

5.1 Management of Climate Change Risks and Opportunities

Ongoing climate change has made global warming and extreme weathers two of the most prominent issues for businesses. In 2021, Kaori voluntarily adopted the guidelines of Task Force on Climate-related Financial Disclosures (TCFD) and followed the four core elements: "governance," "strategy," "risk management," and "metrics and targets" recommended by TCFD to identify significant risks and opportunities that climate change may have on Kaori Heat Treatment, followed by response strategies.

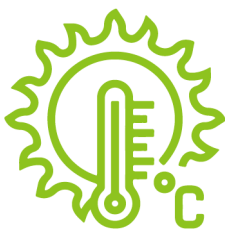
In addition to closely monitoring climate change and international trends, Kaori has made climate change one of the major issues for sustainable development. Through inter-department communication, discussions are made on the possible scenarios, the likely impacts, and the timing of impact on Kaori; each of the scenarios identified is further evaluated to facilitate proper control and response to the associated risks and opportunities.

Procedures for identifying climate change-related risks and opportunities

Kaori devotes ongoing attention to the climate policies and action plans of various industries local and abroad, and conducts thorough surveys on the possible impacts of climate change. Matrix analyses covering direct and indirect physical impacts of extreme weathers are being performed to identify the risks and opportunities associated with changes in laws, technologies, market demand, or the need for transformation. Outcome of the analysis has enabled the Company to propose response strategies, evaluate financial impact of climate change risks and opportunities, and make corresponding adjustments to internal policies. Meanwhile, the Company maintains open and transparent communication channels with stakeholders to facilitate coordinations toward mitigating climate change risk and capitalizing on climate change opportunities, and thereby enforce Kaori's philosophy on sustainable governance.

Kaori identifies risks and opportunities of extreme weather and climate change by constructing at least two scenarios. Workshops on climate change risks and opportunities are organized to gather, study, and discuss available data, and to evaluate risks and opportunities. Procedures for identifying climate change-related risks and opportunities are explained below.

A.



Set climate change scenarios

Two climate change scenarios have been constructed:
 SSP5-8.5: temperature increased to 6°C
 SSP1-2.6: temperature increased to 2°C

B.



Evaluate impacts of the operating environment

Evaluate how climate change affects and impacts the operating environment and stakeholders

C.

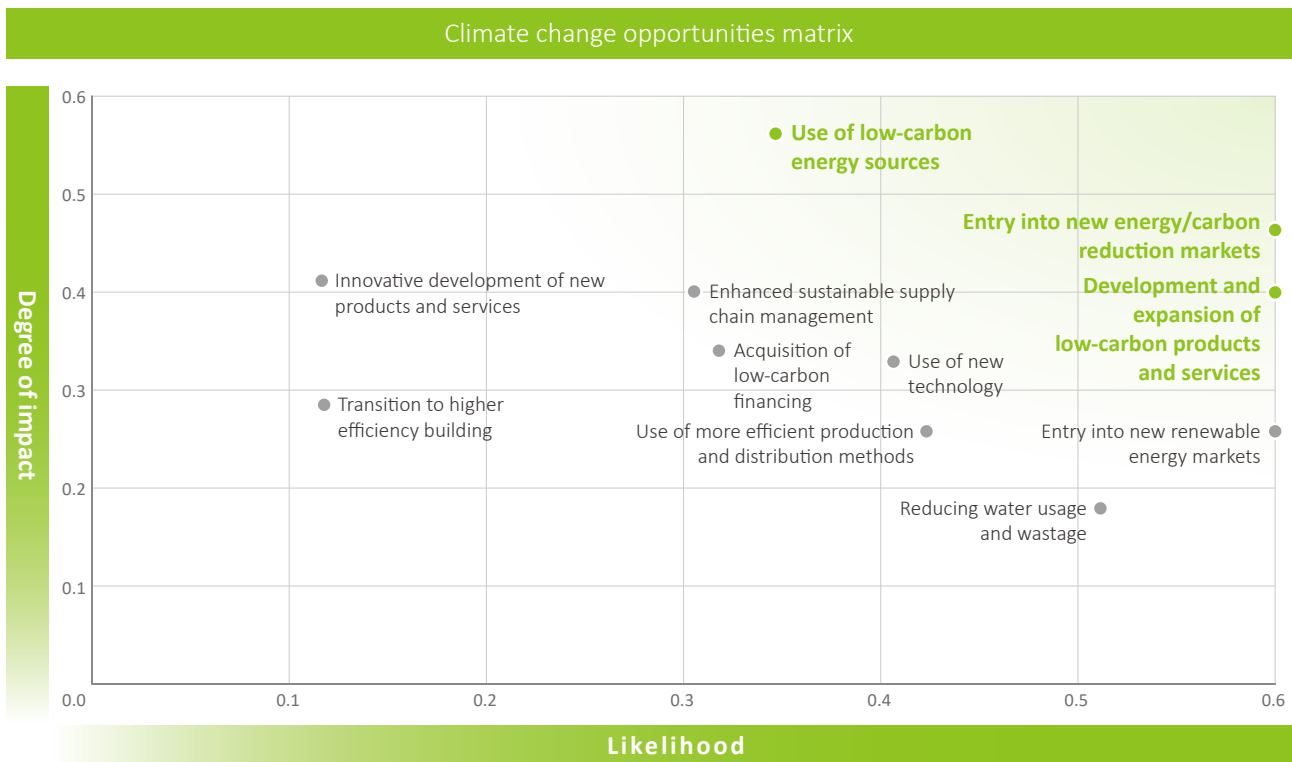
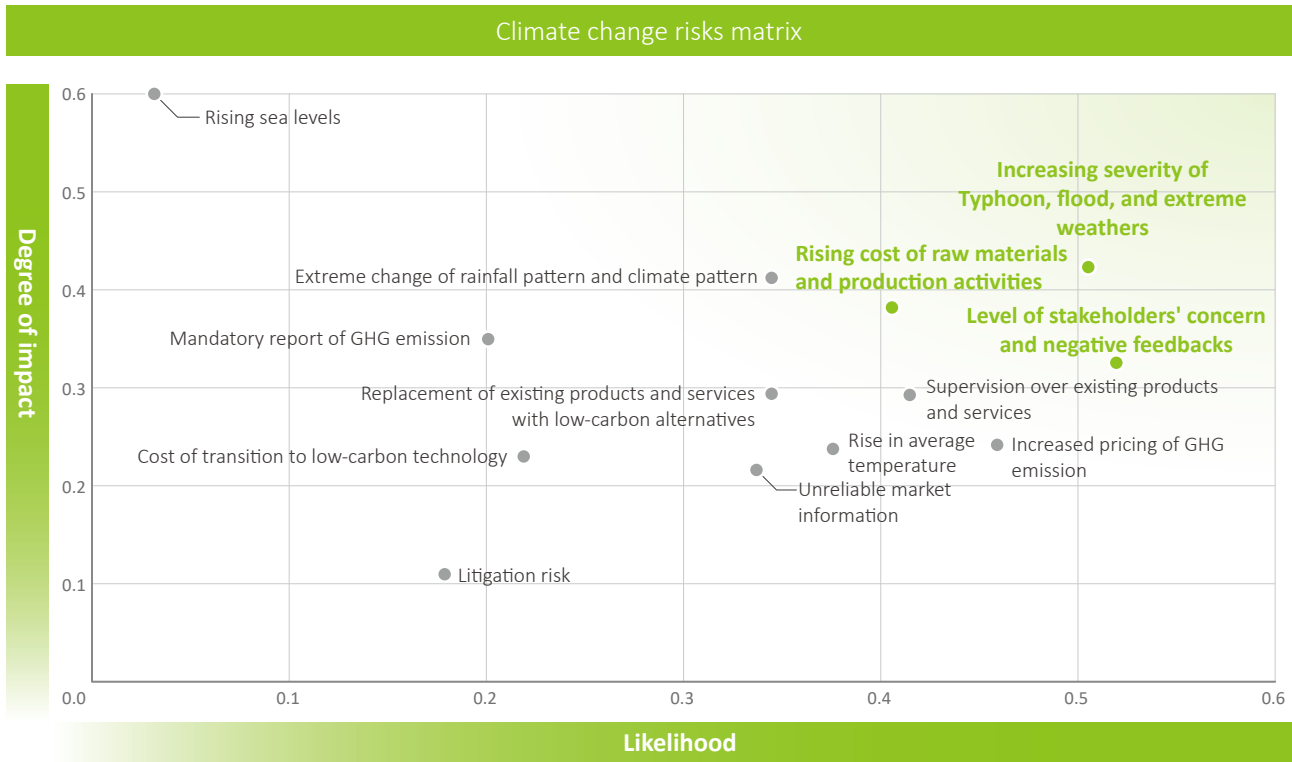


Identify climate risks and opportunities

Create a risks and opportunities matrix and confirm climate change risks and opportunities

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From the climate change risks and opportunities identified, Kaori further analyzed the "Likelihood" and "Degree of impact" and shortlisted 3 high-risk factors and 3 high-opportunity factors for 2021. Kaori's climate change risks and opportunities matrix for 2021 is presented below:



Explanation on climate change-related risks

List of identified climate change risks

Risk ranking	Risk serial No.	Risk category	Risk factor	Estimated time of occurrence
1	001	Physical risk- immediate	Increasing severity of Typhoon, flood, and extreme weathers	Short-term
2	002	Transition risk- reputation	Increasing level of stakeholders' concern and negative feedbacks	Medium-term
3	003	Transition risk- market	Rising cost of raw materials and production activities	Medium-term

Note: Definition of timeframe: Short-term: 2022-2025, Medium-term: 2025-2030, Long-term: 2030-2050

Risk 001- Increasing severity of Typhoon, flood, and extreme weathers

Impact scenario:

Increasing severity of extreme weathers causes weather conditions such as Typhoon to occur at stronger intensity, which results in prolonged flood and power outage that affect factory operations. The above occurrences have the potential to disrupt production activities, reduce capacity, damage equipment, hinder transportation, disrupt raw materials supply, decrease revenues, and increase costs.

Risk impact assessment	<ol style="list-style-type: none"> 1. Delayed delivery: Extreme weathers affect factory operation and cause disruptions to production activities, raw materials supply, and transportation. Delivery may be delayed by several days to one week. 2. Impacts to the upstream/downstream: Extreme weathers affect the number of parts delivered by suppliers, and cause Kaori to under-deliver and delay shipment of goods to customers. Customers' production activities may be halted as a result.
Evaluation of financial impact	Reduced revenues, increased operating costs, and loss of credibility.

Risk 002- Increasing level of stakeholders' concern and negative feedbacks

Impact scenario:

A failed transition to low-carbon energy or failed product transformation causes internal and external stakeholders to lose faith in the Company's prospect, which leads to decrease of revenues.

Risk impact assessment	<ol style="list-style-type: none"> 1. Product does not meet customers' requirements and leads to reduced sale: Products offered by the Company or raw materials supplied by suppliers may fail customers' ESG standards and result in loss of sale. 2. Increased cost from energy or product transformation: Low-carbon transformations undertaken to meet ESG standards of key stakeholders increase product cost and undermine product competitiveness.
Evaluation of financial impact	Reduced revenues and increased operating costs.



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- Risk 003- Rising cost of raw materials and production activities

Impact scenario:

Investments into energy transformation and carbon reduction cause a rise in raw material and production costs that undermine product competitiveness. The Company may experience reduced output, lower shipment, and loss of competitive advantage that are reflected in decreased revenues and increased costs.

Risk impact assessment	Rising cost of production from increased cost of raw materials: Nickel-based alloy and copper foil are the main materials used in Kaori's products. Rising cost of metal has resulted in a shortage of raw materials, whereas increases in transportation charge continue to drive production cost upwards.
Evaluation of financial impact	Reduced revenues and increased operating costs.

Explanation on climate change-related opportunities

- List of identified climate change opportunities

Opportunity ranking	Opportunity serial No.	Opportunity category	Opportunity factor	Estimated time of occurrence
1	001	Market	Entry into new energy/carbon reduction markets	Long-term
2	002	Products and services	Development and expansion of low-carbon products and services	Short-term
3	003	Source of energy	Use of low-carbon energy sources	Medium-term

- Opportunity 001- Entry into new energy/carbon reduction markets

Impact scenario:

Responses to customers' energy and carbon reduction needs open the Company to new markets, customers, and products such as energy-efficient heat pump, electrical vehicle, and heat recycling. The above involvements will help expand product line and customer exposure in ways that increase revenues and reputation.

Opportunity impact assessment	<ol style="list-style-type: none"> 1. Reduction of product carbon footprint: Aside from investing into solutions that minimize carbon footprint during production activities and developing plate heat exchangers that make use of coolants of low global warming potential, Kaori will also place more emphasis on online marketing while at the same time reduce paper printing. 2. Development of hydrogen power: Kaori invests persistently into the development of hydrogen power products, and has been instructing suppliers to work with the Fuel Cell Business to develop parts and production procedures that meet customers' requirements, and making pro-active arrangements for trial production and shipment. Given the significant increase in shipments and revenues, Kaori is optimistic about the prospect of hydrogen power. 3. Development of liquid cooling and immersion cooling products: These solutions have the potential to replace conventional air-cooled server rooms and data centers, as they are more than 70% more power efficient and help save total power consumption by 30%-40%. They also improve stability and reliability of server performance, and do not generate noise like conventional cooling does. Kaori's solutions have already been adopted for commercial operation in large data centers, and have been running 24 hours a day for more than 3 years without fail. Average yearly Power Usage Effectiveness (PUE) was reported at 1.07.
Financial impact assessment	Decreased costs and increased revenues.

• **Opportunity 002-** Development and expansion of low-carbon products and services

Impact scenario:

The Company continues to expand its low-carbon product lines to include SOEC, hydrogen fuel cell, heat exchanger for hydrogen fuel cell, carbon capture machine etc. in response to carbon reduction trends around the world. These initiatives will improve market competitiveness, increase market share, and raise revenues in the future.

Opportunity impact assessment	<ol style="list-style-type: none"> 1. Exploration of low-carbon opportunities: Kaori's Heat Exchanger Business has already secured a strong foothold in the low-carbon market by offering customers the added value of reducing CO₂ emission. Meanwhile, other business segments are also actively exploring new opportunities. 2. Use of low-carbon equipment: Kaori will cooperate with domestic research institutions to develop energy-efficient production equipment for the reduction of GHG emission. 3. New investment opportunities: Some of the hydrogen power technologies have matured and are ready for mass production. Given their high relevance to green energy and international trends, these technologies are very likely to attract capital from the banking sector and government agencies. With regards to immersion liquid cooling technology, Kaori will actively engage in domestic and foreign events, exchange knowledge with industry peers as well as potential customers to learn the latest trends of immersion application, and develop related technologies and products in response to trends
Financial impact assessment	Cost reduction, decreased carbon tax, and attraction of capital.

• **Opportunity 003-** Use of low-carbon energy sources

Impact scenario:

The Company invests into renewable energy sources such as solar power to reduce carbon emission and lessen dependence on fossil fuel and Taiwan Power Company. By reducing carbon emission and carbon tax, the Company is able to cut down operating expenses.

Opportunity impact assessment	<ol style="list-style-type: none"> 1. Self-generation and utilization of renewable energy: Additional solar power generators will be installed to supply power for Kaori. Doing so will reduce needs for purchased electricity, lessen GHG emission, and contribute to the issue of global warming. 2. Increased investment and collaborative opportunities: Use of low-carbon energy not only supports government policies and improves the environment, but also provides opportunities to boost corporate image and attract investments. The world's major brands such as Google and Apple all require suppliers to take steps toward carbon reduction or carbon neutrality, and by progressively increasing the use of low-carbon energy, Kaori should benefit from future collaborations with reputable partners. 3. Sale of green power: Self-generated green power can be sold for revenues.
Financial impact assessment	Increased revenues, cost reduction, attraction of capital, and new collaborative opportunities.

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Response strategies to climate change risks and opportunities

Risk response strategies

- Response strategies for extreme weather:
 1. Change stocking location: setting up stocking locations near customers may reduce risk of transport disruption. Kaori has implemented this practice in Europe, and is evaluating the possibility of implementing in other locations.
 2. Cover capacity shortfall with increase production efficiency: if work is suspended due to Typhoon, Kaori will evaluate the extent of delay and ask suppliers to increase production efficiency to make up for capacity shortfall, and thereby avert production halt due to supply disruption.
- Response strategies for negative feedback from stakeholders:
 1. Suppliers' conformity with ESG standards: search for suppliers that conform with ESG standards and are cost-competitive.
 2. Cover risky businesses with consistent product revenues: failure of some of Kaori's low-carbon products will indirectly impact mature segments that generate consistent revenues, such as the Fuel Cell Business. For this reason, Kaori will try to maximize revenues from mature segments in an attempt to cover the potential loss of revenue associated with transformation risk.
 3. Discontinuance of high-carbon brazing operations: these operations are expected to discontinue by the end of 2022, at which time the factories will be replaced with low-carbon equipment to engage in higher value-adding production activities.
- Response strategies for rising cost of raw materials and production activities:

Early preparation: Kaori will ask customers to forecast 2023 requirements in advance, and conduct internal analysis to determine raw material demand before negotiating with suppliers on the yearly supply contract. Making early preparations can potentially reduce transportation cost and secure supply of raw materials in a way that is helpful for production planning, efficiency improvement, and cost reduction.

Cost of risk response

- ✓ Increased operating cost
- ✓ Adjustment to capital expenditure and capital allocation



Execution strategies for opportunities

- Execution strategies for entry into new energy/carbon reduction markets:
 1. Invest into the production of low-carbon-footprint products: such as plate heat exchangers that make use of coolants of low global warming potential.
 2. Develop hydrogen power products: Kaori will continue research and development of hydrogen power products, and arrange trial productions and shipments according to customers' requirements.
 3. Development of immersion liquid cooling modules/systems: Kaori will continue making modular designs of its liquid cooling and immersion products, while at the same time maintain the flexibility needed to customize to the needs of different markets. By accumulating data on product design, the Company aims to stay competitive in the market.
- Execution strategies for development and expansion of low-carbon products and services:
 1. Development of light-weight products: by developing light-weight plate heat exchangers, Kaori hopes to lessen the use of raw materials and reduce product carbon emission.
 2. Use of low-carbon equipment: Kaori plans to cease all equipment of high carbon emission in 2022, and replace them with low-carbon equipment to engage in higher value-adding production activities.
- Execution strategies for use of low-carbon energy sources:

Installation of renewable energy system: Kaori plans to install additional photovoltaic systems at Kaohsiung Plant by the 4th quarter of 2022; the systems are expected to generate 18,448,369 kWh of power over 20 years to reduce 9,390,220 kg of CO₂ emission, which is equivalent to the absorption capacity of 948.51 hectares of forest.

Cost of opportunity response

- ✓ Increased operating cost
- ✓ Adjustment to capital expenditure and capital allocation



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