including asset efficiency and non-financial targets such as individual targets concerning the promotion of sustainability are considered. The sustainability activities include the management of climate-related issues. The following is an outline of the formula used to calculate the amount of performance-linked remuneration for an individual.

Index calculated by evaluation* × Base value for job description = Performance-linked remuneration of individual

* Index that broadly considers the degree to which financial indicators are met and the degree to which non-financial targets are achieved.

In addition to the above, the Asahi Kasei Group has established a "Merit Award" and a "Commendation for Valuable Patented Invention" to acknowledge outstanding achievements and major contributions to the invention of patents, utility models, and designs, and to other aspects of business operations. The criteria for these awards are based on economic value added (annual amount), calculated with consideration to the increase/decrease of GHG emissions in production processes (domestic: ¥15,000/t-CO₂e, overseas: \$140/t-CO₂e).

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan

The company's remuneration of directors is a key element of its corporate governance. The group considers that the remuneration of directors should reflect climate change challenges and the risks and opportunities of climate change.

C2. Risks and opportunities

C2.1

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

Yes

C2.1a

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

	From (years)	To (years)	Comment
Short-term	0	1	Short term is defined as the year.
Medium-term	1	5	The medium-term business plan should be prepared with terms of up to 5 years.
Long-term	5	30	Long term is defined as more than 5 years.

C2.1b

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

Our group has achieved stable business operations across a wide range of businesses, but these diverse businesses entail market risks, financial risks, and various other risks that can significantly impact financial health, business performance, and stakeholder relationships. For example, a natural disaster or other unforeseeable circumstances could disrupt the supply of product raw materials, putting a stop to production for a period of months. Or an accident at a plant or other unexpected occurrence could prevent us from supplying our products, thereby seriously impacting key customers and consumers. Although it is difficult to quantify the severity of impacts, a disaster could lead to a massive drop in revenue of 10 to 20 billion yen due to a prolonged production shutdown. It could also cause loss of life, serious threat to human safety, and other human suffering, as well as loss of public trust and a decrease in brand value. Climate change risks include not only losses from damage to our own production facilities or supply chains due to a disaster, but also increases in manufacturing and raw material costs due to stricter regulations.

C2.2

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

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

-The process used to determine which risks and/or opportunities could have a substantive financial or strategic impact

We currently use the TCFD framework to determine the risks and opportunities of our company and how those could have substantive financial or strategic impact on us.

We suppose two scenarios for the climate change and relevant social change, meaning +4°C scenario and +1.5°C scenario. In +4°C scenario, the temperature will rise sharply in accordance with the strengthening Typhoon of heavier rain and stronger wind. In +1.5°C scenario, the temperature will rise modestly with stricter regulations on CO2 emissions and promoting policy of more climate-friendly alternatives, such as electric vehicles. We have discussed the impact of both risks and opportunities and the members include those from our core three business units, Material, Houses and Healthcare and corporate division. After the discussion, we had more comprehensive discussion at the corporate strategy committee and the board meeting to determine the risks and opportunities.

-A case study of how the described process is applied to Transitional risks and/or opportunities

As for transition risks, we anticipate possible damage to corporate image due to an inability to sell products that meet the growing consumer preference for environment-friendly and energy-saving products, as well as a decline in the company's fortunes due to tougher regulations relating to environmental taxes and GHG emissions, which will drive up the costs of manufacturing and raw materials and drive down profitability. Japan has decided to adopt carbon pricing from FY2028 under its GX Promotion Act. This will certainly put a greater burden on companies, resulting in reduced profitability over the long term. Still, we strongly recognize the need to actively implement large-scale GHG reduction measures. To address this need, we will make every effort to save energy and cut energy consumption per unit of production. We will also work to deploy more renewable energy and switch to cleaner fuels. On the other hand, as a transition opportunity, by proactively developing products that contribute to reducing GHG emissions, we will seize the creation of business opportunities. Specifically, in product development, using LCA (Life Cycle Assessment), we identify risky processes and grasp the CO2 emissions at the production stage and use stage to identify the risk. In addition to managing development priorities, we have successfully improved reputation of low carbon products through disclosure of data. Since information on carbon footprints and product LCA is becoming increasingly important in the context of supply chains, data is likely to become a key factor in the market competitiveness of products over the medium term. For this reason, we will use LCA analysis to enhance the value of products and make an effort to increase profitability. In addition, by utilizing LCA to visualize the GHG emissions of every product process, we will be able to identify the points where high emissions are generated, making it easier to implement emission reduction measures.

-A case study of how the described process is applied to Physical risks and/or opportunities

As for physical risks, the increasing frequency and magnitude of floods and typhoons due to climate change is elevating the risk of product losses and production shutdowns, including supply chain disruptions. To address this risk, from a short-term perspective, we are formulating action plans for different scenarios in case of an emergency, running simulations of total expected damage, and examining business continuity plans (BCPs) to minimize disruption to our operations. As a concrete BCP countermeasure, we review and identify important items with long delivery period at each factory, reviewing spare parts and installed position of important equipment, and preparing and managing to make it possible to start operations at an early stage. As a physical opportunity, we take opportunities to expand sales of our products due to the effects of climate change, and use them to manage product development and product sales expansion. We build product strategies and business strategies that contribute to climate change countermeasures, expand business and strengthen corporate value appeal through media and public relations.

C2.2a

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

	Relevance & Inclusion	Please explain
Current regulation	Relevant, always included	If the laws and regulations related to climate change and on energy saving are greatly tightened in the future, there will be a risk of increasing production and transportation costs. For that purpose, we set concrete quantitative targets for short-term, mid and long-term and make efforts to reduce energy consumption per unit, and continue substantive energy reduction efforts. In addition, we obtain information to which the current regulation is strengthened early from the draft stage of regulation, simulated when regulation is actually enforced, and we estimate the financial impact, technical impact on operation, impact on production volume and integrate the estimate into climate change risk assessment. For example, in our material business, due to an increase in fixed expenses on capital investment in response to Japan's environmental tax and CO2 emission regulation, production cost tends to increase. As a result, our international price competitiveness might decline, and there is a risk of getting worse in our profit and loss at our global business level. For this reason, we set our long-term GHG reduction target to become carbon neutral by 2050 and to decrease GHG emissions by more than 30% compared to 2013 levels by 2030 as a milestone. We will review the improvement plan from time to time according to regulatory trends.
Emerging regulation	Relevant, always included	In order to implement Japanese NDC in the Paris Agreement, while energy mix goes as planned, securing inexpensive electricity with low carbon is indispensable, the chemical industry improves the efficiency of existing in-house power generation facilities and newly installs private power generation facilities. We are actively investing in power generation efficiency to contribute to CO2 reduction, but as a burden of maintaining operation expenses of regulated electricity distribution network, regulation of fixed billing for private power generation owners is discussed under the Committee for Monitoring Electricity and Gas Transactions, the Ministry of Economy, Trade and Industry in Japan. When these are enforced and regulated, a charge corresponding to the generation capacity of our private power generation facility will be carried out and it will be a considerable annual burden amount for us. We send out comments through the Industrial Association, simulate the amount of burden when these are introduced, and integrated this into risk assessment as an element of our climate change risk as future emerging regulation risk.
Technology	Relevant, always included	As a result of global warming caused by climate change, unless we focus on technological development in the basic field of building insulation to prevent global warming and the structure field in response to possible enormous natural disasters such as wind and flood damage, it leads to risk of loss of corporate value as well as risk of sales decrease. We evaluate the degree of damages to residential buildings due to natural disasters such as wind damage and flood disasters, predict the size and situation of disasters, and are working on technology development that can respond to the damage. In addition, we have been improving thermal insulation performance, and developing environmentally conscious housing that is more effective in reducing CO2 emissions. As a case in point, Neoma Foam is an eco-efficient and high-performance thermal insulation material for comfortable and energy-conserving homes. This high-performance phenolic foam insulation panel features world-leading insulation performance that is maintained over a long service life, as well as outstanding flame resistance. Thus we incorporate how we can reduce physical risks to residential buildings by developing new technologies into risk assessment.
Legal	Relevant, always included	As a result of the revised laws and standards by climate change response, changing the operating system of our factories, it is predicted that the procedures of our operation and management system might be inadequate in conventional way. If these correspondences are not enough and then lead to violation, the credibility to our company will be lost and there is a risk that the corporate value will be reduced. For this reason, compliance with laws in product / business activities is incorporated into our risk assessment. In order to respond to global warming, further improvement of heat insulation performance might be required for building energy saving. In order to prevent materials to be used in our company's housing business from conflicting with the criteria of chemical substance, as part of our Environment, Health, Safety, and Quality Assurance (EHS&QA) program we maintain awareness of the properties of the chemical substances we use, and manage them strictly and appropriately. For example, we conduct extensive education and training for all personnel in research, manufacturing, and sales, to share information on the latest chemical regulations both in Japan and overseas and study how to respond to them, and to introduce the latest chemical management subjects.
Market	Relevant, always included	With climate change, there are areas where physical risk increases in the world. In a chronic water shortage area, as water climate change progresses, water shortage may get serious and water demand for recycling is expected to increase. If we do not develop marketing activities of our "Microza" (water treatment membrane), understanding the water shortage level, infrastructure equipment, water quality regulations in each region of the world, there is a risk of loss of business opportunities. Our climate change risk assessment incorporates the market impact of exposure to climate change risk, such as water shortage at regional level, more detailed than country level.
Reputation	Relevant, always included	Concern in energy saving and climate change issues has increased, and consumers are deepening their understanding of "eco reform", house renovation with photovoltaic power generation, fuel cells, insulation, and eco-friendly products, especially for residential buildings and building materials, there is a tendency to consider CO2 emissions among those users and consumers. As a result, unless we intensify corporate value appeal on the environment through media and public relations, our reputation deteriorates and there is a risk of opportunity loss. We have built a product strategy (ZEH (net Zero Energy House) etc.) that contributes to global warming and a remodeling business strategy, and incorporate customer satisfaction survey, marketing analysis of sales department, into reputation risk assessment of climate change.
Acute physical	Relevant, always included	Many of our production sites are located in the coastal areas (Kawasaki City, Fuji City, Kurashiki City, and Nobeoka City). According to the IPCC, at the end of 21st century, due to large scale floods, heavy rainstorms, heavy typhoons, storm caused by unexpectedly low pressure etc., the factory will have the possibility to submerge. It will take time to resume operation and then there is a risk that the business will decline. For climate change risk assessment, we also incorporate information from the regional hazard maps, the breakwater construction plan around the plant into the climate change risk assessment, as well as IPCC projections, and evaluate our acute physical risk.
Chronic physical	Relevant, always included	Many of our production sites are located in coastal areas (Kawasaki City, Fuji City, Kurashiki City, and Nobeoka City). According to the IPCC, it is predicted that the sea level will rise 26 to 82 cm at the end of the 21 st century. The possibility of submergence due only to sea level rise is low, but there is a risk of stimulating the risk of flood damage due to storm surge and floods. For climate change risk assessment, we also incorporate information obtained from regional hazard maps, breakwater construction plans around the factory and evaluate our chronic physical risk.

C2.3

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

Yes

C2.3a

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

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Emerging regulation	Carbon pricing mechanisms
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Primary potential financial impact

Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

In Japan, a " global warming countermeasures tax " was placed into effect in FY 2012 and the tax rate per quantity unit was set in a way that the tax burden equals 289 yen/t-CO2 emissions. Under this scheme, companies that utilize fossil fuels were assessed a tax rate of 250 yen/kl petroleum and 220 yen/t coal starting in October 2012. The rate of petroleum rose to 500 yen/kl starting in April 2014 and then to 760 yen/kl in April 2016, also coal rose to 440 yen/t in 2014 and then to 670 yen/t in 2016. In

2021, the Asahi Kasei Group supplies about 50 percent of the Group's total energy needs through in-house power generation and makes direct purchases of the fossil fuels consumed by its in-house power generation systems. The consumption of coal only in Asahi Kasei Group has reached to 0.32 million tonnes which cost 218 million yen of carbon tax. Although we successfully cut our annual CO2 emissions in 2022 by 11.8% compared to 2021, currently implemented global warming taxes impose an additional cost burden of 755 million yen on fossil fuels for the year.

In view of the strong likelihood that the global warming countermeasures tax rate will be increased in the years ahead, we have a high risk of an increase in the cost burden. Looking ahead, Japan will be adopting a carbon pricing scheme under the GX Promotion Act from FY2028, so it is highly likely that the cost burden will continue to increase over the long term.

Time horizon

Long-term

Likelihood

Very likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

6300000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Asahi Kasei is strongly aware of the need to be more aggressive in implementing large-scale GHG reduction measures. If no large-scale measures are taken, the company will continue to pay approximately 755 million yen in taxes annually, mainly on fossil fuels purchased for its domestic power generation systems. Looking at the global trend toward decarbonization, Japan currently has a low carbon tax rate of 289 yen/t-CO2. However, according to the World Bank, in order to keep the global temperature rise below 2°C and achieve the Paris Agreement target, it is necessary to set the level of carbon tax in each country at around US \$61 ~ 122 per t-CO2 (8,500 to 17,000 yen). We confirmed that when calculating the potential economic impact of our Group's total annual CO2 emissions (3.68 million t-CO2) by taking into account the upper limit of a carbon tax estimated by the World Bank, the Group may incur a tax burden of up to 63 billion yen per year.

Potential financial impact figure: Total CO2 emissions (3.68 million t-CO2) x 17,000 yen/t-CO2 =62,560,000,000 yen

Cost of response to risk

3200000000

Description of response and explanation of cost calculation

Situation) Companies in Japan that utilize fossil fuels are required to pay a tax on heavy fuel. The rate is scheduled to rise in a phased manner. Asahi Kasei recognizes the need to take appropriate measures to address this issue.

Task) Asahi Kasei supplies about 50 percent of the Group's total energy needs through in-house power generation and makes direct purchases of the fossil fuels consumed by its in-house power generation systems. In view of the strong likelihood that the fuel tax rate will be increased in the years ahead, we need to avoid the potential risk of an increase in the cost burden. For economic reasons, we need to contain the cost of this risk response within the range of carbon pricing cost. If we assume a carbon price of \$61 per t-CO2, which is the low end of the expected range of \$61 to \$122 per t-CO2, the cost would amount to approximately 32 billion yen.

Action) To mitigate this risk, Asahi Kasei has begun utilizing fuels that generate low CO2 emissions. In 2015, We have invested in equipment that allows the on-site generating systems at Nobeoka plant facility to burn woody biomass fuels, thus enabling us to convert considerable part of our on-site generation fossil-fuel consumption to woody biomass fuels. In addition, we completely replaced one of our aging in-house coal-fired power plants with a liquefied natural gas (LNG) turbine plant that generates far less CO2 emissions per unit of fuel raw material. Furthermore, in 2018, we started to renovate two of our hydroelectric power plants located in Kyushu, the Gokasegawa Plant and Mamihara Plant which supply electricity to our manufacturing plants in the Nobeoka area.

In the case of the first, the Gokasegawa Plant, operation started in March 2022. That will enable us to continue using renewable energy over the long term.

Result) As a result, the biomass fuel consumption and hydropower in Nobeoka has increased to 422,380 MWh and 172,304 MWh, which account for 9% and 21% of the total energy consumption in Nobeoka. (how the figure in " Cost of Management " was calculated) Renovation of our hydroelectric power plants located in Kyushu, the Gokasegawa Plant and Mamihara Plant requires approximately 10 billion yen which will be covered by our green bond.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical	Heavy precipitation (rain, hail, snow/ice)
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Primary potential financial impact

Decreased revenues due to reduced production capacity

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Due to the increasing scale of flooding associated with climate change, we face an increased risk of facility water damage, lost product inventories, and lost opportunities from the suspension of production operations. In FY 2011, flood waters damaged an Asahi Kasei Group facility in Thailand that was engaged in the production of plastic compounds, forcing the closure of that facility for half a year. Our losses in that incident included 2.7 billion yen in lost income for the half-year the facility was not operational. Assessments of risk to Asahi Kasei Group facilities and business offices worldwide have determined that the aforementioned facility in Thailand is the only facility at risk of being damaged by flooding. That finding demonstrated that we would be able to limit the focus of required countermeasures to that facility alone. Unless countermeasures were taken, we could potentially face the risk of incurring an equivalent burden of losses from new flooding. We recognize this magnitude scale as an appropriate potential impact.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

400000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Unless countermeasures were taken, we could potentially face the risk of incurring an equivalent burden of losses from new flooding. Asahi Kasei examined the possible extent of damage in the main areas where physical risks are foreseen, including by means of third-party surveys. From the results of this study, we estimated the possible damage to be approximately 400 million yen, based on assumptions that consider the frequency of disasters and even the possibility of simultaneous occurrences in the main areas of operation. We recognize this magnitude scale as an appropriate potential impact.

Cost of response to risk

400000000

Description of response and explanation of cost calculation

Situation Due to the increasing flood with climate change, we face an increased risk of facility water damage, especially in Thailand. Asahi Kasei recognizes the need to take appropriate measures to address this issue.

Task The aforementioned Thai compound facility is engaged in the manufacture of functional plastic composite products using processes that blend additives into plastic feedstock at high temperatures. Extruders are the principal type of machinery at this facility, which had multiple units installed on its ground floor. We need to reduce the risk of sales loss caused by flood damage on facilities. As for risk response costs, we consider it reasonable to adopt measures within the range of the expected financial impact. We have decided to implement measures to address flooding risks up to the value of approximately 400 million yen.

Action The following countermeasures were taken against potential future flood damage. 1) The power receiving and distribution boxes, transformers, and extruder control panels on the first floor were relocated to the second floor and the main extruder units were modified so that they can be lifted by crane after dismantling in the event of future flooding. 2) An upstream river monitoring framework was set up, enabling the prediction of potential flood conditions 10 days in advance.

Result These steps ensure that in the event of future flooding on a scale even larger than that experienced during the FY 2011, the equipment at this facility will suffer no damage, the duration of facility downtime will be limited to only a few weeks. (how the figure in " Cost of Management " was calculated) The cited measures including relocation of the power receiving and distribution boxes, transformers, and extruder control panels cost 950 million yen. These are mainly recorded as " buildings and accompanying facilities " and " machinery and equipment " on its financial report.

Comment**Identifier**

Risk 3

Where in the value chain does the risk driver occur?

Downstream

Risk type & Primary climate-related risk driver

Market	Changing customer behavior
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Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

The housing market with high energy saving performance is steadily increasing in developed countries. Consumers who are end users and building materials manufacturers of houses are interested in houses and building materials with higher performance than the criteria of mandatory regulations from the viewpoint of economic view and climate change awareness. Along with the recent improvement in thermal insulation performance of buildings, interest in energy-saving performance has been increasing steadily with the spread of ZEH (net Zero Energy House). In addition, improvement of the thermal conditions due to heat insulation has been found not only to prevent the heat shock, but also to improve various diseases, and to contribute greatly to the health of the resident. If we cannot sell products with adequate thermal performance, we may not be able to sell our products, which in turn will damage our corporate image as well. In particular among the Japanese market, HEAT 20: "Society of Hyper-Enhanced insulation and advanced Technology houses for the next 20 years" (Association established in 2009, composed of volunteer members, such as researcher, residential architect, home producer, insulation building material producer, etc.) suggests grade of thermal performance standards exceeding the ZEH regulation standards. Thus, thermal insulation manufacturers intensify competition to satisfy this grade. Unless we, Asahi Kasei is ahead of other companies, develop and sell high-grade products, there is a possibility of damage to sales and corporate image.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

7600000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

If Asahi Kasei lags behind its competitors in the development and supply of energy-efficient building materials and ZEH products, it will inevitably lead to a decline in sales, which will not only lower its profit margin but also adversely affect its brand images.

Potential financial impact is calculated as follows. Sales related to housing in 2022 were 899.0 billion yen. The profit ratio is approximately 8.5%. If the sales decrease by 10%, the profit would decrease by about 7.6 billion yen even in a single fiscal year. Profit decreased by 899.0 billion yen × 8.5% (profit ratio) × 10% (decline in sales) ≈ 7.6 billion yen.

Cost of response to risk

3900000000

Description of response and explanation of cost calculation

Situation) Along with the improvement of heat insulation performance of buildings, interest in energy saving has been increasing. Unless we can sell products with adequate insulation performance, we may not be able to sell our products, which in turn will damage our corporate image as well.

Task) We need to develop a product that meets standards presented by HEAT 20, which exceeds the regulation criteria of ZEH (net Zero Energy House) to avoid damage on our brand image.

Action) To avoid the risk of sales decline as a result of not meeting market demands, we have focused on standing at the forefront of innovation. " Neoma Foam " panels we developed represent the new standard in thermal insulation, with high performance marked by extremely low thermal conductivity, superior fire resistance, low gas release, freedom from ozone-depleting gases, ease of installation, and overall quality, safety, and efficiency. In addition, the product we developed is called " NEOMA Zeus " (equivalent to G1 of HEAT 20) which further surpassed the performance of Neoma Foam by 10%.

Result) As a result, with solid sales increase of insulating material within our building materials business in the housing segment, sales of the entire housing segment increased by 45.2% from 619 billion yen in FY2016 to 899 billion yen in FY2022. (how the figure in " Cost of Management " was calculated) R&D for NEOMA Zeus was funded by research expenses of housing and construction materials, which accounted for 3.71% of 105.0 billion yen R&D expenditure for the entire group. 3,900,000,000 = 105,000,000,000*3.71%

Comment

C2.4

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

Yes

C2.4a

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

Opp1

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

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

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

In 2020, the European Union (EU) has implemented regulations that capped automotive CO2 emissions at 95g/km. The Asahi Kasei Group has a business in the production of synthetic rubber. Automotive tires are an important application that accounts for roughly half of the market for synthetic rubber, as measured by sales. The Asahi Kasei Group possesses polymerization and catalytic technologies for the manufacture of synthetic rubber, has developed rubber using molecular structures that are suited for tires with reduced rolling resistance, and has contributed developing and commercializing eco-tires with low rolling resistance through collaborative ventures with tire manufacturers. Its eco-tires have demonstrated sharp growth in the tire market and show potential that could lead to dramatic gains in the company's synthetic rubber business.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

275000000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Automotive tires have grown into a US\$65 billion global market. That market is expected to undergo a gradual shift to eco-tires in the years ahead, starting first in those countries that impose tighter regulatory standards. As a company that has led in the development of tire rubber with low rolling resistance, Asahi Kasei has the potential to vastly expand its line of tire applications. For instance, increasing the presence of Asahi Kasei in Europe and focusing on automobile related business in the material field including tires, we will set a target to increase the sales of Asahi Kasei in Europe from current EUR 0.93 billion to EUR 2.1 billion in 2025 on across-sectional marketing. (EUR 2.1 billion approximately equals to JPY 275,000,000,000). This estimate is calculated based on the overall growth rate of forecast SBR demand and the growth rate of the S-SBR ratio (proportion of total forecast SBR demand made up by S-SBR tires). This numerical value is disclosed in IR materials at the business explanatory meeting of the material segment.

Cost to realize opportunity

5000000000

Strategy to realize opportunity and explanation of cost calculation

Situation) That market is expected to undergo a gradual shift to eco-tires in the years ahead. Especially Europe is one of the promising markets.

Task) As a company that has led in the development of tire rubber with low rolling resistance, Asahi Kasei has the potential to vastly expand its line of tire applications.

Action) Working with a tire manufacturer, we have developed and have been developing through molecular-level design a new synthetic rubber for low rolling-resistance tires.

Results) We have achieved a 20% reduction in rolling resistance compared to conventional tires. For example, In 2017, July, we decided to increase production capacity of solution polymerization method styrene-butadiene rubber (S-SBR) for low fuel consumption tires, in Singapore. The scale of facilities was expanded in February 2019 and begun operation in the summer of 2019, and our supply capability in Singapore increased by about 30,000 tons / year. (how the figure in " Cost to realize opportunity " was calculated) The expansion cost of constructing the facilities in Singapore was approximately 5 billion yen. That is mainly recorded as " buildings and accompanying facilities " and " machinery and equipment " on its financial report.

Comment**Identifier**

Opp2

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Markets

Primary climate-related opportunity driver

Access to new markets

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Drought conditions attributable to climate change have become increasingly common in all regions of our planet. For example, water shortages have become so commonplace in China that during periods of scarcity, local governments will order manufacturing facilities to shut down operations. Conversely, these conditions present a business opportunity for goods and services that contribute to water conservation. The Asahi Kasei Group is competitive in the field of manufacturing technology for filtration membranes that incorporate its own proprietary technologies. For example, "Microza" is a filtration module containing unique hollow filter membranes developed by Asahi Kasei for filtration systems. Several types of hollow fiber membranes are available, and various organic polymers. Liquid filtration takes place through the pores, or gaps, in the hollow fiber wall structure. Microza membranes have sharp pore size distributions that provide superior and stable filtration performance. We foresee business opportunities for the supply of filtration membranes or water filtration and recycling systems that utilize our membrane technology.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

1530000000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Sales of material segments including filtration membranes will be aimed at 1,530 (billion yen) in FY 2024 from 1,004 (billion yen) in FY 2015. This forecast assumes that the company will focus on high-value-added businesses in the materials segment with the expectation of making a profit in the segment.

Cost to realize opportunity

10500000000

Strategy to realize opportunity and explanation of cost calculation

Situation) The global market for microfiltration and ultrafiltration systems is growing by some 10% annually, driven by serious environmental water quality issues and water shortages.

Task) The Asahi Kasei Group has developed its "Microza" line of water filtration systems utilizing proprietary filtration membrane technology, which are with its Microza membranes used at over 1,600 plants worldwide, enjoying the tap water treatment market share of about a 50% in the United States. As the market for filtration membranes

and water filtration and recycling systems that utilize our membrane technology expands, we expect further business opportunities to arise.

Action) As many countries face water shortages and a growing need to improve water quality, they are increasingly adopting filtration membranes and water filtration and recycling systems. The introduction of Asahi Kasei's "Microza" products to these markets is likely to present us with further business opportunities.

Result) We promote "Microza" to contribute to solutions for water resources throughout the world, including in areas of the world that are facing water shortages or an increasing need for better water quality. For example, In October 2017, the government of Kuwait, decided to adopt a water treatment fiber filtration membrane "Microza" for seawater desalination plant, which was the largest order of our water treatment membrane, and the plant started to operate in summer 2019. Asahi Kasei has a 60% share of the membrane systems being supplied for this project. (how the figure in " Cost to realize opportunity " was calculated) Filtration membranes are part of Environmental Solutions business segment, the cost of research and development for which was 10.5 billion yen in FY 2022. That cost is composed of labor, material and depreciation. Research and development in the chemicals segment is focused on the environment, resources, and energy.

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Growing consumer awareness of climate change is expected to strengthen consumer preferences for electric vehicles (EVs). Asahi Kasei has developed materials for high-performance lithium-ion batteries that will be used in EVs and assumes that it will enjoy significant business opportunities if the market transition from gasoline-engine automobiles to EVs gains momentum. For instance, Hipore is Asahi Kasei polyolefin film, used in a wide range of high-technology fields, such as lithium-ion battery separators. The membranes look like plastic films, but are actually filled with microscopic pores. Hipore is high-performance microporous membrane with wide range thickness and highly uniform pores. Asahi Kasei was the first company in the world to successfully mass produce separators for current batteries, thereby establishing a de facto standard and accumulating technology and know-how cultivated through long years of business activities. The company is equipped with product design capabilities and post-processing know-how that contribute to improved battery performance. We also possess separator development and evaluation capabilities based on battery evaluation technology, as well as the capacity for high productivity and stable product supply. For all these reasons, we have a significant advantage in this field.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

153000000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Sales of material segments including separators for lithium-ion batteries will be aimed at 1,530 (billion yen) in FY 2024 from 1,004 (billion yen) in FY 2015. This figure is calculated from the compound annual growth rate of 17% based on the sales volume from FY2000 to FY2021. This numerical value is disclosed in IR materials at the separator business explanatory meeting.

Asahi Kasei is one of a leading manufacturer for separators for lithium-ion batteries used in consumer applications. We expect the market for lithium-ion batteries used in hybrid and electric vehicles to significantly expand.

Cost to realize opportunity

10500000000

Strategy to realize opportunity and explanation of cost calculation

Situation) Growing consumer awareness of climate change is expected to strengthen consumer preferences for electric vehicles (EVs). Through its business activities over many years, Asahi Kasei has built up a wealth of technology and know-how. This gives us a significant advantage in the field of separators for lithium-ion batteries.

Task) We see business opportunities in rapid growth of Asahi Kasei needs to develop materials for high performance product for EVs. Because of the rapid expansion of hybrid vehicles and EVs, we expect many business opportunities and need to supply battery membranes for EVs promptly.

Action) Our current separators for consumer lithium-ion batteries were developed to meet the performance and cost requirements of automobiles, and have been used in hybrid and electric vehicles. With new capacity expansion decided in March 2019, our total LIB separator capacity reached 1.55 billion m2/year in fiscal 2021 from 730 million m2/year in fiscal 2018. In view of the expected expansion of EVs due to the U.S. Inflation Reduction Act, we are pursuing growth by expanding our Hipore™ wet-process separator for LIBs in North America. Utilizing our product development based on advanced coordination with customers, world-class environmentally friendly technologies, and manufacturing technologies of world-leading productivity, we plan to capture market share by strengthening our supply system and alliances in North America. We also want to build a solution-oriented business that is not simply focused on product sales by utilizing the knowledge we have accumulated in the separator business, e.g., information on battery-related markets and know-how relating to manufacturing technology.

Result) As one of a leading manufacturer, we have greater production capacity than other companies. (how the figure in " Cost to realize opportunity " was calculated) Research and development of lithium-ion battery separators are conducted in our Environmental Solutions business segment. The cost of R&D in this segment was 10.5 billion yen in FY 2022. That cost is composed of labor, material and depreciation.

Comment

Identifier

Opp4

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

Hydrogen is expected to play an important role in achieving a carbon-neutral society. One important factor in this trend is that the Japanese government introduced its Basic Hydrogen Strategy in 2017, an internationally pioneering initiative.

Against this backdrop, our hydrogen-related business is listed in our Medium-term Management Plan 2024 ("Be a Trailblazer") as one of "10 Growth Gears" (GG10) for driving our next phase of growth. To address the arrival of the hydrogen economy, we are strategizing to accelerate business development of alkaline water electrolysis systems, an area in which we have a technological advantage. With a proven track record in the operation of 10 MW water electrolysis systems, Asahi Kasei is working to improve system durability and reliability. We are also taking a comprehensive approach, developing everything from the basic components of electrolyzers to complete systems. Currently, we are promoting the development of hydrogen-related businesses centered on alkaline water electrolysis systems for hydrogen production, leveraging all of the achievements and knowledge we have accumulated in the nearly 50 years since we began conducting business in the field of salt electrolysis. Our alkaline water electrolysis system is based on the technology of our ion-exchange membrane salt electrolysis business. We are aware that we are the only company in the world that can handle every aspect of the salt electrolysis business, from the sale of parts to system monitoring. We consider membrane technology to be particularly important. By improving this technology, we aim to create highly efficient electrolytic cells. Our aim in the hydrogen-related business is to work on technology development and business development with the goal of commercialization by 2025.

Time horizon

Long-term

Likelihood

Likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

100000000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

The market for water electrolyzer installations is expected to grow exponentially, from 1 GW in 2022 to 10 GW in 2025 and 85 GW by 2030. Specific targets for hydrogen deployment and support measures in Europe's REPowerEU plan, the Infrastructure Investment and Jobs Act and the Inflation Reduction Act of the US, and Japan's Clean Energy Strategy are adding certainty to hydrogen projects and pushing forward investment decisions that had been stalled.

As part of a project commissioned by NEDO, Asahi Kasei has installed a large 10 MW water electrolysis system at the Fukushima Hydrogen Energy Research Field (FH2R). The system has been in operation since 2020. It is the world's largest operational water electrolysis system. We are also planning another (NEDO) Green Innovation Fund Project and a large-scale demonstration project with several other partners, to establish the technologies and systems for commercialization. The economic ripple effects of the Green Innovation Fund Project (global market scale estimate) are expected to amount to around 0.4 trillion yen (cumulative total by 2030) and 4.4 trillion yen/year (by 2050). Even assuming that Asahi Kasei captures 20% to 30% of this cumulative total by 2030, which is highly certain, the company expects to grow to achieve 100 billion yen in annual sales by around 2030.

Cost to realize opportunity

70000000000

Strategy to realize opportunity and explanation of cost calculation

Situation) We are strategizing to accelerate business development of alkaline water electrolysis systems, an area in which we have a technological advantage. A budget of 70 billion yen, the amount indicated in the Green Innovation Fund Project, will be used to pay for the practical implementation of project.

Task) To commercialize the hydrogen production process, it is vital to address the different water electrolysis system requirements of different customers. It is also necessary to build production capacity and supply chains to meet the rapidly growing demand for water electrolysis systems.

Action) The action Asahi Kasei is taking to address this issue is to produce water electrolysis systems that satisfy customer requirements through in-house R&D and production engineering capabilities, and to promote standardization of the water electrolysis system and ancillary equipment in cooperation with other relevant companies and industry associations. We have joined the Hydrogen Council, a global initiative related to hydrogen, as a steering member. As steering members of the council, we will collaborate with a variety of companies and organizations along the supply chain through our involvement in the activities of the Hydrogen Council. We are also participating in the Japan Hydrogen Association (JHA), an industry-government-academia group dedicated to discussions aimed at promoting the implementation of hydrogen technology in Japan as an executive member. On top of activities aimed at resolving issues related to real-world application of hydrogen technology, we take part in discussions on the direction of the JHA's activities as a member of the Steering Committee. Through these industry associations, we are compiling and sharing industry opinions with the aim of building up the international and domestic green hydrogen market and water electrolysis industry. We aim to set up a system of cooperation with a view to building partnerships both within the Asahi Kasei Group and also externally, and plan to secure the production capacity and supply chain structure and scale to meet market demand.

Result) Based on the business structure we have cultivated in the salt electrolysis business, we are focusing first on electrolyzer sales and operation and maintenance services. We see Europe and the US as high-priority markets because of their maturity in terms of policies and potential partners. And if there are promising projects in Japan, we will participate in them.

Comment

Identifier

Opp5

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development of climate adaptation, resilience and insurance risk solutions

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Global warming caused by climate change has increased consumer interest in housing and living environments, and consequently also in the energy-saving performance of buildings and measures to counter the increasing risk of wind and flood damage, and other kinds of severe natural disasters. Asahi Kasei sees this trend as an opportunity to supply housing that matches these needs.

Asahi Kasei has been accumulating experience and achievements in its housing business through its Hebel Haus products since Asahi Kasei Homes was established in 1972. The company also boasts an industry-leading track record in the business of apartment building reconstruction. In addition, we are continuing to pursue contributions to the life cycle of housing and business activities from an environmental perspective, with a focus on decarbonization as well as strong resilience to disasters, e.g., by promoting ZEH (net Zero Energy House), promoting renewable energy by joining the RE100 initiative, and moving to acquire SBT certification.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

200000000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Given that the number of housing starts in Japan is likely to shrink in the coming years, we will strive for ways to retain our standing and remain profitable in the domestic housing market, through high value-added products and services. At the same time, it will be important to generate revenue from new businesses in new growing markets. More specifically, we are aiming at sales of 200 billion yen in our housing business overseas by 2025. This figure is based on the assumption of growing profits from our overseas businesses, which we are continually investing in, and that Synergos (our North American housing business) and NXT Building Group Pty. Ltd. (Australian housing business), which have recently made M&A investments, each enjoy a profit growth of 3 to 5 billion yen until 2025. These figures are disclosed in the IR materials of the business presentation of our Medium-term Management Plan 2024, "Be a Trailblazer."

Cost to realize opportunity

100000000000

Strategy to realize opportunity and explanation of cost calculation

Situation) Improving the sales of our overseas operations in new and growing markets will provide new opportunities to further our business growth and expansion.

Task) While leveraging the strengths of the know-how cultivated through the pursuit of resilience and environmental friendliness in Japan, Asahi Kasei will collaborate with local companies that have a deep understanding of the local market and a deep appreciation of Asahi Kasei's philosophy to achieve higher construction efficiency, faster construction, and higher quality by improving processes and utilizing IT. Toward this goal, we plan to invest 100 billion yen from 2022 to 2024. These figures are disclosed in the IR materials of the business presentation of our Medium-term Management Plan 2024, "Be a Trailblazer."

Action) To further pursue profit growth through overseas expansion, we made the following M&A investments, mostly in North America and Australia.

- Acquisition of (US) Focus companies: Focus is highly trusted name among builders as a supplier of residential plumbing, framing, electrical, foundations, and other materials and products for construction work. Furthermore, the state of Nevada, where Focus operates, is expected to continue experiencing robust housing demand due to a housing shortage driven by population growth. We also anticipate synergies with Asahi Kasei-affiliated companies in the neighboring state of Arizona. We are working toward establishing a supplier model that can efficiently carry out a wide variety of processing at manufacturing and construction sites.

- Acquisition of (AU) Arden: Arden is an Australian home builder with over 10 years of experience in the state of Victoria, a market we had considered entering for a long time. As well as having a solid business foundation, with its own model home park, Arden is also a good fit with (Asahi Kasei subsidiary) NXT Building Group, due to their similar customer bases. We will work to establish an Australian business model with a strong competitive advantage that cannot be attained by any builder or supplier working alone.

Result) We expect to expand our overseas business by leveraging our expertise in the development, design, and construction of industrial housing and process rationalization through information tie-ups. We plan to deliver high-quality housing to suit local needs by increasing efficiency and productivity through collaboration with local companies and the strengths we have cultivated in Japan.

Comment**C3. Business Strategy****C3.1**

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

Row 1

Climate transition plan

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

Publicly available climate transition plan

Yes

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

We have a different feedback mechanism in place

Description of feedback mechanism

We offer explanations and progress reports on the company’s 1.5°C transition plan at sustainability briefings for stakeholders, held annually. The information and advice we obtain through exchanges of opinions with stakeholders are examined in detail by our internal carbon neutrality promotion team (responsible for formulating the transition plan) in terms of both technology and cost. After approval by the board, proposals and measures that are judged to be effective are reflected in our medium-to-long-term transition plan for achieving net zero emissions and then implemented.

Frequency of feedback collection

Annually

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

Explain why your organization does not have a climate transition plan that aligns with a 1.5°C world and any plans to develop one in the future

<Not Applicable>

Explain why climate-related risks and opportunities have not influenced your strategy

<Not Applicable>

C3.2

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

	Use of climate-related scenario analysis to inform strategy	Primary reason why your organization does not use climate-related scenario analysis to inform its strategy	Explain why your organization does not use climate-related scenario analysis to inform its strategy and any plans to use it in the future
Row 1	Yes, qualitative and quantitative	<Not Applicable>	<Not Applicable>

C3.2a

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

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios	RCP 7.0 Company-wide	<Not Applicable>	We currently use the TCFD framework to determine the risks and opportunities of our company and how those could have substantive financial or strategic impact on us. We suppose two scenarios for the climate change and relevant social change, meaning +4°C scenario and +1.5°C scenario. In +4°C scenario, the temperature will rise sharply in accordance with the strengthening Typhoon of heavier rain and stronger wind. In +1.5°C scenario, the temperature will rise modestly with stricter regulations on CO2 emissions and promoting policy of more climate-friendly alternatives, such as electric vehicles. As for physical risks, the increasing frequency and magnitude of floods and typhoons due to climate change is elevating the risk of product losses and production shutdowns, including supply chain disruptions. To address this risk, from a short-term perspective, we are formulating action plans for different scenarios in case of an emergency, running simulations of total expected damage, and examining business continuity plans (BCPs) to minimize disruption to our operations. As a concrete BCP countermeasure, we review and identify important items with long delivery period at each factory, reviewing spare parts and installed position of important equipment, and preparing and managing to make it possible to start operations at an early stage. As a physical opportunity, we take opportunities to expand sales of our products due to the effects of climate change, and use them to manage product development and product sales expansion. We build product strategies and business strategies that contribute to climate change countermeasures, expand business and strengthen corporate value appeal through media and public relations.
Transition scenarios	IEA NZE 2050 Company-wide	<Not Applicable>	As for transition risks, we anticipate possible damage to corporate image due to an inability to sell products that meet the growing consumer preference for environment-friendly and energy-saving products, as well as a decline in the company’s fortunes due to tougher regulations relating to environmental taxes and GHG emissions, which will drive up the costs of manufacturing and raw materials and drive down profitability. Japan has decided to adopt carbon pricing from FY2028 under its GX Promotion Act. This will certainly put a greater burden on companies, resulting in reduced profitability over the long term. Still, we strongly recognize the need to actively implement large-scale GHG reduction measures. To address this need, we will make every effort to save energy and cut energy consumption per unit of production. We will also work to deploy more renewable energy and switch to cleaner fuels. On the other hand, as a transition opportunity, by proactively developing products that contribute to reducing GHG emissions, we will seize the creation of business opportunities. Specifically, in product development, using LCA (Life Cycle Assessment), we identify risky processes and grasp the CO2 emissions at the production stage and use stage to identify the risk. In addition to managing development priorities, we have successfully improved reputation of low carbon products through disclosure of data. Since information on carbon footprints and product LCA is becoming increasingly important in the context of supply chains, data is likely to become a key factor in the market competitiveness of products over the medium term. For this reason, we will use LCA analysis to enhance the value of products and make an effort to increase profitability. In addition, by utilizing LCA to visualize the GHG emissions of every product process, we will be able to identify the points where high emissions are generated, making it easier to implement emission reduction measures.

C3.2b

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

Row 1

Focal questions

We investigated what the likely affects of climate change are and their impact on our business for both the +4°C and +1.5°C scenarios, in line with the TCFD framework. The results indicate that we should expect a substantial financial impact from climate change in the medium term, but since our business portfolio is made up of a broad variety of businesses, climate change presents opportunities as well as risks and the overall financial risk to the company is likely to be limited.

The focal questions that we arrived at in the course of our review are summarized below.

4°C scenario:

(Risks)

- Increasingly severe climatic damage due to higher temperatures (shutdown of operations at coastal and riverfront plants due to frequent storm surges and flooding)

(Opportunities)

- Spread of heat stroke and infectious diseases (higher demand for existing drugs, new drugs, and critical care business)

1.5°C scenario:

(Risks)

- Acceleration of decarbonization (stricter GHG emission regulations, higher carbon price, higher cost of raw materials)

(Opportunities)

- Diffusion of net zero energy houses (ZEHs) and electric vehicles (EVs) from policy changes
- Arrival of a "hydrogen society" (higher demand for water electrolysis powered by renewable energy)

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

To address the above important issues, we have initiated the following actions with a medium-to-long-term perspective.

- To deal with increasingly severe climatic damage caused by higher temperatures, we are implementing risk management and responses from the viewpoint of business continuity planning. This year, we investigated risks of floods and storm surges in the future at our major manufacturing bases and headquarters, using "Aqueduct Floods", and found no significant increase in risk.
- To address the spread of infectious diseases and heat stroke, we have begun providing emergency medical supplies and medical equipment for infectious diseases and heat stroke, as well as consumables, equipment, and services for biopharmaceutical manufacturing processes.
- In view of accelerating decarbonization, we are systematically transitioning our existing coal-fired plants to liquefied natural gas (LNG) with a natural gas cogeneration system, and expanding our use of renewable energy, with the goal of drastically reducing GHG emissions and achieving net zero emissions on a group basis by 2050. Through these activities, we plan to avoid the adverse impacts of increasingly strict regulations related to decarbonization (e.g., soaring carbon taxes). Since raw material costs are very likely to keep increasing, we are working energetically to develop chemical recycling technology for plastics, in order to help shape a more recycling-oriented society.
- To take advantage of decarbonization-related opportunities, we aim to increase production of separators and other electronic components that are essential for lithium-ion batteries (LIBs), both to keep pace with growing demand and to expand market share.
- To address the arrival of the hydrogen economy, we are strategizing to accelerate business development of alkaline water electrolysis systems, an area in which we have a technological advantage.

C3.3

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

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	<p>Risk;</p> <p>- A company specific description of how our strategy in this area has been influenced by climate-related risks AND the time horizons it covers As concerns about global warming are increasing with interest in promoting and promoting low fuel consumption tires, a tire labeling system has been introduced in various countries around the world, and rolling resistance (fuel consumption) is beginning to be graded for all tires. Legislation / self-regulation began in Japan, Europe, South Korea and China, and introduction is decided in the United States, Brazil, the Middle East and others, and therefore the time horizon the strategy covers is short-term and mid-term. There is a risk that the market share of the tire market will decline if we lag behind competitive fuel-efficient performance with competitors.</p> <p>-A case study of the most substantial strategic decisions made in this area to date that have been influenced by the climate-related risks We have been developing a modified SBR that can drastically improve fuel economy performance and wear resistance performance, so and for example we increase the production capacity of our plant in Singapore for solution-polymerized styrene-butadiene rubber (S-SBR).</p> <p>Opportunity;</p> <p>- A company specific description of how our strategy in this area has been influenced by climate-related opportunities AND the time horizons it covers Concern about the impact of the use of automotive fossil fuels on climate change was raised and the EV policy was announced in various countries around the world, which has led to the opportunity for sales of our automotive LIB separators. In fact, our business is also influenced in terms of increasing production capacity. We will increase production capacity at our factory and further focus on increasing sales volume. The time horizon the strategy covers is mid and long-term because EV market will possibly develop at an accelerating pace over time.</p> <p>-A case study of the most substantial strategic decisions made in this area to date that have been influenced by the climate-related opportunities. We estimate that the size of the market for automotive LIB separators will grow from approximately 5 billion m2 in 2021 to over 30 billion m2 in 2030. Consequently, we are investing 130 billion yen to upgrade our LIB separator manufacturing infrastructure.</p>

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Supply chain and/or value chain	Yes	<p>Risk;</p> <p>- A company specific description of how our strategy in this area has been influenced by climate-related risks AND the time horizons it covers The number of customers who evaluate efforts to reduce energy costs accompanying transportation are increasing. We need to review our packaging and increase our transportation efficiency. Otherwise, we might lose our customers. The time horizon the strategy covers is short-term and mid-term, because in some countries, the provision of environmental impact information including CO2 emissions has already begun. Overseas sales ratio is increasing from 48.1% to 50.6% from 2021 to 2022, and so we are urged to manage packaging and transportation.</p> <p>-A case study of the most substantial strategic decisions made in this area to date that has been influenced by the climate-related risks Among other transportation options, we promote environmentally friendly railway shipment. In cooperation with the transport firms contracted for shipment, a wide range of measures are employed to reduce energy consumption. We have received Eco-Rail Mark certification in recognition of our preferential shipment of products by rail.</p> <p>Opportunity;</p> <p>- A company specific description of how our strategy in this area has been influenced by climate-related opportunities AND the time horizons it covers Automobile manufacturers are promoting lightweight materials as a response to CO2 emissions regulations during driving. We have been developing foam (automotive interior material with foamed polyethylene beads) leading to weight reduction compared to conventionally used resin parts and expanding market for automobile manufacturer. The time horizon the strategy covers is short-term and mid-term.</p> <p>-A case study of the most substantial strategic decisions made in this area to date that have been influenced by the climate-related opportunities CO2 emissions regulations are getting stricter globally, especially in the EU and China. Our sales in EU and China in fiscal 2022 were 189.1 billion yen (6.9% of total sales) and 242.0 billion yen (8.9% of total sales) and we seek to create and expand business there. As one of measures for it, we established Asahi Kasei Europe GmbH in Dusseldorf, Germany, as a base for the future expansion of business in Europe and enable deeper ties to be gained with the Europe automotive industry.</p>
Investment in R&D	Yes	<p>Risk;</p> <p>-A company specific description of how our strategy in this area has been influenced by climate-related risks AND the time horizons it covers As measures to deal with the heat island phenomenon and summer climate change, development of construction technology to remove heat directly, such as heat shield pavement, water retentive pavement, medium temperature pavement, and construction reduction technology by two directions, such as extension of road life extension, construction reduction of technological development, from the point of global warming, are promoted. If we miss the development competition of synthetic rubber that can be used for these technologies, there are risks that business expansion is getting severe. The time horizon the strategy covers is mid and long-term.</p> <p>-A case study of the most substantial strategic decisions made in this area to date that have been influenced by the climate-related risks We focus on developing a modified S-SBR, our product, can achieve a high-level balance of braking performance and fuel efficiency while also improving abrasion resistance and handling stability characteristics.</p> <p>Opportunity;</p> <p>-A company specific description of how our strategy in this area has been influenced by climate-related opportunities AND the time horizons it covers Regulatory energy standards for housing in Japan were enforced from April 2017 and planned to be applied to all new buildings in the near future, and therefore the demand for high insulation is increasing more and more. The revenue of the housing segment accounts for about 33% of the Company, so it will have a significant impact. The time horizon the strategy covers is mid and long-term.</p> <p>-A case study of the most substantial strategic decisions made in this area to date that have been influenced by the climate-related opportunities In anticipation of such mandatory standardization, we have been making efforts to develop higher performance insulation materials and have developed the product "Neoma Zeus" which could further enhance the heat insulation performance of the heat insulating material "Neoma form" that we have been selling since January 2018. By pioneering the development of high thermal insulation performance ahead of other companies, we have led to opportunities to increase market share in the thermal insulation market expected to expand in the future.</p>
Operations	Yes	<p>Risk;</p> <p>-A company specific description of how our strategy in this area has been influenced by climate-related risks AND the time horizons it covers According to the IPCC Fifth Assessment Report, the sea level rise by the end of the 21st century is estimated to be 26 cm - 82 cm. Our fiber factory (e.g. Nagahama in Nobeoka City) is located in the coastal area, so there are risks of plant flooding to be flooded with submersion. The time horizon the strategy covers is mid and long-term.</p> <p>-A case study of the most substantial strategic decisions made in this area to date that have been influenced by the climate-related risks We established a comprehensive set of internal regulations which guides the proper response to any industrial accidents or natural disasters which may occur. The smooth operation of the emergency response system ensures that personal safety is secured, that effects of the situation are prevented from spreading to surrounding areas, and that damage is held to a minimum, through close communication between the plants, regional management, and the head office. The plants prepare annual plans for periodic training drills, and perform drills in coordination with the head office.</p> <p>Opportunity;</p> <p>-A company specific description of how our strategy in this area has been influenced by climate-related opportunities AND the time horizons it covers Under the circumstances where stable supply of water due to climate change is threatened, demand for water recycling is increasing. The time horizon the strategy covers is mid and long-term.</p> <p>-A case study of the most substantial strategic decisions made in this area to date that have been influenced by the climate-related opportunities We create Microza (hollow-fiber membrane for water treatment) which can meet the need for water reuse and water quality improvement. The demand for water shortage and water quality improvement is high in counties like China, Korea, Thailand, Indonesia etc, leading to the opportunity to expand our business area. We intend to actively develop in chronic water shortage areas such as the Middle East where demand is strong in the future.</p>

C3.4

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

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Indirect costs Capital expenditures Capital allocation Acquisitions and divestments Access to capital Assets Liabilities	<p>Revenues</p> <ul style="list-style-type: none"> - A case study of how climate-related risks and opportunities have influenced your financial planning By creating opportunities for value-added profitable businesses to respond to climate change, such as EV battery separators, new materials in the automobile field, energy-saving houses, etc., the expansion of profitability of the Asahi Kasei Group will be reflected in the financial planning. Climate change has little negative impact on revenue as we have succeeded in creating opportunities for highly profitable value added projects. So far, we have succeeded in creating value-added business that exceeds the influence of carbon tax. -The time horizon covered by the financial planning The time horizon covered by the financial planning of revenues is short, middle and long-term. The trend of revenue expansion continues in the future as follows: FY 2022 sales 2.73 trillion-yen, operating income 128 billion yen. FY 2023 planned sales 2.87 trillion-yen, operating income 160 billion yen. <p>Operating costs</p> <ul style="list-style-type: none"> - A case study of how climate-related risks and opportunities have influenced your financial planning In order to respond to major changes in the industrial structure represented by electric cars, we are promoting a change in the portfolio of business areas. In promoting this change of portfolio, we will contribute to responding to climate change concerning R&D of areas to be focused as priority areas, aimed at realizing " healthy, comfortable and safe longevity society " and " clean environmental energy society ". In the materials business, we have been developing renewable energy and energy-saving related materials, particularly high performance separators for lithium ion secondary batteries and separators for lead storage batteries. In the housing business, it is reflected in the financial plan as research and development expenses such as reduction of living energy consumption in houses and improvement of insulation performance. -The time horizon covered by the financial planning The time horizon covered by the financial planning of operating costs is short, middle and long-term. The R&D expenditure as operating costs of the Asahi Kasei Group has been around 90 billion yen in recent years, but it is gradually increasing. It was 105 billion yen in fiscal 2022. Therefore, the future impact on financial plan is also expected to increase. <p>Capital expenditures/capital allocation</p> <ul style="list-style-type: none"> - A case study of how climate-related risks and opportunities have influenced your financial planning We emphasize investment in new and expanded facilities in product areas that can be expected to grow over the long term, including climate change response businesses, while at the same time streamlining, labor saving, maintenance for the purpose of improving product reliability and cost reduction, and investing in information technology. In fiscal 2021, we announced to billion-yen financial plan by adding further production lines of separators. Currently, we are aggressively developing capital investment for opportunities in addition to risk countermeasures. -The time horizon covered by the financial planning The time horizon covered by the financial planning of capital expenditures and capital allocation is short and mid-term. Capital expenditures related to business triggered by climate change accounts for the majority of our company's capital investment plan, so its impact is great. To be specific, of the capital investment of 174.9 billion yen in fiscal 2022, capital investment of material business, which has a great impact by climate change, accounts for a majority of 106.5 billion yen. <p>Acquisitions and divestments</p> <ul style="list-style-type: none"> - A case study of how climate-related risks and opportunities have influenced your financial planning In addition to investing existing businesses, in order to aggressively promote new business investment by M & A etc., we have set up a long term investment amount of about 1 trillion yen (cumulative total of 3 years) as a medium-term management plan 2024 (2022 - 2024) " Be a Trailblazer ". Most of our M & A plans are projects that captures opportunities for climate change. -The time horizon covered by the financial planning The time horizon covered by the financial planning of acquisitions and divestments is mid and long-term. <p>Access to capital</p> <ul style="list-style-type: none"> - A case study of how climate-related risks and opportunities have influenced your financial planning There will be a need to secure funding to respond to climate change, such as R&D expenses, new capital investment, funds related to corporate acquisitions. We actively disclose ESG data and have set up the company position to procure fund procurement at a low interest rate aiming at better access to capital. -The time horizon covered by the financial planning The time horizon covered by the financial planning of access to capital is short and mid-term. In fiscal 2022, Proceeds from issuance of long term debt was 210 billion yen including green bonds. While considering the balance of cash flow, we might issue corporate bonds and new borrowing. <p>Assets</p> <ul style="list-style-type: none"> - A case study of how climate-related risks and opportunities have influenced your financial planning In the event of a natural disaster due to climate change, there will be an impact of asset declines due to impairment on fixed assets such as factory equipment. -The time horizon covered by the financial planning The time horizon covered by the financial planning of assets is short and mid-term. Since natural disasters that require impairment have not occurred in recent years, we believe that the impact is minor. In addition, we sincerely explain climate change response to investors, and it is expected that there will be less valuation loss on assets in ESG investment including climate change. <p>Liability</p> <ul style="list-style-type: none"> - A case study of how climate-related risks and opportunities have influenced your financial planning There is a possibility of an effect from an increase in liabilities due to an increase in corporate bonds and borrowings in order to secure funding associated with new capital investment and acquisitions. -The time horizon covered by the financial planning The time horizon covered by the financial planning of liability is short and mid-term. Based on our medium-term management initiative 2024 (2022 - 2024) " Be a Trailblazer ", corporate bonds and borrowings are expected to increase by 250 - 3000 billion yen in the future the 3-year period of fiscal 2022 - 2024.

C3.5

(C3.5) 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	Indicate the level at which you identify the alignment of your spending/revenue with a sustainable finance taxonomy
Row 1	Yes, we identify alignment with our climate transition plan	<Not Applicable>

C3.5a

(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization's climate transition.

Financial Metric

CAPEX

Type of alignment being reported for this financial metric

Please select

Taxonomy under which information is being reported

<Not Applicable>

Objective under which alignment is being reported

<Not Applicable>

Amount of selected financial metric that is aligned in the reporting year (unit currency as selected in C0.4)

13500000000

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

4.8

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

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

Describe the methodology used to identify spending/revenue that is aligned

We track the performance of sustainability-related capital investment and R&D, mainly decarbonization.

Financial Metric

Revenue/Turnover

Type of alignment being reported for this financial metric

Please select

Taxonomy under which information is being reported

<Not Applicable>

Objective under which alignment is being reported

<Not Applicable>

Amount of selected financial metric that is aligned in the reporting year (unit currency as selected in C0.4)

670000000000

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

31

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

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

50

Describe the methodology used to identify spending/revenue that is aligned

We track sales of environmentally friendly products, particularly those that contribute to decarbonization, as a percentage of total sales (excluding healthcare segment).

To promote the goal of carbon neutrality by 2050, we have set a target of 50% of product sales by 2030. To achieve these targets, we are working to expand the number of products of this type and to increase sales of each product.

C4. Targets and performance

C4.1

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

Absolute target

C4.1a

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

Target reference number

Abs 1

Is this a science-based target?

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

Target ambition

<Not Applicable>

Year target was set

2021

Target coverage

Company-wide

Scope(s)

Scope 1
Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

<Not Applicable>

Base year

2013

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

3880000

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

1230000

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

5110000

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

100

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

100

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO2e)

<Not Applicable>

Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO2e)

<Not Applicable>

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

<Not Applicable>

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

100

Target year

2030

Targeted reduction from base year (%)

30

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

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

2853917

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

823854

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

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

3677771

Does this target cover any land-related emissions?

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

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

Target status in reporting year

Underway

Please explain target coverage and identify any exclusions

"Target Coverage:

The GHG emissions of all consolidated companies are financially aggregated.

This applies to companies in which we hold more than 50% of the voting rights or substantial management rights.

Exclusions:

Our non-manufacturing facilities such as small sales offices which require a very small amount of energy are excluded."

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

We plan to reduce Scope 1 and 2 GHG emissions (CO2e equivalent) to net zero by 2050 for group companies both in Japan and overseas. More specifically: (1) We plan to gradually renovate aging equipment at company-owned drop-type hydroelectric power plants to substantially increase hydroelectric power generation efficiency. Six hydroelectric power plants will be upgraded over the next five years. This effort is expected to cut our CO2 emissions by approximately 11,000 tons. (2) We plan to gradually shut down our coal-fired power plants for self-generation of electricity and replace them with LNG systems that include high-efficiency natural gas cogeneration. The switchover to LNG fuel at our Nobeoka No. 3 coal-fired thermal power plant has been completed. The plant began commercial operation in March 2022. (3) We plan to build large-scale photovoltaic solar panel installations on unused land within our facilities. Through various bold initiatives like these, we plan to immediately accelerate the decarbonization process.

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

<Not Applicable>

C4.2

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

Net-zero target(s)

C4.2c

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

Target reference number

NZ1

Target coverage

Company-wide

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

Abs1

Target year for achieving net zero

2050

Is this a science-based target?

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

Please explain target coverage and identify any exclusions

Target Coverage:

The GHG emissions of all consolidated companies are financially aggregated.

This applies to companies in which we hold more than 50% of voting rights or substantial management rights.

Exclusions:

Our non-manufacturing facilities such as small sales offices which require a very small amount of energy are excluded.

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

Unsure

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

<Not Applicable>

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

C4.3

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

Yes

C4.3a

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

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	1	16478
Implementation commenced*	1	11000
Implemented*	4	236150
Not to be implemented	0	0

C4.3b

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

Initiative category & Initiative type

Low-carbon energy consumption	Large hydropower (>25 MW)
-------------------------------	---------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

12794

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

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

0

Payback period

No payback

Estimated lifetime of the initiative

<1 year

Comment

In 2022, we purchased Aqua Premium (29,412MWh) Electricity produced by hydropower The reduction of CO2 emissions is calculated as follows: The amount purchased as FIT non-fossil fuel energy certificates (MWh) × the actual emission factor of The Electric Power Council for a Low Carbon Society (0.435 t/MWh). 29,412 MWh * 0.435 t-CO2e/MWh = 12,794 t-CO2e.

Initiative category & Initiative type

Low-carbon energy generation	Large hydropower (>25 MW)
------------------------------	---------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

62616

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

Scope 1

Voluntary/Mandatory

Voluntary

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

0

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

0

Payback period

No payback

Estimated lifetime of the initiative

>30 years

Comment

We own 9 drop-type hydroelectric power plants. In 2022, a total of 143,945 MWh was generated. CO2 emission reduction was calculated by multiplying the generated power (MWh) by the actual emission factor of The Electric Power Council for a Low Carbon Society (0.435 t/MWh). 143,945 MWh * 0.435 t-CO2e/MWh = 62,616 t-CO2e.

Initiative category & Initiative type

Low-carbon energy consumption	Solar PV
-------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

740

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

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

0

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

0

Payback period

No payback

Estimated lifetime of the initiative

<1 year

Comment

In 2022, we purchased FIT non-fossil fuel energy certificates for 1,700 MWh. The reduction of CO2 emissions is calculated as follows: The amount purchased as FIT non-fossil fuel energy certificates (MWh) × the actual emission factor of The Electric Power Council for a Low Carbon Society (0.435 t/MWh). 1,700MWh * 0.435 t-CO2e/MWh = 740 t-CO2e.

Initiative category & Initiative type

Low-carbon energy generation	Other, please specify (Renewal and conversion from coal-fired to LNG-fired power plants)
------------------------------	--

Estimated annual CO2e savings (metric tonnes CO2e)

160000

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

Scope 1

Voluntary/Mandatory

Voluntary

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

0

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

10000000000

Payback period

No payback

Estimated lifetime of the initiative

>30 years

Comment

We had a thermal power plant that used coal as fuel, but due to the aging of facilities and equipment, we renewed the plant and converted it to LNG. The renewed plant began operating in March 2022. Replacing the coal-fired power plant with a gas turbine cogeneration system allowed us to cut CO2 emissions, as well as promote the use of renewable energy by improving our ability to balance electricity supply and demand.

C4.3c

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

Method	Comment
Internal price on carbon	To implement GHG emission reductions efficiently: In addition to applying internal carbon pricing (ICP) to all of our GHG emission reduction investments, we began in 2021 to apply ICP to all investments valued at 100 million yen or more (excluding those generating less than 100 t-CO2e/year of emissions), as well as to all investments generating additional emissions of 1,000 t-CO2e/year or more.

C4.5

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

Yes

C4.5a

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

Level of aggregation

Product or service

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

No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Buildings construction and renovation	Other, please specify (Highly insulated housing including ZEH (net Zero Energy House))
---------------------------------------	--

Description of product(s) or service(s)

By supplying highly energy-efficient homes with improved insulation performance, we are promoting the spread of homes that exceed the baseline of the "Top Runner Program" for housing established by the Ministry of Land, Infrastructure, Transport and Tourism.

A ZEH (net Zero Energy House) is a house that achieves a net annual primary energy consumption* of zero (or less) through energy-saving measures using high-performance insulation and high-efficiency equipment, and "smart energy" using solar panels and other power generation technologies. The Japanese government is promoting ZEH homes to encourage more environmentally conscious lifestyles.

* The sales percentages below apply to our whole housing segment.

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

Yes

Methodology used to calculate avoided emissions

Other, please specify ("Top Runner Program" for housing)

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

Use stage

Functional unit used

10 years of use (residence): Assumed to be the typical renewal period for equipment and appliances.

Reference product/service or baseline scenario used

Comparison with baseline standard of the "Top Runner Program" for homes established by the Ministry of Land, Infrastructure, Transport and Tourism (energy-saving standard based on the Building Energy Conservation Act)

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

Use stage

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

251137

Explain your calculation of avoided emissions, including any assumptions

The energy-saving performance of each residence and room was calculated according to the "Top Runner Program" for homes established by the Ministry of Land, Infrastructure, Transport and Tourism.

The energy consumption in the use stage of all applicable properties was summed up, and the contribution to reducing emissions was calculated by comparing Hebel Haus with the baseline (homes with energy-saving standards set by the Ministry of Land, Infrastructure, Transport and Tourism).

(The contribution to reduction was calculated by multiplying the number of houses for which a notice of verification was issued within the applicable fiscal year.)

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

Level of aggregation

Product or service

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

No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Heating and cooling	Other, please specify (CO2 sensors for HVAC(Heating, Ventilation, Air Conditioning))
---------------------	--

Description of product(s) or service(s)

(For HVAC*) Suitable ventilation can be ensured by using CO2 sensors to monitor CO2 concentration. This can also reduce excessive ventilation, thereby curbing power consumption during use and lowering GHG emissions.

* HVAC (Heating, Ventilation, Air Conditioning): Air conditioning systems and other equipment used to control heating, cooling, and ventilation

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

Yes

Methodology used to calculate avoided emissions

Other, please specify (Guidelines for Assessing the Contribution of Products to Avoided Greenhouse Gas Emissions, Ver. 2, The Institute of Life Cycle Assessment, Japan)

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

Use stage

Functional unit used

Calculated based on an HVAC product life cycle of 13.7 years

Reference product/service or baseline scenario used

The power consumption of HVAC equipment was compared against commercial air conditioners used in conjunction with ventilation systems not equipped with CO2 sensors.

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

Use stage

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

3780000

Explain your calculation of avoided emissions, including any assumptions

To determine the impact of CO2 sensors on CO2 emissions per HVAC unit (compared to not having CO2 sensors), we assumed the annual reduction using reference value given in the ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) Journal. The average annual electricity consumption of commercial HVAC equipment was calculated using average periodic power consumption in the Energy-saving Performance Catalogue of the Ministry of Economy, Trade and Industry. The period of use was calculated to be 13.7 years, based on a 2022 consumer trends survey by the Cabinet Office. (Contribution to emission reduction was calculated by multiplying the number of unit sales during the applicable fiscal year.)

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

0.1

Level of aggregation

Product or service

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

No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Other	Other, please specify (flexographic photopolymer plates (photosensitive resin for flexographic printing))
-------	---

Description of product(s) or service(s)

This printing plate material does not use any VOC (Volatile Organic Compound) solvents, which cause deterioration of the atmospheric environment, for the development process. The material also helps to lower CO2 emissions by reducing energy consumption, thanks to a simplified drying process. It also contributes to cutting CO2 emissions by reducing printing losses due to its excellent printing quality and printing productivity.

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

Yes

Methodology used to calculate avoided emissions

Other, please specify (Guidelines for Assessing the Contribution of Products to Avoided Greenhouse Gas Emissions, Ver. 2, The Institute of Life Cycle Assessment, Japan)

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

Cradle-to-gate + end-of-life stage

Functional unit used

1 plate unit used for printing an average of 100,000 m2

Reference product/service or baseline scenario used

Comparisons were made with plates developed with solvent.

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

Cradle-to-gate + end-of-life stage

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

7374

Explain your calculation of avoided emissions, including any assumptions

Calculation for use stage (production, sales, and printing by customers) was based on test data from customer facilities and calculation for disposal stage was made with reference to data from the Ministry of the Environment.

(Contribution to emission reduction was calculated by multiplying the number of unit sales during the applicable fiscal year.)

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

Level of aggregation

Product or service

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

No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Buildings construction and renovation	Foam, caulk, tape or gaskets
---------------------------------------	------------------------------

Description of product(s) or service(s)

Insulation materials are used in external walls, roofs, ceilings, and floors to improve the thermal insulation performance of buildings. Insulation performance is expressed by the value of thermal conductivity. Our "Neoma FOAM" boasts an industry-leading thermal conductivity of 0.020 W/(m-K), which is vastly superior to competing insulation materials. In other words, for the same thickness, it offers higher thermal insulation performance than other materials. Due to concerns about the global environment, we do not use any fluorocarbons in our products. (Fluorocarbons are powerful greenhouse gases used as a foaming gas to create the fine bubbles that enhance the thermal insulation of foam materials.)

* The sales percentages below apply to our whole building material segment.

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

Yes

Methodology used to calculate avoided emissions

Other, please specify (Guidelines for Assessing the Contribution of Products to Avoided Greenhouse Gas Emissions, Ver. 2, The Institute of Life Cycle Assessment, Japan)

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

Please select

Functional unit used

Reference product/service or baseline scenario used

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

Please select

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

Explain your calculation of avoided emissions, including any assumptions

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

Level of aggregation

Product or service

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

No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Power	Other, please specify (Separator for Lithium-Ion Battery)
-------	---

Description of product(s) or service(s)

Lithium-ion batteries (LIBs) are very important components of electric vehicle (EVs). Separators of extremely high quality are absolutely essential for the manufacture of LIBs, to ensure both sufficient ion conductivity and separation of positive and negative electrodes to prevent short circuits. Since we are the first company in the world to successfully mass produce separators for current batteries, thereby establishing a de facto standard and accumulating technology and know-how cultivated through long years of business activities, we are making a huge contribution to shaping a more sustainable society through these products.

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

Yes

Methodology used to calculate avoided emissions

Other, please specify (Guidelines for Assessing the Contribution of Products to Avoided Greenhouse Gas Emissions, Ver. 2, The Institute of Life Cycle Assessment, Japan)

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

Please select

Functional unit used

Reference product/service or baseline scenario used

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

Please select

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

Explain your calculation of avoided emissions, including any assumptions

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

Level of aggregation

Product or service

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

No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Other	Other, please specify (ECORISE® PLA nonwoven fabric for single-serve coffee maker cartridge filters)
-------	--

Description of product(s) or service(s)

Changing the nonwoven fabric material from PET resin to PLA resin enables a switch from an oil-based to plant-based material. The material can be disposed of without the need for incineration. Since the material is biodegradable, it can be industrially composted along with coffee grounds. ECORISE® meets the standards set by the American Society for Testing and Materials (ASTM) and has received composting certification from the Biodegradable Products Institute (BPI) in the US, as well as the international "OK compost INDUSTRIAL" certification for biodegradable plastics. In Japan, the material meets the standards of the Japan BioPlastics Association (JBPA) and has obtained "GreenPla" and "BiomassPla" certifications.

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

Yes

Methodology used to calculate avoided emissions

Other, please specify (Guidelines for Assessing the Contribution of Products to Avoided Greenhouse Gas Emissions, Ver. 2, The Institute of Life Cycle Assessment, Japan)

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

Cradle-to-grave

Functional unit used

Cartridge filters used for 1,000 cups of coffee: Calculation assumes use as a cartridge filter in a single-serve coffee maker

Reference product/service or baseline scenario used

The amount of reduction in GHG emissions at the raw material extraction stage and at the disposal stage when PLA nonwoven cartridge filters replace PET nonwoven cartridge filters in exactly the same application.

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

Cradle-to-grave

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario**Explain your calculation of avoided emissions, including any assumptions**

The data for each process was calculated using scientific papers and actual data from the manufacturing stage. CO2 emissions were reduced by changing the raw material from PET resin to PLA resin, and the amount of energy used to produce the nonwoven fabric was reduced by using a low-temperature manufacturing method. The contribution to CO2 reduction was quantified based on the fact that there is no need for incineration at the time of disposal and that the cartridges can be industrially composted (biodegraded) along with the coffee grounds.

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

Product or service

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

No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Other	Other, please specify (UVC-LED for Water Sterilization)
-------	---

Description of product(s) or service(s)

The high-output UVC LED, which emits 265 nm deep ultraviolet (UVC), the most effective wavelength for sterilization, is installed in water servers etc. Since UVC LEDs can be instantly turned on and off, it is possible to design equipment that uses power only when sterilization is required, which helps to save energy. Recently, UVC LEDs have been used for air sterilization. In addition, unlike the conventional mercury lamps (UV lamps) used for UV sterilization, these lamps do not use mercury, which is hazardous to the environment.

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

Yes

Methodology used to calculate avoided emissions

Other, please specify (Guidelines for Assessing the Contribution of Products to Avoided Greenhouse Gas Emissions, Ver. 2, The Institute of Life Cycle Assessment, Japan)

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

Please select

Functional unit used**Reference product/service or baseline scenario used****Life cycle stage(s) covered for the reference product/service or baseline scenario**

Please select

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario**Explain your calculation of avoided emissions, including any assumptions****Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year**

C5.1

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

No

C5.1a

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

Row 1

Has there been a structural change?

No

Name of organization(s) acquired, divested from, or merged with

<Not Applicable>

Details of structural change(s), including completion dates

<Not Applicable>

C5.1b

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

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	No	<Not Applicable>

C5.2

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

Scope 1

Base year start

April 1 2013

Base year end

March 31 2014

Base year emissions (metric tons CO2e)

3880000

Comment

Scope 2 (location-based)

Base year start

April 1 2013

Base year end

March 31 2014

Base year emissions (metric tons CO2e)

660000

Comment

Scope 2 (market-based)

Base year start

April 1 2013

Base year end

March 31 2014

Base year emissions (metric tons CO2e)

1230000

Comment

Scope 3 category 1: Purchased goods and services

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 2: Capital goods

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

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

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 5: Waste generated in operations

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 6: Business travel

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 7: Employee commuting

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

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

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

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

Japan Ministry of the Environment, Law Concerning the Promotion of the Measures to Cope with Global Warming, Superseded by Revision of the Act on Promotion of Global Warming Countermeasures (2005 Amendment)

C6. Emissions data

C6.1

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

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)
2853917

Start date
April 1 2022

End date
March 31 2023

Comment

Past year 1

Gross global Scope 1 emissions (metric tons CO2e)
3080947

Start date
April 1 2021

End date
March 31 2022

Comment

Past year 2

Gross global Scope 1 emissions (metric tons CO2e)
2906814

Start date
April 1 2020

End date
March 31 2021

Comment

Past year 3

Gross global Scope 1 emissions (metric tons CO2e)
2961401

Start date
April 1 2019

End date
March 31 2020

Comment

C6.2

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

Row 1

Scope 2, location-based
We are reporting a Scope 2, location-based figure

Scope 2, market-based
We are reporting a Scope 2, market-based figure

Comment

C6.3

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

Reporting year

Scope 2, location-based

870683

Scope 2, market-based (if applicable)

823854

Start date

April 1 2022

End date

March 31 2023

Comment

Past year 1

Scope 2, location-based

1048479

Scope 2, market-based (if applicable)

1030384

Start date

April 1 2021

End date

March 31 2022

Comment

Past year 2

Scope 2, location-based

929331

Scope 2, market-based (if applicable)

899405

Start date

April 1 2020

End date

March 31 2021

Comment

Past year 3

Scope 2, location-based

1024946

Scope 2, market-based (if applicable)

1029041

Start date

April 1 2019

End date

March 31 2020

Comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

C6.5

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

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

4738420

Emissions calculation methodology

Hybrid method

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

33.35

Please explain

Capital goods

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

440740

Emissions calculation methodology

Investment-specific method

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

3.1

Please explain

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

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

857186

Emissions calculation methodology

Hybrid method

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

6.03

Please explain

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

235883

Emissions calculation methodology

Hybrid method

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

1.66

Please explain

Waste generated in operations

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

66774

Emissions calculation methodology

Waste-type-specific method

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

0.47

Please explain

Business travel**Evaluation status**

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

17443

Emissions calculation methodology

Spend-based method

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

0.12

Please explain**Employee commuting****Evaluation status**

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

28416

Emissions calculation methodology

Spend-based method

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

0.2

Please explain**Upstream leased assets****Evaluation status**

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

0

Emissions calculation methodology

Hybrid method

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

0

Please explain**Downstream transportation and distribution****Evaluation status**

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

The emissions of downstream transportation depends on final products, which includes much of uncertainty.

Processing of sold products**Evaluation status**

Relevant, not yet calculated

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

It is difficult to obtain information on processing of intermediate products from service providers, so we cannot yet calculate emissions associated with the processing of sold products.

Use of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

1921677

Emissions calculation methodology

Other, please specify (We used the "Energy Consumption Performance Calculation Program" (Residential Version) of the Building Research Institute, National Research and Development Agency, Japan.)

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

13.52

Please explain

Using the Building Research Institute's "Energy Consumption Performance Calculation Program" (Residential Version), we performed calculations for homes for which a notice of verification was issued within the fiscal year, based on the following.

Σ (annual energy use per household for energy source \times emission factor for energy source) \times service life (60 years)

Emission factor for energy source: electricity 0.453 (t-CO2/MWh), city gas 0.05 (t-CO2/GJ), kerosene 0.068 (t-CO2/GJ)

End of life treatment of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

5902983

Emissions calculation methodology

Hybrid method

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

41.54

Please explain

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Asahi Kasei does not have leasing operations. Reports in this category are considered to be unnecessary.

Franchises

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Asahi Kasei does not franchise shops or systems.

Investments

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Asahi Kasei does not have applicable activity.

Other (upstream)

Evaluation status

Not evaluated

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Other (downstream)

Evaluation status

Not evaluated

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

C6.5a

(C6.5a) Disclose or restate your Scope 3 emissions data for previous years.

Past year 1

Start date

April 1 2021

End date

March 31 2022

Scope 3: Purchased goods and services (metric tons CO2e)

4817850

Scope 3: Capital goods (metric tons CO2e)

452496

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

774298

Scope 3: Upstream transportation and distribution (metric tons CO2e)

234139

Scope 3: Waste generated in operations (metric tons CO2e)

69908

Scope 3: Business travel (metric tons CO2e)

4135

Scope 3: Employee commuting (metric tons CO2e)

26072

Scope 3: Upstream leased assets (metric tons CO2e)

0

Scope 3: Downstream transportation and distribution (metric tons CO2e)

Scope 3: Processing of sold products (metric tons CO2e)

Scope 3: Use of sold products (metric tons CO2e)

1372047

Scope 3: End of life treatment of sold products (metric tons CO2e)

5905752

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment

Past year 2

Start date

April 1 2020

End date

March 31 2021

Scope 3: Purchased goods and services (metric tons CO2e)

4525314

Scope 3: Capital goods (metric tons CO2e)

394333

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

783204

Scope 3: Upstream transportation and distribution (metric tons CO2e)

240443

Scope 3: Waste generated in operations (metric tons CO2e)

438

Scope 3: Business travel (metric tons CO2e)

3623

Scope 3: Employee commuting (metric tons CO2e)

25774

Scope 3: Upstream leased assets (metric tons CO2e)

0

Scope 3: Downstream transportation and distribution (metric tons CO2e)

Scope 3: Processing of sold products (metric tons CO2e)

Scope 3: Use of sold products (metric tons CO2e)

1335679

Scope 3: End of life treatment of sold products (metric tons CO2e)

5679702

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment

Past year 3

Start date

April 1 2019

End date

March 31 2020

Scope 3: Purchased goods and services (metric tons CO2e)

4430000

Scope 3: Capital goods (metric tons CO2e)

320000

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

240000

Scope 3: Upstream transportation and distribution (metric tons CO2e)

270000

Scope 3: Waste generated in operations (metric tons CO2e)

0

Scope 3: Business travel (metric tons CO2e)

30000

Scope 3: Employee commuting (metric tons CO2e)

30000

Scope 3: Upstream leased assets (metric tons CO2e)

0

Scope 3: Downstream transportation and distribution (metric tons CO2e)

960000

Scope 3: Processing of sold products (metric tons CO2e)

Scope 3: Use of sold products (metric tons CO2e)

960000

Scope 3: End of life treatment of sold products (metric tons CO2e)

4700000

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment

C6.7

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

Yes

C6.7a

(C6.7a) Provide the emissions from biogenic carbon relevant to your organization in metric tons CO2.

	CO2 emissions from biogenic carbon (metric tons CO2)	Comment
Row 1	26048	

C6.10

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

Intensity figure

0.00000135

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

3677771

Metric denominator

unit total revenue

Metric denominator: Unit total

2726500000000

Scope 2 figure used

Market-based

% change from previous year

19.2

Direction of change

Decreased

Reason(s) for change

Change in renewable energy consumption
Change in physical operating conditions

Please explain

We managed to achieve this by continual implementation of energy-saving initiatives (such as optimizing the operating conditions of diesel electricity generators and steam boilers), as well as active deployment of renewable energy technology (hydroelectric and photovoltaic power generation). In this way, we were successful in reducing our CO2 emissions per unit of sales by 19.2%.

C7. Emissions breakdowns

C7.1

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

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	2733291	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	14051	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	74135	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	26805	IPCC Fifth Assessment Report (AR5 – 100 year)
PFCs	5406	IPCC Fifth Assessment Report (AR5 – 100 year)
SF6	229	IPCC Fifth Assessment Report (AR5 – 100 year)
NF3	0	IPCC Fifth Assessment Report (AR5 – 100 year)

C7.2

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

Country/area/region	Scope 1 emissions (metric tons CO2e)
Japan	2318502.699
Germany	2854
Republic of Korea	330347
Singapore	70342
Thailand	6454
Taiwan, China	4584
China	38839
United States of America	51426
Viet Nam	92
France	9690
India	3871
Sweden	0
Mexico	2102
Brazil	757
Poland	2231
Italy	7729
Spain	0
Morocco	6
Czechia	1231
Romania	324
Australia	2535

C7.3

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

By business division

C7.3a

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

Business division	Scope 1 emissions (metric ton CO2e)
Production and non-production segments in Japan	2318503
Production segments overseas	535414

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	1182116	<Not Applicable>	
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.5

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

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Japan	342209	295380
Germany	200	
Republic of Korea	52201	
Singapore	111423	
Thailand	62497	
Taiwan, China	14952	
China	157576	
United States of America	96615	
Viet Nam	986	
France	1380	
India	10905	
Sweden	21	
Mexico	2210	
Brazil	954	
Poland	3046	
Italy	2210	
Spain	243	
Morocco	1013	
Czechia	6601	
Romania	274	
Australia	3166	

C7.6

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

By business division

C7.6a

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

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Production and non-production segments in Japan	342209	295380
Production segments overseas	528474	528474

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

No

C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7

(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO2e.

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	638264	628508	
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C-CH7.8

(C-CH7.8) Disclose the percentage of your organization's Scope 3, Category 1 emissions by purchased chemical feedstock.

Purchased feedstock	Percentage of Scope 3, Category 1 tCO2e from purchased feedstock	Explain calculation methodology
High Value Chemicals (Steam cracking)	11.76	In FY2022, we referred to the Embodied Energy and Emission Intensity Data for Japan Using Input-Output Tables (3EID) (2015): Inventory Data for LCA prepared by the National Institute for Environmental Studies, Japan, IDEA v2.3 by the National Institute of Advanced Industrial Science and Technology.
Ammonia	7.46	We use "National Institute for Environmental Studies Research Institute for Environmental Impact of Environment Impact (3EID) based on the input-output table". In this database, CO2 emission factor per purchase price calculated using the input-output table is recorded. We calculate the figure by multiplying CO2 intensity of this database by raw material purchase price.
Aromatics extraction	17.11	We use "National Institute for Environmental Studies Research Institute for Environmental Impact of Environment Impact (3EID) based on the input-output table". In this database, CO2 emission factor per purchase price calculated using the input-output table is recorded. We calculate the figure by multiplying CO2 intensity of this database by raw material purchase price.
Methanol	3.57	We use "National Institute for Environmental Studies Research Institute for Environmental Impact of Environment Impact (3EID) based on the input-output table". In this database, CO2 emission factor per purchase price calculated using the input-output table is recorded. We calculate the figure by multiplying CO2 intensity of this database by raw material purchase price.
Propylene (FCC)	26.98	We use "National Institute for Environmental Studies Research Institute for Environmental Impact of Environment Impact (3EID) based on the input-output table". In this database, CO2 emission factor per purchase price calculated using the input-output table is recorded. We calculate the figure by multiplying CO2 intensity of this database by raw material purchase price.
Butadiene (C4 sep.)	6.8	We use "CO2 converted equivalent unit basic database for Carbon Footprint System trial project" of the Japan Environmental Management Association of Industry. In this database, CO2 emission factors of raw materials disclosed by industrial associations of each material industry group in Japan, including Ministry of Economy, Trade and Industry. Input-output table is covered. We calculate the emission by multiplying CO2 intensity of this database by usage amount.
Polymers	10.31	We use "CO2 converted equivalent unit basic database for Carbon Footprint System trial project" of the Japan Environmental Management Association of Industry. In this database, CO2 emission factors of raw materials disclosed by industrial associations of each material industry group in Japan, including Ministry of Economy, Trade and Industry. Input-output table is covered. We calculate the emission by multiplying CO2 intensity of this database by usage amount.
Specialty chemicals	2.39	We use "National Institute for Environmental Studies Research Institute for Environmental Impact of Environment Impact (3EID) based on the input-output table". In this database, CO2 emission factor per purchase price calculated using the input-output table is recorded. We calculate the figure by multiplying CO2 intensity of this database by raw material purchase price.
Other base chemicals	1.31	We use "CO2 converted equivalent unit basic database for Carbon Footprint System trial project" of the Japan Environmental Management Association of Industry. In this database, CO2 emission factors of raw materials disclosed by industrial associations of each material industry group in Japan, including Ministry of Economy, Trade and Industry. Input-output table is covered. We calculate the emission by multiplying CO2 intensity of this database by usage amount.
Other base chemicals	0.18	We use "CO2 converted equivalent unit basic database for Carbon Footprint System trial project" of the Japan Environmental Management Association of Industry. In this database, CO2 emission factors of raw materials disclosed by industrial associations of each material industry group in Japan, including Ministry of Economy, Trade and Industry. Input-output table is covered. We calculate the emission by multiplying CO2 intensity of this database by usage amount.

C-CH7.8a

(C-CH7.8a) Disclose sales of products that are greenhouse gases.

	Sales, metric tons	Comment
Carbon dioxide (CO2)	0	
Methane (CH4)	0	
Nitrous oxide (N2O)	0	
Hydrofluorocarbons (HFC)	0	
Perfluorocarbons (PFC)	0	
Sulphur hexafluoride (SF6)	0	
Nitrogen trifluoride (NF3)	0	

C7.9

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

Decreased

C7.9a

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

	Change in emissions (metric tons CO2e)	Direction of change in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	12794	Decreased	0.35	Due to purchase of hydroelectric power produced by TEPCO Energy Partner Incorporated, we reduced our carbon emissions. (12,794 t-CO2e) Last year's scope 1+2 emissions Scope1: 2,853,917 t-CO2e, Scope2: 823,854 t-CO2e, Scope 1+2 3,677,771 t-CO2e in total. $(12,794/3,677,771)*100=0.35\%$.
Other emissions reduction activities	160000	Decreased	4.35	160,000 t-CO2e was reduced by the following measure. The aging thermal power plant in the Nobeoka area was completely renewed and converted from coal to gas (LNG). Last year's scope 1+2 emissions Scope1: 2,853,917 t-CO2e, Scope2: 823,854 t-CO2e, Scope 1+2 3,677,771 t-CO2e in total. $(160,000/3,677,771)*100=4.35\%$.
Divestment	22000	Decreased	0.59	22,000 t-CO2e was reduced by the following measure. Manufacturing and sales at overseas sites were discontinued and production plants were closed. Last year's scope 1+2 emissions Scope1: 2,853,917 t-CO2e, Scope2: 823,854 t-CO2e, Scope 1+2 3,677,771 t-CO2e in total. $(22,000/3,677,771)*100=0.59\%$.
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output	17000	Increased	0.46	17,000 t-CO2e was increased by the following situation. Emissions in the manufacturing process increased as a result of increased production of petrochemical products. Last year's scope 1+2 emissions Scope1: 2,853,917 t-CO2e, Scope2: 823,854 t-CO2e, Scope 1+2 3,677,771 t-CO2e in total. $(17,000/3,677,771)*100=0.46\%$.
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

C7.9b

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

Market-based

C8. Energy

C8.1

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

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

C8.2

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

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

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	451210	9018264	9469474
Consumption of purchased or acquired electricity	<Not Applicable>	29412	1496285	1525697
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0	987973	987973
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	143945	<Not Applicable>	143945
Total energy consumption	<Not Applicable>	624567	11502522	12127089

C-CH8.2a

(C-CH8.2a) Report your organization's energy consumption totals (excluding feedstocks) for chemical production activities in MWh.

Consumption of fuel (excluding feedstocks)

Heating value

HHV (higher heating value)

MWh consumed from renewable sources inside chemical sector boundary

451210

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

8711176

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

9162386

Consumption of purchased or acquired electricity

Heating value

<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary

29412

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

1379608

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

1409020

Consumption of purchased or acquired steam

Heating value

<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary

0

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

987973

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

987973

Consumption of self-generated non-fuel renewable energy

Heating value

<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary

143945

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

0

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

143945

Total energy consumption

Heating value

<Not Applicable>

MWh consumed from renewable sources inside chemical sector boundary

624567

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

11078757

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

11703324

C8.2b

(C8.2b) 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	No
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

C8.2c

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

Sustainable biomass

Heating value

HHV

Total fuel MWh consumed by the organization

451210

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

451210

Comment

Other biomass

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Other renewable fuels (e.g. renewable hydrogen)

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Coal

Heating value

HHV

Total fuel MWh consumed by the organization

2322127

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

2322127

Comment

Oil

Heating value

HHV

Total fuel MWh consumed by the organization

1029541

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

102954

MWh fuel consumed for self-generation of steam

308862

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

617725

Comment

Gas

Heating value

HHV

Total fuel MWh consumed by the organization

2940405

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

294040

MWh fuel consumed for self-generation of steam

882122

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

1764243

Comment

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

Heating value

HHV

Total fuel MWh consumed by the organization

2726190

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

272619

MWh fuel consumed for self-generation of steam

817857

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

1635714

Comment

Total fuel

Heating value

HHV

Total fuel MWh consumed by the organization

9469474

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

669614

MWh fuel consumed for self-generation of steam

2008841

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

6791019

Comment

C8.2d

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	6898727	6898727	143945	143945
Heat	2231548	2231548	0	0
Steam	2996814	2996814	0	0
Cooling	0	0	0	0

C-CH8.2d

(C-CH8.2d) Provide details on electricity, heat, steam, and cooling your organization has generated and consumed for chemical production activities.

Electricity

Total gross generation inside chemicals sector boundary (MWh)

6612475

Generation that is consumed inside chemicals sector boundary (MWh)

6612475

Generation from renewable sources inside chemical sector boundary (MWh)

143945

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

Heat

Total gross generation inside chemicals sector boundary (MWh)

2159181

Generation that is consumed inside chemicals sector boundary (MWh)

2159181

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

1511282

Steam

Total gross generation inside chemicals sector boundary (MWh)

2931669

Generation that is consumed inside chemicals sector boundary (MWh)

2931669

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

Cooling

Total gross generation inside chemicals sector boundary (MWh)

0

Generation that is consumed inside chemicals sector boundary (MWh)

0

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

C8.2e

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

Country/area of low-carbon energy consumption

Japan

Sourcing method

Physical power purchase agreement (physical PPA) with a grid-connected generator

Energy carrier

Electricity

Low-carbon technology type

Large hydropower (>25 MW)

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

29412

Tracking instrument used

Contract

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

Japan

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

No

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

<Not Applicable>

Comment

Aqua premium supplied by Tokyo Energy Partner

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area

Japan

Consumption of purchased electricity (MWh)

665332

Consumption of self-generated electricity (MWh)

143945

Is this electricity consumption excluded from your RE100 commitment?

<Not Applicable>

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

429517

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

0

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

Country/area

China

Consumption of purchased electricity (MWh)

136239

Consumption of self-generated electricity (MWh)

0

Is this electricity consumption excluded from your RE100 commitment?

<Not Applicable>

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

194116

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

0

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

Country/area

Thailand

Consumption of purchased electricity (MWh)

160211

Consumption of self-generated electricity (MWh)

0

Is this electricity consumption excluded from your RE100 commitment?

<Not Applicable>

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

26035

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

0

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

C-CH8.3

(C-CH8.3) Does your organization consume fuels as feedstocks for chemical production activities?

No

C9. Additional metrics

C9.1

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

Description

Other, please specify ("10 Growth Gears" (GG10)operating income)

Metric value

50

Metric numerator

GG10 operating income for a single year (yen)

Metric denominator (intensity metric only)

Total operating income in a single year (yen)

% change from previous year

Direction of change

<Not Applicable>

Please explain

Asahi Kasei has defined "10 Growth Gears" (GG10), i.e., businesses to drive the next wave of growth, selecting various products that contribute to climate change. As an indicator of business portfolio transformation, we have taken the ratio of GG10 operating income to total operating income as a KPI, setting targets of 50% for fiscal 2024 and 70% by around 2030.

C-CH9.3a

(C-CH9.3a) Provide details on your organization's chemical products.

Output product

Other base chemicals

Production (metric tons)

600000

Capacity (metric tons)

720000

Direct emissions intensity (metric tons CO2e per metric ton of product)

0.8

Electricity intensity (MWh per metric ton of product)

0.25

Steam intensity (MWh per metric ton of product)

0.79

Steam/ heat recovered (MWh per metric ton of product)

0.51

Comment

We disclose data about a basic chemical. The basic unit data is exemplified with one of the bases having multiple bases in the world as a representative. Since it is different for each base such as manufacturing method and catalyst, it is meaningless to summarize everything.

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

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

	Investment in low-carbon R&D	Comment
Row 1	Yes	Under our previous medium-term business plan, "Cs+ for Tomorrow 2021" (2019-2021), we invested approximately 850 billion yen in capital expenditures over three years, focused largely on separators for lithium-ion batteries and other decarbonization fields. Under the new 2024 medium-term business plan (2022-2024), we plan to invest resources (1 trillion yen over 3 years) in 10 Growth Gears (GG10) to drive our next growth phase. According to the plan, this investment level will account for over 70% of operating income by around 2030. In the area of decarbonization, we plan to focus on hydrogen, CO2 chemistry, and energy storage (separators) in the field of "Environment & Energy"; automotive interior materials in the "Mobility" field; and digital solutions (electronic components and materials) in the "Life Material" field.

C-CH9.6a

(C-CH9.6a) Provide details of your organization's investments in low-carbon R&D for chemical production activities over the last three years.

Technology area

Unable to disaggregate by technology area

Stage of development in the reporting year

<Not Applicable>

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

2.9

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)

13500000000

Average % of total R&D investment planned over the next 5 years

5.7

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

Since data is not broken down by technology segment or by R&D spending, this disclosure includes not only R&D spending but also capital expenditure for all decarbonization-related investments.

Asahi Kasei considers decarbonization-related R&D to be a very important up-front investment for the transition to NetZero by 2050, so the company expects to increase such investment in its future plans.

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

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

C10. Verification

C10.1

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

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

C10.1a

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

Verification or assurance cycle in place

Annual process

Status in the current reporting year

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

Type of verification or assurance

Limited assurance

Attach the statement

Asahi KASEI_10.1a,b.pdf

Page/ section reference

1,2/all

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

C10.1b

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

Scope 2 approach

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

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

Type of verification or assurance

Limited assurance

Attach the statement

Asahi KASEI_10.1a,b.pdf

Page/ section reference

1,2/all

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

C10.1c

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

Scope 3 category

Scope 3: Purchased goods and services

Verification or assurance cycle in place

Annual process

Status in the current reporting year

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

Type of verification or assurance

Limited assurance

Attach the statement

Asahi KASEI_10.1a,b.pdf

Page/section reference

1,2/all

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Use of sold products

Verification or assurance cycle in place

Annual process

Status in the current reporting year

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

Type of verification or assurance

Limited assurance

Attach the statement

Asahi KASEI_10.1a,b.pdf

Page/section reference

1,2/all

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: End-of-life treatment of sold products

Verification or assurance cycle in place

Annual process

Status in the current reporting year

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

Type of verification or assurance

Limited assurance

Attach the statement

Asahi KASEI_10.1a,b.pdf

Page/section reference

1,2/all

Relevant standard

ISAE 3410

Proportion of reported emissions verified (%)

100

C10.2

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

No, but we are actively considering verifying within the next two years

C11. Carbon pricing

C11.1

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

Yes

C11.1a

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

Japan carbon tax
Korea ETS

C11.1b

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

Korea ETS

% of Scope 1 emissions covered by the ETS

11.6

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1 2022

Period end date

December 31 2022

Allowances allocated

383585

Allowances purchased

15700

Verified Scope 1 emissions in metric tons CO2e

399259

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

Allowances allocated 383,585 t-CO2e = 383,486 t-CO2e (Korea ETS Allowances allocated for 2022) + 99 t-CO2e (Korea ETS Allowances carried over from 2021)

C11.1c

(C11.1c) Complete the following table for each of the tax systems you are regulated by.

Japan carbon tax

Period start date

October 1 2012

Period end date

December 31 2023

% of total Scope 1 emissions covered by tax

26.5

Total cost of tax paid

218000000

Comment

We accounted for global warming countermeasure tax.

C11.1d

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

In all businesses, energy consumption and CO2 emissions tend to increase with the expansion of production volume in the future. Improving productivity, the energy intensity and the ratio of renewable energy use, we set up such targets by business and factory, and are taking a strategy to reduce the carbon tax burden.

(The ICP price was revised from 10,000 yen (\$100)/CO2-t to a level equivalent to the carbon tax price of \$140/CO2-t in 2030, as required by the International Energy Agency (IEA) to fulfill the Paris Agreement. (This carbon price was revised to 15,000 yen (\$140)/CO2-t from July 2023.))

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?

No

C11.3

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

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Type of internal carbon price

Shadow price

How the price is determined

Alignment with the price of a carbon tax

Cost of required measures to achieve emissions reduction targets

Benchmarking against peers

Objective(s) for implementing this internal carbon price

Change internal behavior

Drive energy efficiency

Drive low-carbon investment

Identify and seize low-carbon opportunities

Scope(s) covered

Scope 1

Scope 2

Pricing approach used – spatial variance

Uniform

Pricing approach used – temporal variance

Static

Indicate how you expect the price to change over time

<Not Applicable>

Actual price(s) used – minimum (currency as specified in C0.4 per metric ton CO2e)

15000

Actual price(s) used – maximum (currency as specified in C0.4 per metric ton CO2e)

Business decision-making processes this internal carbon price is applied to

Capital expenditure

Mandatory enforcement of this internal carbon price within these business decision-making processes

No

Explain how this internal carbon price has contributed to the implementation of your organization's climate commitments and/or climate transition plan

We used to use oil-fuel boiler for the chemical plant in Miyazaki which must be replaced by the new one. It was rational to be replaced by the same type of oil-fuel boiler in the sense of economy, but assuming of CO2 cost based on the internal carbon pricing, we have decided to replace it by LNG-fuel boiler.

C12. Engagement

C12.1

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

Yes, our suppliers

Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect targets information at least annually from suppliers

% of suppliers by number

68

% total procurement spend (direct and indirect)

81

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

100

Rationale for the coverage of your engagement

We send out a CSR questionnaire to our major suppliers selected among those suppliers from which had purchased raw materials in the previous three years. Specifically, we selected top 68% suppliers by purchase amount because high volume suppliers play significant roles in dealing with climate-related risks on supply chain. We believe this 81% coverage is reasonable from a stand point of the Asahi Kasei Group's responsibility and risks. We are deliberately thinking about further expanding the scope since we believe additional costs and burden on our suppliers will not justify that. For supplier-related Scope 3 emissions, we collect emissions information from applicable suppliers and aggregate them, and report them at C6.5. So, the coverage rate is 100%.

Impact of engagement, including measures of success

Impact of engagement; Our purchasing division sends questionnaire to suppliers as a supplier assessment and encourage them to make improvement regarding CSR procurement including climate change issues. The Asahi Kasei Group is considering more formally requiring suppliers to meet a certain level of CSR performance standards by including it in the terms of conditions. This has already been communicated to our suppliers. Measure of success; Asahi Kasei group already set up " Purchasing Policy " and " Purchasing mission statement ". We sent CSR questionnaires, including environment and energy saving, to suppliers and asked them to cooperate with CSR procurement. We tabulate the results of questionnaires and analyze the number and proportion of companies that have clear environmental policies and systems to promote environmental conscious activities. We consider increase in those numbers as our success of supplier responses to our CSR policy including climate-related issues. In fiscal 2023, we plan to set numerical targets for our CSR survey with a deadline of fiscal 2030 on two points: the coverage rate (%) relative to total procurement, and the proportion of low-rated companies in the survey.

Comment

C12.1d

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

Asahi Kasei has launched a large alkaline water electrolysis system in Namie-machi, Futaba-gun, Fukushima Prefecture and started a hydrogen supply operation. This water electrolysis system was installed at the Fukushima Hydrogen Energy Research Field (FH2R) as a technology development project of the New Energy and Industrial Technology Development Organization (NEDO) in collaboration with Toshiba Energy Systems & Solutions Corporation. This is the largest water electrolysis system of its kind in the world. It is capable of producing and supplying 1,200 Nm³ of hydrogen per hour (at rated operation).

Asahi Kasei is also working together with JGC Holdings Corporation (JGC HD) to try and demonstrate an alkaline water electrolysis system on a more massive scale and a green chemical plant that utilizes hydrogen produced from renewable energy sources. More specifically, Asahi Kasei and JGC HD are jointly developing an integrated control system for controlling hydrogen supply quantity and optimizing the operation of a process that utilizes hydrogen derived from renewable energy sources as a feedstock.

The project is also designed to accelerate commercialization and market development by inviting companies who make up green hydrogen and green chemical supply chains to join the project to identify the benefits and challenges of practical implementation. In fiscal 2021, Mitsubishi Corporation and JERA Co., Inc. participated in the project as contractors.

C12.2

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

Yes, suppliers have to meet climate-related requirements, but they are not included in our supplier contracts

C12.2a

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

Climate-related requirement

Complying with regulatory requirements

Description of this climate related requirement

The Asahi Kasei Group aims to contribute to a sustainable society. The globalized supply chains of companies are increasingly vulnerable to a wide variety of problems, including human rights violations; labor, health, and safety concerns; and environmental and ethical issues. It is clear from precedents that the most effective way to resolve these issues and help bring about a more sustainable society is to collaborate with supplier companies on improvement initiatives. As a first step in this collaborative improvement effort, the Asahi Kasei Group has formulated "Supplier Guidelines," which its suppliers are required to comply with. Under the guidelines, suppliers need to set up a PDCA management system, which enables them to respond to our requirements with integrity and take appropriate action when an issue arises or when information of concern comes to hand. In relation to the environment, we specifically request that suppliers strive to reduce greenhouse gas emissions by setting their own quantitative emission targets.

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

81

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

88

Mechanisms for monitoring compliance with this climate-related requirement

Certification

Supplier self-assessment

Supplier scorecard or rating

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

Retain and engage

C12.3

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

Row 1

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers

Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate

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

Yes

Attach commitment or position statement(s)

Asahi Kasei Homes, an Asahi Kasei Group company, is a corporate member of the Japan Climate Leaders' Partnership (JCLP). The JCLP is a uniquely Japanese group of enterprises established in 2009 with the recognition that the country's industrial sector needed to develop a healthy sense of urgency and proactively launch action toward the realization of a sustainable decarbonized society. By leading the transition to a decarbonized society, JCLP member companies seek to act responsibly on behalf of society. In one JCLP initiative, we submitted a "Policy Statement for the G7 Sapporo Ministers' Meeting on Climate, Energy and Environment and the Hiroshima Summit." In this statement, we call for "decarbonization of the power sector by 2035," "giving top priority to the swift expansion of renewable energy, while progressively diminishing reliance on fossil fuels," "early phase-out of unabated coal-fired power generation," "introduction of carbon pricing to facilitate rapid expansion of cost-effective decarbonization technologies," and "100% ZEVs in new passenger car sales by 2035, with an ambitious target for heavy-duty vehicles."

JCLP_G7-Policy-Statement.pdf

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

All our collaborative activities are centrally monitored by the Corporate Planning Department, which formulates and promotes our Medium-term Management Plan, including the climate transition plan, and they are harmonized to avoid any contradictions. In implementing the activities, we collaborate with all relevant departments within the company, seeking management-level judgment on any important matters.

Primary reason for not engaging in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

<Not Applicable>

Explain why your organization does not engage in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

<Not Applicable>

C12.3a

(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?

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

Act on the Promotion of Effective Utilization of Resources

Category of policy, law, or regulation that may impact the climate

Low-carbon products and services

Focus area of policy, law, or regulation that may impact the climate

Circular economy

Policy, law, or regulation geographic coverage

National

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

Japan

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

Support with major exceptions

Description of engagement with policy makers

The Chairman of Asahi Kasei Corporation participated (as a member) in the "Study Group for Designing a Growth-Oriented, Resource-Autonomous Circular Economy," an expert panel organized by the Ministry of Economy, Trade and Industry (METI), which is responsible for policymaking in this field. The study group examined measures to promote Japan's transition to a circular economy in a way that is consistent with decarbonization. One product of this collaboration was a "Strategy for a Growth-Oriented Resource-Autonomous Circular Economy," issued on March 31, 2023. A decision was also taken to consider amending the Act on the Promotion of Effective Utilization of Resources (3R Law), with a bill to be submitted to an ordinary Diet session in 2024, for the purpose of establishing a system to accelerate linkages between the "arteries and veins" of material cycles based on this strategy.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?

The details of the amendment to the Act on the Promotion of Effective Utilization of Resources will be discussed when the bill is submitted to the ordinary Diet in the between the summer of 2023 and 2024. Although this plan remains undecided at present, it will potentially be at the center of Asahi Kasei's contribution transition plan achievement.

C12.3b

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

Trade association

Japan Business Federation (Keidanren)

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

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

Asahi Kasei has declared its aim to become carbon neutrality by 2050, in conformity with the goals of the Paris Agreement, participating its "GX Management Promotion Working Group" to formulate rules for shaping markets, which is one of the initiatives of the GX League (GX = green transformation). To help achieve global carbon neutrality for the whole world, this working group (WG) aims to verify a mechanism to facilitate the creation of rules by the public and private sectors, with the aim of establishing ways to appropriately evaluate the opportunities for Japan companies to contribute to climate change (e.g., reducing emissions by supplying products and services to the market). Also, Keidanren (Japan Business Federation) believes that GX, i.e., the transformation of the entire economy and society, is necessary to achieve carbon neutrality. Accordingly, it has formulated the "Keidanren Carbon Neutral Action Plan" as a concrete approach to realizing GX, while calling on the government to promptly formulate and implement the "GX Policy Package" and to steadily implement the plan. In accordance with the above, Asahi Kasei and Keidanren are working towards carbon neutrality with a similar and consistent approach. The chairman of Asahi Kasei has also chaired Keidanren's Committee on Environment, and his deep insights into climate-related issues have influenced Keidanren's policies and the positions of Keidanren.

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

0

Describe the aim of your organization's funding

<Not Applicable>

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

Yes, we have evaluated, and it is aligned

Trade association

Japan Chemical Industry Association/日本化学工業協会

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

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

Asahi Kasei has declared its aim of becoming carbon neutrality by 2050, in line with the Paris Agreement. It has announced that it will work toward this goal by greening its electricity and steam production and adopting innovative processes through the implementation of chemical technologies such as alkaline water electrolysis and CO2 separation and capture, which it is developing. The Japan Chemical Industry Association (JCIA) has also formulated a position, titled "The Chemical Industry's Stance on Carbon Neutrality." In response to the Japanese government's commitment to carbon neutrality by 2050, the chemical industry, as a solution provider, has also pledged to promote and accelerate innovation to contribute to the growth of a sustainable society, by realizing the untapped potential of "chemistry" to strive for solutions to global problems. In accordance with the above, Asahi Kasei and JCIA are taking similar and compatible approaches to carbon neutrality. The President of Asahi Kasei is a board member of JCIA, and since Asahi Kasei is also playing a leading role in the Carbon Neutrality Action Plan WG that Keidanren is working on, he is closely involved in the chemical industry's plan of action for carbon neutrality and therefore exerts a significant influence on the JCIA's position.

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

0

Describe the aim of your organization's funding

<Not Applicable>

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

Yes, we have evaluated, and it is aligned

C12.4

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

Publication

In mainstream reports

Status

Complete

Attach the document

有価証券報告書 (2023) .pdf

Page/Section reference

PDF Green Transformation: page20, Business Risks: page 40

Content elements

Governance

Strategy

Risks & opportunities

Emission targets

Other, please specify (Business Risk, Climate change risk)

Comment

Business Risk, Climate change risk

Publication

In voluntary sustainability report

Status

Underway – previous year attached

Attach the document

sustainability_report2022e.pdf

Page/Section reference

Content elements

Governance

Strategy

Emissions figures

Emission targets

Comment

Publication

In mainstream reports

Status

Underway – previous year attached

Attach the document

Asahi Kasei report 2022(en).pdf

Page/Section reference

Content elements

Governance

Strategy

Emissions figures

Comment

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization’s role within each framework, initiative and/or commitment
Row 1	RE100 Task Force on Climate-related Financial Disclosures (TCFD) UN Global Compact	The Asahi Kasei Group endorses the UN Global Compact and participates in its Supply Chain Subcommittee, which works to promote activities to help establish a sustainable CSR (corporate social responsibility) procurement mechanism for companies that transcends industries and interests. In May 2019, we also expressed our agreement for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), because we believe that it is useful for companies to disclose their risks and opportunities to build greater trust with stakeholders and to sustainably increase their corporate value. Asahi Kasei Homes is also a member of RE100, an international joint initiative of companies committed to running their business operations on 100% renewable energy. Accordingly, it has disclosed specific targets and initiatives in relation to this goal.

C15. Biodiversity

C15.1

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

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	Yes, both board-level oversight and executive management-level responsibility	The management and promotion of biodiversity-related issues is handled by our Environmental Safety Department, which is supervised by an executive officer who is a member of the Management Council and participates in management discussions and decision-making at the highest level of the company.	<Not Applicable>

C15.2

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

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Commitment to not explore or develop in legally designated protected areas Commitment to respect legally designated protected areas Commitment to avoidance of negative impacts on threatened and protected species Commitment to no conversion of High Conservation Value areas	SDG

C15.3

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

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment

No, but we plan to within the next two years

Value chain stage(s) covered

<Not Applicable>

Portfolio activity

<Not Applicable>

Tools and methods to assess impacts and/or dependencies on biodiversity

<Not Applicable>

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)

<Not Applicable>

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment

No, but we plan to within the next two years

Value chain stage(s) covered

<Not Applicable>

Portfolio activity

<Not Applicable>

Tools and methods to assess impacts and/or dependencies on biodiversity

<Not Applicable>

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)

<Not Applicable>

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity- sensitive areas in the reporting year?

No

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Land/water management Species management Education & awareness

C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	Response indicators

C15.7

(C15.7) Have you published information about your organization’s response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Impacts on biodiversity Details on biodiversity indicators Risks and opportunities Biodiversity strategy	Page 62-69/205 sustainability_report2022e.pdf

C16. Signoff

C-FI

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

C16.1

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

	Job title	Corresponding job category
Row 1	Senior Managing Executive Senior General Manager, Sustainability Strategy	Environment/Sustainability manager

SC. Supply chain module

SC0.0

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

The Asahi Kasei Group operates in the three business sectors of "Material", encompassing fibers & textiles, chemicals and electronic devices businesses, "Homes", covering homes and construction materials businesses, and "Health Care", including pharmaceuticals and medical devices businesses. With "contributing to life and living for people around the world" as our Group Mission, we strive to heighten resource and energy efficiency with outstanding production technology, providing products and services that meet customer needs.

SC0.1

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

	Annual Revenue
Row 1	2726485000000

SC1.1

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