

C0. Introduction

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C0.1

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**(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, petrochemicals 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

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	April 1 2020	March 31 2021	No	<Not Applicable>

C0.3

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**(C0.3) Select the countries/areas for which you will be supplying data.**

- China
- France
- Germany
- India
- Japan
- Republic of Korea
- Singapore
- Sweden
- Taiwan, Greater China
- Thailand
- United States of America
- Viet Nam

C0.4

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

JPY

C0.5

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**(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

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**(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?**

**C1. Governance**

**C1.1**

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

Yes

**C1.1a**

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

Position of individual(s)	Please explain
Board Chair	Asahi Kasei's business management is based on "highly value-added business with high profitability" through contributions to the social issues "clean environmental energy society", "healthy, comfortable, secure and long-lived society". Especially automobiles, environment, energy and healthcare are the important areas of our business, and these businesses are closely related to climate change issues, so we have to oversee those issues by the board as one of the important tasks of the management plan including financial planning. Therefore, Asahi Kasei's board chair is regarded as the position with the highest responsibility for climate-related issues. Asahi Kasei's board chair is served by the president. The Board made climate-related decisions such as our new medium-term strategic management initiative "Cs+ for Tomorrow 2021 " for the three-year period from fiscal 2019 through fiscal 2021 which is aiming to contribute to a sustainable society by expanding businesses that help reduce GHG emissions and reducing emissions from our own production processes.

**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	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	Climate change is an important management issue for us. The agenda related to climate change reported from Advisory Committees such as "Responsible Care Committee", "Sustainability Promotion Committee" and "Strategic Management Council" is decided by the board. The board meeting is held more than once a month and is held from time to time if there is an urgent agenda to be discussed. Decisions made by the Board, such as our business strategy, capital investment, loans and investments to deal with risks and opportunities, CSR issues including climate change, risk management, compliance, etc., are ordered to directors who are in charge of each department, and developed for concrete activities. The Asahi Kasei group has launched a new medium-term strategic management initiative "Cs+ for Tomorrow 2021" for the three-year period from fiscal 2019 through fiscal 2021. Under the new management initiative, Asahi Kasei expresses its stance for contribution to sustainability as "Care for People, Care for Earth". We are aiming to contribute to a sustainable society by expanding businesses that help reduce GHG emissions and reducing emissions from our own production processes. Especially, we newly 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.

**C1.2**

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

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
President	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Quarterly

**C1.2a**

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

1) - A description of where in the organizational structure that/those position(s) and/or committee(s) lies Asahi Kasei Group has established four committees under the president in order to promote individual priority activities related to CSR including climate issues. They are the Sustainability Promotion Committee, the Responsible Care ( RC ) Committee, the Risk Compliance Committee, and the Global Environment Measures Promotion Committee. Climate related issues are mainly discussed at the Sustainability Promotion Committee and the RC Committee. Depending on the issues, other two committees may deal with climate change related issues. The Sustainability Promotion Committee, chaired by the President and comprised of members including Executive Officer for Technology Functions, Executive Officer for Business Functions, and Executive Officers for the 3 business sectors discusses the most important strategic themes related with Sustainability such as carbon neutrality and green businesses. The Sustainability Committee works closely with the Risk Compliance Committee, the Responsible Care Committee, and other related committees to discuss general ESG issues and formulate policies. The RC Committee is also a corporate organ under the direct authority of the President of Asahi Kasei. It is chaired by the President and consists of Director in charge of RC activities and RC managers. It deliberates RC plans and results, which include those related to climate issues, in RC meetings. The RC Promotion Meeting, which is chaired by Representative Director, Vice-Presidential Executive Officer, in charge of RC, is held four times a year. 2) - A clear rationale for why responsibility lies with that/those position(s) The reason why the president is responsible for the management of climate related issues is that the president is the chairman of the Sustainability Promotion Committee, the Responsible Care ( RC ) Committee, and the Risk Compliance Committee. In addition, the Responsible Care Committee is the core organization for RC management planning, target setting, taking actions, monitoring, auditing, reporting and reviewing. Their task includes responding to the climate change problems and serves 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 by the end of March, and by the end of June with the organization's RC implementation report, to Environmental Safety & Quality Assurance Director, also reported to the board as well. In addition, the Risk Compliance Committee conducts appropriate measures including prevention and handling, ensuring continuation and stable development of our businesses, 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. Hence, the president has a comprehensive responsibility for climate change, as the president is also responsible for appointing the executive officers of the social contribution committee and executive officers in charge of environmental safety of the committee for environmental protection measures. 3) Company specific description of responsibilities The Secretary of the RC Committee reports the outcomes of the Committee to the Management Council once a year. Most decisions are made within annual RC meetings and/or the Management Council, but if something comes up that shall be discussed and approved by the Board of Directors, e.g. climate-related issues relating to acquisitions and major capital investments as well as important issues relating to lithium-ion battery separators conducted in our electronics business, a person in charge of the issue explains it to the Board. Apart from this, Director in charge of RC activities reports the progress of the Group's RC activities to the President twice a year. 4) Description of position(s)/committee(s) specific climate-related issues monitoring process Asahi Kasei RC officer, nominated by the president who is the chairman of the RC Committee, has organized the audit team and has managed a monitoring system to conduct the RC audit at least once a year for RC 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. Based on the "Group Risk Management and Compliance Basic Rules", Risk and Compliance Officers are appointed to each business division, and the Risk Management Compliance Committee monitors the progress of risk countermeasures for each business.

**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	Type of incentive	Activity incentivized	Comment
Board/Executive board	Monetary reward	Emissions reduction target	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.

**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	10	Long term is defined as more than 5 years.

## C2.1b

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

We understand that "substantive financial or strategic impact on our business" means to us any significant impact on our plants' operations, financial performance or the relationship between us and our stakeholders. For example, if a severe drought or flood should hit an Asahi Kasei plant or any of our major suppliers, our operations could be disrupted, which might significantly affect our financial performance, and if any of our plants should release hazardous substances into rivers or the sea, affecting people's health or fishery production, it could significantly damage our relationship with stakeholders. Therefore, the definition not only applies to impact resulting from our own operations but also impact resulting from suppliers' operations. It is not always easy to estimate in advance the magnitude and probability of such adverse events, and it is almost impossible to quantify the impact of a decline in stakeholder trust, but because an issue with potential loss of certain billion yen or more shall be discussed at the Board of Directors, that could be thought of as a threshold that indicates substantive change. Furthermore, on our climate change risk analysis, we consider the case where the sales amount damages is assumed to be more than the ratio / amount set for each department, or the impact on direct operation or damage to the supply chain, such as a decrease in sales or a decline in market share, or cancellation for a certain period for each factory or business.

## C2.2

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### (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 +2°C scenario. In +4°C scenario, the temperature will rise sharply in accordance with the strengthening Typhoon of heavier rain and stronger wind. In +2°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 physical risks, the possibility of product loss and shutdown including supply chain damage is increasing, because of growing frequency and magnitude in the floods and gusts caused by climate change, so we specify the behavioral standards for each situation in case of emergency, simulate the total damages, and are considering BCP ( Business Continuity Plan ) countermeasures. 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. This risk response is reviewed every few years. 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. -A case study of how the described process is applied to Physical risks and/or opportunities With regard to transition risk, tightened regulations on environmental taxes and GHG emissions leads to a decrease in demand for our products and we will face a risk of declining profitability. However, we strive to thoroughly conserve energy and improve energy intensity. 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.

## C2.2a

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**(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 textile 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 newly 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 insulation 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, for example, incorporating technologies that utilize geothermal energy together with air conditioning and hot water supply, and developing environmentally conscious housing that is more effective in reducing CO2 emissions. As a case in point, Neoma Foam TM is an eco-efficient, high-performance thermal insulation material for comfortable, 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 Responsible Care (RC) 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, adiabatic recovery, 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, ARIOS 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 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

2020, the Asahi Kasei Group, the third-largest consumer of energy within Japan's industrial sector, 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 0.37million tonnes which cost 248 million yen of carbon tax. Even though in 2020 the emission of CO2 has decrease 2.5% compared to 2019 along with the decrease rate of sales which was 2.1%, the implemented global warming countermeasures tax currently burden us 831 million yen combining all source of fossil fuels per 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 chance of an increase in the cost burden.

**Time horizon**

Medium-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)**

35000000000

**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 830 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 \$40 ~ 80 per t-CO2 (4,500 to 9,000 yen). We confirmed that when calculating the potential economic impact of our Group's total annual CO2 emissions (3.89 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 35 billion yen per year. Potential financial impact figure: Total CO2 emissions (3.89 million t-CO2) x 9,000 yen/t-CO2 =35,000,000,000 yen

**Cost of response to risk**

10000000000

**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. 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. 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 approx. half of our on-site generation fossil-fuel consumption to woody biomass fuels. 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. 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 296,290MWh and 182,982 MWh, which account for 7.03% and 4.34% 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	Increased severity and frequency of extreme weather events such as cyclones and floods
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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. The lost income of 2.7 billion yen for the flood damage in Thailand factory in the past is recorded. Our lost income opportunity was approximately 0.45 billion yen per month and we suffered for half of a year. We recognize this magnitude scale as an appropriate potential impact.

**Time horizon**

Medium-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)**

2700000000

**Potential financial impact figure – minimum (currency)**

&lt;Not Applicable&gt;

**Potential financial impact figure – maximum (currency)**

&lt;Not Applicable&gt;

**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. The lost income of 2.7 billion yen for the flood damage in Thailand factory in the past is recorded. We recognize this magnitude scale as an appropriate potential impact.

**Cost of response to risk**

950000000

**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. 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. 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**

&lt;Not Applicable&gt;

**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 (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: "High insulation technology development committee of residential building looking ahead of 2020" (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**

Short-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)**

6900000000

**Potential financial impact figure – minimum (currency)**

&lt;Not Applicable&gt;

**Potential financial impact figure – maximum (currency)**

&lt;Not Applicable&gt;

**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 2020 were 692.6 billion yen. The profit ratio is approximately 10%. If the sales decrease by 10%, the profit would decrease by about 6.9 billion yen even in a single fiscal year. Profit decreased by  $692.6 \text{ billion yen} \times 10\% \text{ (profit ratio)} \times 10\% \text{ (decline in sales)} \approx 6.9 \text{ billion yen}$ .

**Cost of response to risk**

341000000

**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 ( Zero Emission 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, due to solid sales increase of insulating material within our building materials business in the housing segment, sales of the entire housing segment increased by 21.6% from 570 billion yen in FY2016 to 693 billion yen in FY2020. (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 0.38% of 89.7 billion yen R&D expenditure for the entire group.  $341,000,000 = 89,700,000,000 \times 0.38\%$

**Comment**

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C2.4

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**(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

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**(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 compounds. 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 compounds using molecular structures that are suited for tires with reduced rolling resistance, and has developed and commercialized 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)**

281000000000

**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 compounds 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 281,000,000,000).

**Cost to realize opportunity**

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500000000

**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 compounds 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**

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**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)**

999999999999999

**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 1,650 (billion yen) in FY 2025 from 1,004 (billion yen) in FY 2015. (Since the number of digits of the system is insufficient and can not be entered, it is described as 999, 999, 999, 999,999) This figure is calculated assuming that the high-functional product is doubled from 79.1 billion yen to 140 billion yen and the operating income margin is targeted at 8.5% in 2025. This numerical value is disclosed in IR materials at the business explanatory meeting of the material segment.

**Cost to realize opportunity**

16900000000

**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) We foresee business opportunities for the supply of filtration membranes or water filtration and recycling systems that utilize our membrane technology. Action) 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 1,000 plants worldwide, enjoying a market share of over 20%. Adoption of Microza has been growing firmly in many countries which face water shortages and growing needs for improved water quality. Result) We promote "Microza" to contribute to solutions for water resources throughout the world. 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 specialty solution segment, the cost of research and development for which was 16.9 billion yen in FY 2020. 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**

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**Identifier**

Opp3

**Where in the value chain does the opportunity occur?**

Downstream

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**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 TM 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 TM is high-performance microporous membrane with wide range thickness and highly uniform pores.

**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)**

99999999999999

**Potential financial impact figure – minimum (currency)**

&lt;Not Applicable&gt;

**Potential financial impact figure – maximum (currency)**

&lt;Not Applicable&gt;

**Explanation of financial impact figure**

Sales of material segments including separators for lithium-ion batteries will be aimed at 1,650 (billion yen) in FY 2025 from 1,004 (billion yen) in FY 2015. (Since the number of digits of the system is insufficient and can not be entered, it is described as 999, 999, 999, 999. ) This figure is calculated assuming that the high functional product is doubled from 79.1 billion yen to 140 billion yen and the operating income margin is targeted at 8.5% in 2025. This numerical value is disclosed in IR materials at the business explanatory meeting of the material segment. Asahi Kasei's separators for lithium-ion batteries account for half of the global market for lithium-ion batteries used in consumer applications, the largest share in the world. We expect the market for lithium-ion batteries used in hybrid and electric vehicles to significantly expand.

**Cost to realize opportunity**

20300000000

**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). 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. Additionally, we acquired Polypore, which has a different manufacturing method from our method to match the supply for automobiles. With new capacity expansion of Moriyama plant and Polypore decided in March 2019, our total LIB separator capacity will reach 1.55 billion m2/year in fiscal 2021 from 730 million m2/year in fiscal 2018. Result) As a result of the acquisition of Polypore, our market share ratio of separator membrane in the world has increased, about 50%. As a leading manufacturer, we have greater production capacity than other companies, strengthened by acquiring Polypore and increasing the capacity of Moriyama factory. (how the figure in " Cost to realize opportunity " was calculated) Research and development of lithium-ion battery separators are conducted in our electronics business segment. The cost of R&D in this segment was 20.3 billion yen in FY 2020. That cost is composed of labor, material and depreciation.

**Comment****C3. Business Strategy****C3.1****(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?**

Yes, and we have developed a low-carbon transition plan

**C3.1a**

**(C3.1a) Is your organization's low-carbon transition plan a scheduled resolution item at Annual General Meetings (AGMs)?**

	Is your low-carbon transition plan a scheduled resolution item at AGMs?	Comment
Row 1	No, and we do not intend it to become a scheduled resolution item within the next two years	The Asahi Kasei Group recognizes the necessity to work towards sustainability and that we boldly challenge the climate change issues. The world is beginning to accelerate to realize a decarbonized society. When the society notably changes, both business risks and chances exist side by side. Under such circumstances, at the Management Briefing held in May 2021, we have declared to become one of the first Japanese companies to go carbon neutral by 2050. Responding to decarbonization, development of ecological technologies and expansion of green businesses require a large sum of investment and costs. For that reason, we need to obtain the understandings of our stakeholders with the explanation of how it will strengthen our corporate value. We sincerely disclose information at a once-a-year sustainability briefing session by the President, by Sustainability Report, and by responding to ESG rating organizations including CDP. We are discussing to report our low carbon transition plans at AGMs once the preparations have been made.

**C3.2**

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

Yes, qualitative and quantitative

**C3.2a**

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

Climate-related scenarios and models applied	Details
Nationally determined contributions (NDCs)	Although Japan's NDC aims to reduce 26.0% ( 25.4% compared with fiscal 2005 ) by fiscal 2030 to fiscal 2013 and to pursue further efforts to reduce GHG emissions beyond this level, Prime Minister Suga announced a new goal in April 2021 that Japan aims to reduce GHG emissions by 46% compared to fiscal 2013. Japan is going to make efforts to achieve this goal. In order to realize this goal, it is highly possible that various laws and regulations and initiatives may be developed. We consider that the impact on our material business closely related to our automobile, housing business, and environmental energy related business will be great, and therefore we have adopted NDCs for the scenario analysis. In consideration of the time axis, in order to share the goal of making global greenhouse gas emissions be carbon neutrality by 2050, under a medium-term strategic management initiative " Cs+ for Tomorrow 2021 " we newly 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. The reason we set up in 2030 is to cooperate with the Government's NDC's 2030 goal. Because our business covers multiple areas such as materials, housing, healthcare, and electronics, it is necessary to analyze different scenario for each business segment. This scenario analysis result is also included in strategic measures to achieve the mid-term management plan, " Flexible allocation of management resources on priority fields ", " Reinforcing and extending value chain management " and " Further accelerating transformation to a global health care company ". Scenario analysis also greatly affects long-term investment plans including M&A. Our business, automobile-materials field, energy sector, sanitary materials, housing business, global health care business are easily affected by risks and opportunities of climate change transition, physical risks and opportunities. Polyopore (battery separator), a company acquired in 2015, is a good example of applying the scenario analysis that the business for consumer use and the demand for automotive will expand as the climate change concerns are growing. Results of the scenario analysis considering climate change, which have a significant influence on the business, are reported to the Board and reflected in the company's business plan each time. Business and management plans that take into consideration the analysis results of the climate change scenario will be also announced through IR activities, CSR activities.

**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; - 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. -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). Opportunity; - 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. -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 expect the demand for the LIB separator market (estimated by ourselves) to increase by an average of approximately 25% from now on, and we invest 30 billion yen to enhance its manufacturing infrastructure for LIB separator in Moriyama plant and North Carolina plant.</p>
Supply chain and/or value chain	Yes	<p>Risk; - 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 40.0% to 42.8% from 2019 to 2020, and so we are urged to manage packaging and transportation. -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. Opportunity; - 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. -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 2020 were 124.9billion yen (5.9% of total sales) and 198.9 billion yen (9.4% 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; -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. -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. Opportunity; -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 partly 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 35% of the Company, so it will have a significant impact. The time horizon the strategy covers is mid and long-term. -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; -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 and submersion. The time horizon the strategy covers is mid and long-term. -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. Opportunity; -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. -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 - 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 2020 sales 2.1 trillion-yen, operating income 172billion yen. FY 2021 planned sales 2.38 trillion-yen, operating income 190 billion yen. Operating costs - 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&amp;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&amp;D expenditure as operating costs of the Asahi Kasei Group has been around 80 billion yen in recent years, but it is gradually increasing. It was 90 billion yen in fiscal 2020. Therefore, the future impact on financial plan is also expected to increase. Capital expenditures/capital allocation - 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 2018, we have expanded to a 136 billion-yen financial plan by adding further production lines of both separators and S-SBR synthetic compounds. 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 154 billion yen in fiscal 2020, capital investment of material business, which has a great impact by climate change, accounts for a majority of 100.4 billion yen ( almost same as that of fiscal 2019). Acquisitions and divestments - 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 &amp; A etc., we have set up a long term investment amount of about 800 billion yen ( cumulative total of 3 years ) as a medium-term management plan " Cs+ for Tomorrow 2021 ". Most of our M &amp; 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. Polypore, which we acquired for the purpose of strengthening the battery separator business in 2015, continues to invest in growth fields including our environment and energy fields, and as usual, with a payout ratio of 40% as a baseline, merger and acquisition, for example Polypore, has a great impact on our financial plan, as it will be a source to improve return to shareholders. Access to capital - 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&amp;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 2020, Proceeds from issuance of long term debt was 143.5 billion yen including green bonds. While considering the balance of cash flow, we might issue corporate bonds and new borrowing. Assets - 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. Liability - 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 " Cs+ for Tomorrow 2021 ", corporate bonds and borrowings are expected to increase by 200 - 400 billion yen in the future the 3-year period of fiscal 2019 - 2021. In fiscal 2020, we issued new corporate bonds of 50 billion yen.</p>

C3.4a

**(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).**

C4. Targets and performance

C4.1

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

Both absolute and intensity targets

C4.1a

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

**Target reference number**

Abs 1

**Year target was set**

2014

**Target coverage**

Company-wide

**Scope(s) (or Scope 3 category)**

Scope 1+2 (market-based)

**Base year**

2005

**Covered emissions in base year (metric tons CO2e)**

5923229

**Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)**

100

**Target year**

2020

**Targeted reduction from base year (%)**

35

**Covered emissions in target year (metric tons CO2e) [auto-calculated]**

3850098.85

**Covered emissions in reporting year (metric tons CO2e)**

3890726

**% of target achieved [auto-calculated]**

98.0402991100197

**Target status in reporting year**

Expired

**Is this a science-based target?**

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

**Target ambition**

<Not Applicable>

**Please explain (including target coverage)**

By the reporting year, we have achieved a reduction of 2,032,503 t-CO2.

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**Target reference number**

Abs 2

**Year target was set**

2021

**Target coverage**

Company-wide

**Scope(s) (or Scope 3 category)**

Scope 1+2 (market-based)

**Base year**

2013

**Covered emissions in base year (metric tons CO2e)**

5110000

**Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)**

100

**Target year**

2030

**Targeted reduction from base year (%)**

30

**Covered emissions in target year (metric tons CO2e) [auto-calculated]**

3577000

**Covered emissions in reporting year (metric tons CO2e)**

3890726

**% of target achieved [auto-calculated]**

79.5351598173516

**Target status in reporting year**

New

**Is this a science-based target?**

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

**Target ambition**

<Not Applicable>

**Please explain (including target coverage)**

At the Management Briefing held in May 2021, we have announced to replace our GHG emissions reduction target from an intensity target to an absolute target. We newly 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.

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C4.1b

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

**Target reference number**

Int 1

**Year target was set**

2019

**Target coverage**

Company-wide

**Scope(s) (or Scope 3 category)**

Scope 1+2 (market-based)

**Intensity metric**

Other, please specify (Metric tons CO2e / Sales (hundred million YEN: ¥))

**Base year**

2013

**Intensity figure in base year (metric tons CO2e per unit of activity)**

269

**% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure**

100

**Target year**

2030

**Targeted reduction from base year (%)**

35

**Intensity figure in target year (metric tons CO2e per unit of activity) [auto-calculated]**

174.85

**% change anticipated in absolute Scope 1+2 emissions**

-2

**% change anticipated in absolute Scope 3 emissions**

0

**Intensity figure in reporting year (metric tons CO2e per unit of activity)**

184.74

**% of target achieved [auto-calculated]**

89.4954859267127

**Target status in reporting year**

Underway

**Is this a science-based target?**

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

**Target ambition**

<Not Applicable>

**Please explain (including target coverage)**

At the Management Briefing held in May 2021, we have announced to replace our GHG emissions reduction target from an intensity target to an absolute target. We newly 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.

---

**C4.2**

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

Other climate-related target(s)

---

**C4.2b**

**(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.**

---

**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*	2	28266
Implementation commenced*	1	7388
Implemented*	3	96913
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	Hydropower
-------------------------------	------------

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

12752

**Scope(s)**

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**

Aqua Premium (28,788 MWh) : Electricity produced by hydro power.

**Initiative category & Initiative type**

Low-carbon energy generation	Hydropower
------------------------------	------------

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

81061

**Scope(s)**

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 2020, a total of 182,982 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 (0.443 t/MWh).  $182,982 \text{ MWh} * 0.443 \text{ t-CO}_2\text{e/MWh} = 81,061 \text{ t-CO}_2\text{e}$ .

**Initiative category & Initiative type**

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

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

3100

**Scope(s)**

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 2020, we purchased FIT non-fossil fuel energy certificates for 7,000 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 (0.443 t/MWh). 7,000 MWh \* 0.443 t-CO2e/MWh = 3,101 t-CO2e.

**C4.3c**

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

Method	Comment
Internal price on carbon	

**C4.5**

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?**

Yes

**C4.5a**

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.**

**Level of aggregation**

Company-wide

**Description of product/Group of products**

Global warming conscious products

**Are these low-carbon product(s) or do they enable avoided emissions?**

Avoided emissions

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Addressing the Avoided Emissions Challenge- Chemicals sector

**% revenue from low carbon product(s) in the reporting year**

23.8

**% of total portfolio value**

<Not Applicable>

**Asset classes/ product types**

<Not Applicable>

**Comment**

**C5. Emissions methodology**

**C5.1**

**(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).**

**Scope 1**

**Base year start**

April 1 2005

**Base year end**

March 31 2006

**Base year emissions (metric tons CO2e)**

5677104

**Comment**

**Scope 2 (location-based)**

**Base year start**

April 1 2005

**Base year end**

March 31 2006

**Base year emissions (metric tons CO2e)**

246125

**Comment**

**Scope 2 (market-based)**

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

**C5.2**

---

**(C5.2) 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)**

2987729

**Start date**

<Not Applicable>

**End date**

<Not Applicable>

**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**

918572

**Scope 2, market-based (if applicable)**

902998

**Start date**

<Not Applicable>

**End date**

<Not Applicable>

**Comment**

A location-based figure for Asahi Kasei Corporation and domestic subsidiaries is calculated by the most recent actual emissions coefficient announced by the Electric Power Council for a Low Carbon Society ( ELCS ), while that for oversea subsidiaries is done by the most recent emissions coefficient according to country, as published by the International Energy Agency ( IEA ).

**C6.4**

---

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

Yes

**C6.4a**

---

**(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.**

**Source**

Non-production site overseas (Sales office, office, branch office, headquarters)

**Relevance of Scope 1 emissions from this source**

Emissions are not relevant

**Relevance of location-based Scope 2 emissions from this source**

Emissions are not relevant

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

Emissions are not relevant

**Explain why this source is excluded**

The amount of energy consumption of air conditioning and lighting are negligible compared to chemical production sites.

---

**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

**Metric tonnes CO2e**

4140070

**Emissions calculation methodology**

Activity data: Purchased volumes of materials, Emission factor: t-CO2/volume (Set for each type of material ) Data Quality: Activity data (very good), Emission factor (Good). " Emission intensity unit database (Ver.2.5) " was used as the emission factor calculated according to the calculation method of " Ministry of the Environment's basic guidelines for calculation of green house gas emissions through supply chain (ver2.3) ".

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

40.74

**Please explain**

## Capital goods

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

361102

### Emissions calculation methodology

Activity data: Purchased volumes of materials, Emission factor: t-CO2/volume (Set for each type of material) Data Quality: Activity data (very good), Emission factor (Good). " Emission intensity unit database (Ver.2.5) " was used as the emission factor calculated according to the calculation method of " Ministry of the Environment's basic guidelines for calculation of green house gas emissions through supply chain (ver2.3) ".

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

3.55

### Please explain

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

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

207876

### Emissions calculation methodology

Activity data: Purchased volumes of materials, Emission factor: t-CO2/volume (Set for each type of material) Data Quality: Activity data (very good), Emission factor (Good). " Emission intensity unit database (Ver.2.5) " was used as the emission factor calculated according to the calculation method of " Ministry of the Environment's basic guidelines for calculation of green house gas emissions through supply chain (ver2.3) ".

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

2.05

### Please explain

## Upstream transportation and distribution

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

250120

### Emissions calculation methodology

Activity data: Purchased volumes of materials, Emission factor: t-CO2/volume (Set for each type of material) Data Quality: Activity data (very good), Emission factor (Good). " Emission intensity unit database (Ver.2.5) " was used as the emission factor calculated according to the calculation method of " Ministry of the Environment's basic guidelines for calculation of green house gas emissions through supply chain (ver2.3) ".

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

2.46

### Please explain

## Waste generated in operations

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

425

### Emissions calculation methodology

Activity data: Purchased volumes of materials, Emission factor: t-CO2/volume (Set for each type of material) Data Quality: Activity data (very good), Emission factor (Good). " Emission intensity unit database (Ver.2.5) " was used as the emission factor calculated according to the calculation method of " Ministry of the Environment's basic guidelines for calculation of green house gas emissions through supply chain (ver2.3) ".

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

0

### Please explain

## Business travel

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

4599

### Emissions calculation methodology

Activity data: Purchased volumes of materials, Emission factor: t-CO2/volume (Set for each type of material) Data Quality: Activity data (very good), Emission factor (Good). " Emission intensity unit database (Ver.2.5) " was used as the emission factor calculated according to the calculation method of " Ministry of the Environment's basic guidelines for calculation of green house gas emissions through supply chain (ver2.3) ".

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

0.05

### Please explain

## Employee commuting

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

29465

### Emissions calculation methodology

Activity data: Purchased volumes of materials, Emission factor: t-CO2/volume (Set for each type of material) Data Quality: Activity data (very good), Emission factor (Good).  
" Emission intensity unit database (Ver.2.5) " was used as the emission factor calculated according to the calculation method of " Ministry of the Environment's basic guidelines for calculation of green house gas emissions through supply chain (ver2.3) ".

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

0.29

### Please explain

## Upstream leased assets

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

0

### Emissions calculation methodology

Activity data: Purchased volumes of materials, Emission factor: t-CO2/volume (Set for each type of material) Data Quality: Activity data (very good), Emission factor (Good).  
" Emission intensity unit database (Ver.2.5) " was used as the emission factor calculated according to the calculation method of " Ministry of the Environment's basic guidelines for calculation of green house gas emissions through supply chain (ver2.3) ".

### 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

### Metric tonnes 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

### Metric tonnes 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.

## Use of sold products

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

652824

### Emissions calculation methodology

Activity data: Purchased volumes of materials, Emission factor: t-CO2/volume (Set for each type of material) Data Quality: Activity data (very good), Emission factor (Good).  
" Emission intensity unit database (Ver.2.5) " was used as the emission factor calculated according to the calculation method of " Ministry of the Environment's basic guidelines for calculation of green house gas emissions through supply chain (ver2.3) ".

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

6.42

### Please explain

## End of life treatment of sold products

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

4516740

### Emissions calculation methodology

Activity data: Purchased volumes of materials, Emission factor: t-CO2/volume (Set for each type of material) Data Quality: Activity data (very good), Emission factor (Good).  
" Emission intensity unit database (Ver.2.5) " was used as the emission factor calculated according to the calculation method of " Ministry of the Environment's basic guidelines for calculation of green house gas emissions through supply chain (ver2.3) ".

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

44.44

### Please explain

## Downstream leased assets

### Evaluation status

Not relevant, explanation provided

### Metric tonnes 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

### Metric tonnes 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

### Metric tonnes 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

### Metric tonnes 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

**Metric tonnes 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**

C6.7

**(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	17754	

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**

0.0000018474

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

3890726

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

210610000000

**Scope 2 figure used**

Market-based

**% change from previous year**

0.39

**Direction of change**

Decreased

**Reason for change**

We have improved our emissions a little as we have been continuing energy saving activities, such as optimizing operation condition of diesel electricity generator and steam boiler. In addition, we have started to purchase hydropower electricity.

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	2576136	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	901	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	293878	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	33997	IPCC Fifth Assessment Report (AR5 – 100 year)
PFCs	75672	IPCC Fifth Assessment Report (AR5 – 100 year)
SF6	6896	IPCC Fifth Assessment Report (AR5 – 100 year)
NF3	248	IPCC Fifth Assessment Report (AR5 – 100 year)

## C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
Japan	2486406
Germany	2518
Republic of Korea	344389
Singapore	40811
Thailand	7403
Taiwan, Greater China	5246
China	53003
United States of America	36758
Viet Nam	83
France	7272
India	3840
Sweden	0

## 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	2486406
Production segments overseas	501323

### 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	1472453	<Not Applicable>	No credits purchased.
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/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
Japan		390146	1207158	28788
Germany		29309	92959	0
Republic of Korea		60015	112641	0
Singapore		100809	389052	0
Thailand		84348	190051	0
Taiwan, Greater China		16819	112641	0
China		127337		0
United States of America		85264	207406	0
Viet Nam		595	1313	0
France		1153	21038	0
India		7175	9605	0
Sweden		28	2134	0

## 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		390146
Production segments overseas		512852

## 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	625219	620408	
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)	12.25	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.
Ammonia	6.73	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	7.36	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	3.53	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)	26.89	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.)	1.71	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	10.66	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	1.98	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.
Other base chemicals	1.66	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	0.32	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	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	12752	Decreased	0.33	Due to purchase of hydroelectric power produced by TEPCO Energy Partner Incorporated, we reduced our carbon emissions. (12,752 t-CO2e) Last year's scope 1+2 emissions Scope1: 2,987,729 t-CO2e, Scope2: 902,998 t-CO2e, Scope 1+2 3,890,727 t-CO2e in total. $(12,752/3,890,727)*100=0.33\%$ .
Other emissions reduction activities	6855	Decreased	0.18	6,855 t-CO2e was reduced by the following 2 measures. - Asahi Kasei Construction Materials Corp., Hozumi Plant Heavy oil boilers were replaced with gas (LNG) boilers. - Asahi Kasei Corp., Kawasaki Plant The reduction of steam through stable operation of monomer production process Last year's scope 1+2 emissions Scope1: 2,987,729 t-CO2e, Scope2: 902,998 t-CO2e, Scope 1+2 3,890,727 t-CO2e in total. $(6,855/3,890,727)*100=0.18\%$ .
Divestment		<Not Applicable >		
Acquisitions		<Not Applicable >		
Mergers		<Not Applicable >		
Change in output	209550	Decreased	5.39	Due to the COVID-19 pandemic, the production output of the following company and manufacturing plant has significantly decreased. Consequently, CO2 emissions have also largely decreased. (209,550 t-CO2e) -Nobeoka: the production output of the Benberg plant has been reduced. -South Korea: the production output of the Tong Suh Petrochemical Corp., Ltd. has been reduced. In addition, the suspension of production at Asahi Kasei Microsystems Co., Ltd. has also resulted in the significant reduction of CO2 emissions. Last year's scope 1+2 emissions Scope1: 2,987,729 t-CO2e, Scope2: 902,998 t-CO2e, Scope 1+2 3,890,727 t-CO2e in total. $(80,800 + 35,570 + 93,180) / 3,890,727 *100 = 5.39\%$ .
Change in methodology		<Not Applicable >		
Change in boundary	18590	Decreased	0.53	Closing of Eltas Plant, Corydon Plant, and Kyuasa Co., Ltd resulted in the reduction of approximately 20,683 t-CO2e. Last year's scope 1+2 emissions Scope1: 2,987,729 t-CO2e, Scope2: 902,998 t-CO2e, Scope 1+2 3,890,727 t-CO2e in total. $(20,683/3,890,727)*100=0.53\%$ .
Change in physical operating conditions	165499	Increased	4.25	Due to a problem with equipment at some plant, GHG emissions have increased in comparison to the last year (+165,499 t-CO2e). The equipment has already been repaired. GHG emissions in 2021 are expected to improve by about the same amount. Last year's scope 1+2 emissions Scope1: 2,987,729 t-CO2e, Scope2: 902,998 t-CO2e, Scope 1+2 3,890,726 t-CO2e in total. $165,499/3,890,726*100=4.25\%$
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)	296290	7605694	7901984
Consumption of purchased or acquired electricity	<Not Applicable>	28788	3028275	3057063
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0	906768	906768
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	182982	<Not Applicable>	182982
Total energy consumption	<Not Applicable>	508060	11540737	12048797

C-CH8.2a

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

	Heating value	Total MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	2379573
Consumption of purchased or acquired electricity	<Not Applicable>	28788
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	182982
Total energy consumption	<Not Applicable>	2591343

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	No
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.**

**Fuels (excluding feedstocks)**

Bituminous Coal

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

2669827

**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**

2669827

**Emission factor**

2.33

**Unit**

metric tons CO2e per metric ton

**Emissions factor source**

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)

**Comment**

---

**Fuels (excluding feedstocks)**

Liquefied Natural Gas (LNG)

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

1522478

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

152248

**MWh fuel consumed for self-generation of steam**

456743

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self-cogeneration or self-trigeneration**

913487

**Emission factor**

2.7

**Unit**

metric tons CO2e per metric ton

**Emissions factor source**

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)

**Comment**

---

**Fuels (excluding feedstocks)**

Residual Fuel Oil

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

879709

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

87971

**MWh fuel consumed for self-generation of steam**

263913

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self-cogeneration or self-trigeneration**

527825

**Emission factor**

3

**Unit**

metric tons CO2e per liter

**Emissions factor source**

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)

**Comment**

---

**Fuels (excluding feedstocks)**

Other, please specify

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

2385307

**MWh fuel consumed for self-generation of electricity**

<Not Applicable>

---

**MWh fuel consumed for self-generation of heat**

238531

**MWh fuel consumed for self-generation of steam**

715592

**MWh fuel consumed for self-generation of cooling**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-cogeneration or self-trigeneration**

1431184

**Emission factor**

3.36

**Unit**

metric tons CO2e per metric ton

**Emissions factor source**

The actual emission factor for product gas is provided here. Since the variability depends on each factory and/or the operation conditions, its representative value is provided.

**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	1229438	1229438	182982	182982
Heat	0	0	0	0
Steam	0	0	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.

	Total gross generation (MWh) inside chemicals sector boundary	Generation that is consumed (MWh) inside chemicals sector boundary
Electricity	1229438	1229438
Heat	0	0
Steam	0	0
Cooling	0	0

## C8.2e

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

**Sourcing method**

Power purchase agreement (PPA) with a grid-connected generator with energy attribute certificates

**Low-carbon technology type**

Hydropower

**Country/area of consumption of low-carbon electricity, heat, steam or cooling**

Japan

**MWh consumed accounted for at a zero emission factor**

28788

**Comment**

Aqua premium supplied by Tokyo Electricity Energy Partner

## C-CH8.3

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

Yes

### C-CH8.3a

(C-CH8.3a) Disclose details on your organization's consumption of fuels as feedstocks for chemical production activities.

**Fuels used as feedstocks**

Other, please specify (Feedstock here are not applicable to us.)

**Total consumption**

0

**Total consumption unit**

metric tons

**Inherent carbon dioxide emission factor of feedstock, metric tons CO2 per consumption unit**

0

**Heating value of feedstock, MWh per consumption unit**

0

**Heating value**

HHV

**Comment**

### C-CH8.3b

(C-CH8.3b) State the percentage, by mass, of primary resource from which your chemical feedstocks derive.

	Percentage of total chemical feedstock (%)
Oil	45
Natural Gas	10
Coal	10
Biomass	10
Waste (non-biomass)	10
Fossil fuel (where coal, gas, oil cannot be distinguished)	10
Unknown source or unable to disaggregate	5

### C9. Additional metrics

#### C9.1

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

### C-CH9.3a

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

**Output product**

Other base chemicals

**Production (metric tons)**

624000

**Capacity (metric tons)**

749000

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

0.785

**Electricity intensity (MWh per metric ton of product)**

0.24

**Steam intensity (MWh per metric ton of product)**

0.675

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

0.394

**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, which inhibits our strategy.



(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	

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	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Unable to disaggregate by technology area	<Not Applicable>	≤20%		Long-term investment totalled accounts for 670 billion yen that we disclosed at CT2018. Among them, the total amount of publicized individual amounts for Low-Carbon investment is 110 billion yen (Because the number of digits of the system is insufficient and can not be entered, it is described as 99, 999, 999, 999). Low-Carbon investment targets are below. · Enhancement of separator capacity for LIB · Rubber capacity enhancement for eco tires · Acquisition of CO2 sensor module company · Acquisition of textile companies for automobiles. There is no plan to disclose the amount of all projects. The amount of each year has not been disclosed. Under the new medium-term business management plan "Cs + for Tomorrow 2021", which started in 2019, it is planned to carry out capital investment including low-carbon one of about 800 billion yen or more in total for three years.

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

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

**Technology area**

Please select

**Stage of development in the reporting year**

<Not Applicable>

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

Please select

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

**Comment**

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

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**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

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**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

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## C10.2

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**(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

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## C11.1

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**(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

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**(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**

13.1

**% of Scope 2 emissions covered by the ETS**

0

**Period start date**

January 1 2020

**Period end date**

December 31 2020

**Allowances allocated**

343969

**Allowances purchased**

48000

**Verified Scope 1 emissions in metric tons CO2e**

391471

**Verified Scope 2 emissions in metric tons CO2e**

0

**Details of ownership**

Facilities we own and operate

**Comment**

Allowances allocated 343,969 t-CO2e = 343,032 t-CO2e (Korea ETS Allowances allocated for 2020) + 937 t-CO2e (Korea ETS Allowances carried over from 2019)

### C11.1c

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**(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 2021

**% of total Scope 1 emissions covered by tax**

29.1

**Total cost of tax paid**

250000000

**Comment**

We accounted for global warming countermeasure tax.

### C11.1d

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**(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.

## C11.2

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

No

## C11.3

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

Yes

### C11.3a

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

**Objective for implementing an internal carbon price**

Change internal behavior  
Drive energy efficiency  
Drive low-carbon investment  
Identify and seize low-carbon opportunities

**GHG Scope**

Scope 1  
Scope 2

**Application**

It is set for each business headquarters and business company, and is used for decisions on capital investment.

**Actual price(s) used (Currency /metric ton)**

10000

**Variance of price(s) used**

**Type of internal carbon price**

Shadow price

**Impact & implication**

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.

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## C12. Engagement

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### C12.1

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**(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

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

**Type of engagement**

Information collection (understanding supplier behavior)

**Details of engagement**

Collect climate change and carbon information at least annually from suppliers

**% of suppliers by number**

71

**% total procurement spend (direct and indirect)**

82

**% 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 two years. Specifically, we selected top 71% suppliers by purchase amount because high volume suppliers play significant roles in dealing with climate-related risks on supply chain. We believe this 82% 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.

**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.

**Comment**

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**C12.1d**

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

i) A clear explanation of who other partners in the value chain constitutes: When we collaborate, we are prioritizing the following areas; 1) large market, 2) market growth can be expected in the near future, 3) regulations will be introduced or tightened, and 4) high interest of consumer. Especially, regarding climate-related engagement, we work with a variety of organizations such as universities and research institutes. ii) A case study of your climate-related engagement strategy with other partners in the value chain: A case in point is h2herten which is the Hydrogen Competence Center in Herten, Germany. In 2018, Asahi Kasei Europe started a demonstration project to produce hydrogen from simulated wind energy in the Hydrogen City of Herten in the German state of North Rhine-Westphalia. The project will transform simulated electric power from wind energy into hydrogen and contribute to the development of a green hydrogen production system. Hydrogen is a focus of increasing interest on recent years, not only in the field of energy storage (Power-to-Gas) but also as an important component of alternative fuels for automobiles (Power-to-Fuel). Europe in general and Germany in particular, with its ambitious goals for CO2 reduction, its drop-out of nuclear energy by 2022 and its high share of electric power supply from fluctuating renewable energy sources, have a high need for reliable power storage technologies. The joint project together with the Hydrogen Competence Center h2herten will contribute to the development of an electrolysis system to produce green hydrogen on a large scale.

**C12.3**

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**(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?**

Trade associations

**C12.3b**

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**(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?**

Yes

**C12.3c**

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**(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.**

**Trade association**

Japan Chemical Industry Association

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

Formulated by the Japan Chemical Industry Association, the Commitment to a Low Carbon Society has been integrated into the Commitment to a Low Carbon Society prepared by Keidanren, the trade association representing Japan's business community. As such, it is positioned as an industry-oriented voluntary action plan that has been endorsed by the Japanese government.

**How have you influenced, or are you attempting to influence their position?**

We have members on a committee for measures against global warming and were involved with the formulation of the Japanese chemical industry's Commitment to a Low Carbon Society. The Asahi Kasei Group's strategy for global warming mitigation is to reduce the amount of CO2 that we emit ourselves, and to sell products that emit less CO2 during use. The Commitment to a Low Carbon Society of the Japan Chemical Industry Association and the Keidanren, which represents the larger business community in Japan, is in agreement with this strategy. Asahi Kasei Group's strategies and information dissemination on greenhouse gas reductions have an impact in contributing to the expansion of Japan's industrial climate change countermeasures through Keidanren.

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**C12.3f**

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**(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

All external engagement is managed by the Global Environment Committee (members: officers of group operating companies), Global Environment Action Committee (members: RC Promoters of operating companies (General Manager of Corporate ESH & QA)) and the RC Promotion Committees of operating companies. Engagement with third parties is reported beforehand to the respective committees, the chairs of which provide guidance as needed to ensure that the engagement is consistent with overall company strategy.

**C12.4**

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(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**

annual securities report 2021 (Japanese).pdf

**Page/Section reference**

PDF 30/192 page

**Content elements**

Governance

Strategy

Risks & opportunities

**Comment**

Business Risk, Climate change risk

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**Publication**

In voluntary sustainability report

**Status**

Underway – previous year attached

**Attach the document**

sustainability\_report2020e.pdf

**Page/Section reference**

**Content elements**

Governance

Emissions figures

Emission targets

**Comment**

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**Publication**

In mainstream reports

**Status**

Underway – previous year attached

**Attach the document**

Asahi KASEI report 2020 en.pdf

**Page/Section reference**

**Content elements**

Governance

Strategy

Emissions figures

**Comment**

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## C15. Signoff

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### 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.

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### C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	President	Chief Executive Officer (CEO)

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## 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, petrochemicals 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	2106100000000

## SC0.2

(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?

Yes

## SC0.2a

(SC0.2a) Please use the table below to share your ISIN.

	ISIN country code (2 letters)	ISIN numeric identifier and single check digit (10 numbers overall)
Row 1	JP	3111200006

## SC1.1

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

**Requesting member**

KAO Corporation

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e**

164

**Uncertainty (±%)**

5

**Major sources of emissions**

CO2 emissions generated by fuel use and Green House Gas (GHG) generated from production process

**Verified**

Yes

**Allocation method**

Allocation based on mass of products purchased

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

CO2 emissions calculation for Fuel and Gas : The amount of use x Fuel (or Gas) calorie coefficient x CO2 emission coefficient, CO2 emissions calculation for Electricity and Steam: The amount of use x CO2 emission coefficient

**Requesting member**

KAO Corporation

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e**

5668

**Uncertainty (±%)**

5

**Major sources of emissions**

Electricity and Steam for production

**Verified**

Yes

**Allocation method**

Allocation based on mass of products purchased

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

CO2 emissions calculation for Electricity and Steam: The amount of use x CO2 emission coefficient

---

**Requesting member**

SEKISUI CHEMICAL CO.,LTD.

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e****Uncertainty (±%)**

5

**Major sources of emissions**

Steam for production

**Verified**

Yes

**Allocation method**

Allocation based on mass of products purchased

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

CO2 emissions calculation for Gas: The amount of use x Gas calorie coefficient x CO2 emission coefficient, CO2 emissions calculation for Steam: The amount of use x CO2 emission coefficient

---

**Requesting member**

SEKISUI CHEMICAL CO.,LTD.

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e****Uncertainty (±%)**

5

**Major sources of emissions**

Electricity for production

**Verified**

Yes

**Allocation method**

Allocation based on mass of products purchased

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

CO2 emissions calculation for Gas: The amount of use x Gas calorie coefficient x CO2 emission coefficient, CO2 emissions calculation for Steam: The amount of use x CO2 emission coefficient

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**Requesting member**

The Yokohama Rubber Co., Ltd.

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

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**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e**

2387.5488

**Uncertainty (±%)**

5

**Major sources of emissions**

Electricity and Steam for production

**Verified**

Yes

**Allocation method**

Allocation based on mass of products purchased

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

CO2 emissions calculation for Gas: The amount of use x Gas calorie coefficient x CO2 emission coefficient, CO2 emissions calculation for Steam: The amount of use x CO2 emission coefficient

---

**Requesting member**

The Yokohama Rubber Co., Ltd.

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e**

7985.5763

**Uncertainty (±%)**

5

**Major sources of emissions**

Electricity and Steam for production

**Verified**

Yes

**Allocation method**

Allocation based on mass of products purchased

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

CO2 emissions calculation for Electricity and Steam: The amount of use x CO2 emission coefficient

---

**Requesting member**

Pirelli

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e**

898.5674

**Uncertainty (±%)**

5

**Major sources of emissions**

Gas and Steam for production

**Verified**

Yes

**Allocation method**

Allocation based on mass of products purchased

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

CO2 emissions calculation for Gas: The amount of use x Gas calorie coefficient x CO2 emission coefficient, CO2 emissions calculation for Steam: The amount of use x CO2 emission coefficient

---

**Requesting member**

Pirelli

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e**

3005.4165

**Uncertainty (±%)**

5

**Major sources of emissions**

Electricity and Steam for production

**Verified**

Yes

**Allocation method**

Allocation based on mass of products purchased

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

CO2 emissions calculation for Electricity and Steam: The amount of use x CO2 emission coefficient

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**Requesting member**

Johnson & Johnson

**Scope of emissions**

Scope 1

**Allocation level**

Please select

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e**

201

**Uncertainty (±%)**

5

**Major sources of emissions**

Electricity and Steam for production

**Verified**

Yes

**Allocation method**

Allocation based on area

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

---

**Requesting member**

HP Inc

**Scope of emissions**

Please select

**Allocation level**

Please select

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e****Uncertainty (±%)****Major sources of emissions**

For calculation of CO2e emissions of our products which you procured, please use emission intensity per unit of net sales of our company. CO2e emission intensity: CO2e (Scope 1+2) 3,890,726 t-CO2e / Sales 2,106,100,000,000 Yen = 1.84736E-06 t-CO2e/Yen

**Verified**

Please select

**Allocation method**

Please select

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

For calculation of CO2e emissions of our products which you procured, please use emission intensity per unit of net sales of our company. CO2e emission intensity: CO2e (Scope 1+2) 3,890,726 t-CO2e / Sales 2,106,100,000,000 Yen = 1.84736E-06 t-CO2e/Yen

---

**Requesting member**

Microsoft Corporation

**Scope of emissions**

Please select

**Allocation level**

---

Please select

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e**

**Uncertainty (±%)**

**Major sources of emissions**

For calculation of CO2e emissions of our products which you procured, please use emission intensity per unit of net sales of our company. CO2e emission intensity: CO2e (Scope 1+2) 3,890,726 t-CO2e / Sales 2,106,100,000,000 Yen = 1.84736E-06 t-CO2e/Yen

**Verified**

Please select

**Allocation method**

Please select

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

For calculation of CO2e emissions of our products which you procured, please use emission intensity per unit of net sales of our company. CO2e emission intensity: CO2e (Scope 1+2) 3,890,726 t-CO2e / Sales 2,106,100,000,000 Yen = 1.84736E-06 t-CO2e/Yen

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**Requesting member**

Robert Bosch GmbH

**Scope of emissions**

Please select

**Allocation level**

Please select

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e**

**Uncertainty (±%)**

**Major sources of emissions**

For calculation of CO2e emissions of our products which you procured, please use emission intensity per unit of net sales of our company. CO2e emission intensity: CO2e (Scope 1+2) 3,890,726 t-CO2e / Sales 2,106,100,000,000 Yen = 1.84736E-06 t-CO2e/Yen

**Verified**

Please select

**Allocation method**

Please select

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

For calculation of CO2e emissions of our products which you procured, please use emission intensity per unit of net sales of our company. CO2e emission intensity: CO2e (Scope 1+2) 3,890,726 t-CO2e / Sales 2,106,100,000,000 Yen = 1.84736E-06 t-CO2e/Yen

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**Requesting member**

Stanley Black & Decker, Inc.

**Scope of emissions**

Please select

**Allocation level**

Please select

**Allocation level detail**

<Not Applicable>

**Emissions in metric tonnes of CO2e**

**Uncertainty (±%)**

**Major sources of emissions**

For calculation of CO2e emissions of our products which you procured, please use emission intensity per unit of net sales of our company. CO2e emission intensity: CO2e (Scope 1+2) 3,890,726 t-CO2e / Sales 2,106,100,000,000 Yen = 1.84736E-06 t-CO2e/Yen

**Verified**

Please select

**Allocation method**

Please select

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

For calculation of CO2e emissions of our products which you procured, please use emission intensity per unit of net sales of our company. CO2e emission intensity: CO2e (Scope 1+2) 3,890,726 t-CO2e / Sales 2,106,100,000,000 Yen = 1.84736E-06 t-CO2e/Yen

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SC1.2

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

### SC1.3

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

Allocation challenges	Please explain what would help you overcome these challenges
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	Allocation based on emissions per unit production volume
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	Calculated based on sales volume with referring to emissions per unit production volume for each plant

### SC1.4

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

No

### SC1.4b

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

As we know the total CO2 emissions by each plant, we can calculate our customer's emissions by dividing it by sales volume.

### SC2.1

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

### SC2.2

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

No

### SC4.1

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

Yes, I will provide data

### SC4.1a

(SC4.1a) Give the overall percentage of total emissions, for all Scopes, that are covered by these products.

### SC4.2a

(SC4.2a) Complete the following table for the goods/services for which you want to provide data.

**Name of good/ service**

Tufdene, Asadene

**Description of good/ service**

Rubber

**Type of product**

Intermediate

**SKU (Stock Keeping Unit)**

ton

**Total emissions in kg CO2e per unit**

819.47

**±% change from previous figure supplied**

7.8739269848

**Date of previous figure supplied**

June 28 2021

**Explanation of change**

Total emissions in kg CO2e per unit increased because of decrease in production volume.

**Methods used to estimate lifecycle emissions**

Please select

---

**Name of good/ service**

Suntec TM - HD

**Description of good/ service**

High Density Polyethylene

**Type of product**

Intermediate

**SKU (Stock Keeping Unit)**

ton

**Total emissions in kg CO2e per unit**

**±% change from previous figure supplied**

**Date of previous figure supplied**

**Explanation of change**

**Methods used to estimate lifecycle emissions**

Please select

---

**Name of good/ service**

Suntec TM - LD

**Description of good/ service**

Low density polyethylene

**Type of product**

Intermediate

**SKU (Stock Keeping Unit)**

ton

**Total emissions in kg CO2e per unit**

**±% change from previous figure supplied**

**Date of previous figure supplied**

**Explanation of change**

**Methods used to estimate lifecycle emissions**

Please select

---

**Name of good/ service**

ELTAS

**Description of good/ service**

non-woven fabric

**Type of product**

Intermediate

**SKU (Stock Keeping Unit)**

ton

**Total emissions in kg CO2e per unit**

1200

**±% change from previous figure supplied**

43

**Date of previous figure supplied**

July 19 2021

**Explanation of change**

Operation became impossible due to a natural disaster

**Methods used to estimate lifecycle emissions**

Please select

---

**Name of good/ service**

ROICA

**Description of good/ service**

polyurethane fiber

**Type of product**

Intermediate

**SKU (Stock Keeping Unit)**

ton

**Total emissions in kg CO2e per unit**

4090

---

±% change from previous figure supplied

3

Date of previous figure supplied

July 19 2021

Explanation of change

Due to the reduction of plant operation

Methods used to estimate lifecycle emissions

Please select

Name of good/ service

Planova

Description of good/ service

Virus Removal Filter

Type of product

Final

SKU (Stock Keeping Unit)

square meter

Total emissions in kg CO2e per unit

201

±% change from previous figure supplied

17.15

Date of previous figure supplied

Explanation of change

The emissions in kg CO2e per unit has improved by 17.15% due to the improvement of production efficiency.

Methods used to estimate lifecycle emissions

Please select

#### SC4.2b

(SC4.2b) Complete the following table with data for lifecycle stages of your goods and/or services.

#### SC4.2c

(SC4.2c) Please detail emissions reduction initiatives completed or planned for this product.

Name of good/ service	Initiative ID	Description of initiative	Completed or planned	Emission reductions in kg CO2e per unit
Tufdene, Asadene	Please select	Decrease of steam by optimized temperature for dissolution tank.	Completed	0.19
Tufdene, Asadene	Please select	Optimization of the process operating conditions.	Completed	7.62
Suntec TM - HD	Please select	Optimization of the process operating conditions.	Please select	3.9
Suntec TM - LD	Please select	Optimization of the process operating conditions.	Please select	54.6
ELTAS	Please select	Installation of high energy efficiency equipment in place of aging one.	Ongoing	
ROICA	Please select	Installation of high energy efficiency equipment in place of aging one.	Ongoing	

#### SC4.2d

(SC4.2d) Have any of the initiatives described in SC4.2c been driven by requesting CDP Supply Chain members?

No

#### Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I am submitting to	Public or Non-Public Submission	Are you ready to submit the additional Supply Chain questions?
I am submitting my response	Investors Customers	Public	Yes, I will submit the Supply Chain questions now

Please confirm below

I have read and accept the applicable Terms



