

Response to Climate Change

1 Basic Policy

[P94](#) NIPPON PAPER GROUP Environmental Charter

2 Achieving Carbon Neutrality in 2050

● Based on one of the basic policies of the 2030VISION, "respond to the rapidly changing social landscape including GHG emissions reduction and environmental issues," the Group is working on reducing greenhouse gas (GHG) and implementing green strategy to achieve carbon neutrality in 2050.

● The Group's GHG emissions reduction initiatives are based on three pillars: "fuel conversion," "energy conservation in the production and logistics processes," and "absorption and fixation of CO₂ through appropriate management of company-owned forests."

● In May 2023, the Group revised its original plan for the GHG emissions reduction target for FY2030 and decided to reduce GHG emissions (Scope 1 and 2) by 54% compared to FY2013*. The Group is also working toward obtaining certification of Science Based Targets (SBT) to realize transition to carbon neutrality that is consistent with the standards of the Paris Agreement.

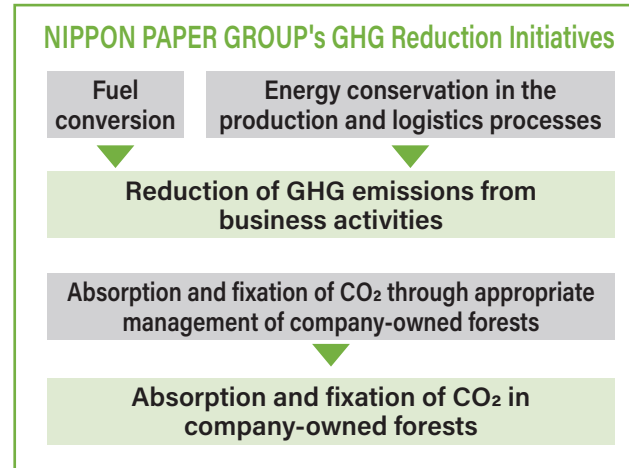
* Emissions related to production except for the Energy Business field

● To accelerate GHG emissions reduction, the Company introduced internal carbon pricing in FY2021. However, this operation has been temporarily suspended since FY2022, due to the soaring price of coal and other fuels.

● In the long term, the Group aims to achieve carbon neutrality by 2050 through a multifaceted approach that includes CO₂ absorption by forests, the introduction of carbon-free fuels and CCUS.

● In 2021, the Japan Paper Association, of which the Company is a member, established the "Countermeasures against Global Warming aiming at Net Zero GHG Emissions from the Paper Industry – Long-Term Version 2050" and is working to realize the creation of a carbon-neutral industry by 2050 through the proactive introduction of a range of measures aimed at reducing CO₂ emissions.

● The Company is actively working on various measures to realize the Vision advocated by the Japan Paper Association. Since FY2023, the Company has worked on the development of rules for calculating GHG emissions generated throughout the product lifecycle (carbon footprint).



● In the GX League, where groups of companies work together with government and academia to realize green transformation, the Company participates in initiatives such as the formation of market rules and voluntary emissions trading (Green Transformation Emissions Trading Scheme, or GX-ETS*). Its active implementation of measures to reduce GHG emissions resulted in reductions of up to 39% in FY2023. The Company will continue to consider and implement various measures to achieve the targets. In addition, the Company will actively contribute to the "creation of green markets" which is one of the GX League's activities, by providing society with materials and products that have a low environmental impact through GHG emissions reduction.

* Participating unit: Nippon Paper Industries only

Reduction Target (compared to FY2013) and Achievement through GX-ETS

	Target		Results
	FY2025	FY2030	FY2023
Scope 1 and 2	37%	52%	39%



NIPPON PAPER GROUP's FY2030 Targets

Reduce GHG emissions (Scope 1 and 2) by 54% compared with FY2013*

● Reduce fossil fuel use through energy saving and fuel conversion

Pursuit of green strategy

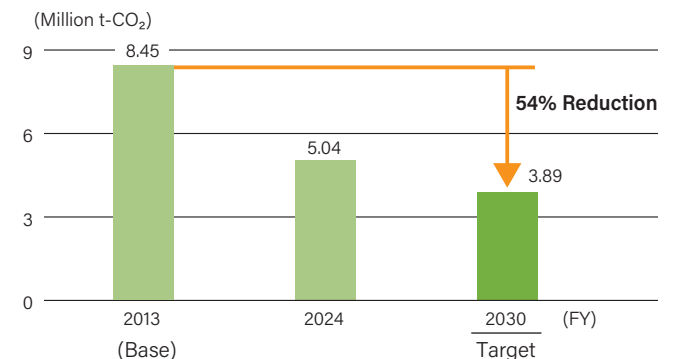
● Maximize forest value (30% improvement in CO₂ fixation efficiency at overseas plantations, compared to 2013)

● Establish a system to produce 10 million elite tree seedlings (FY2030) and register projects to create forest absorption J-Credits equivalent to 200,000 tonnes-CO₂ (FY2027) (increase forest absorption sources)

* Emissions related to production except for the Energy Business field

Carbon neutrality in 2050

GHG Emissions (Scope 1 and 2)



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GHG Emissions (Scope 3, FY2024)

	Category	Emissions (thousand t-CO ₂)
1	Purchased goods and services	1,891
2	Capital goods	125
3	Fuel- and energy-related activities (not included in scope 1 or scope 2)	1,142
4	Upstream transportation and distribution	741
5	Waste generated in operations	171
6	Business travel	4
7	Employee commuting	10
8	Upstream leased assets	Not applicable
9	Downstream transportation and distribution	216
10	Processing of sold products	317
11	Use of sold products	0
12	End-of-life treatment of sold products	1,168
13	Downstream leased assets	Not applicable
14	Franchises	Not applicable
15	Investments	Not applicable
	Others (upstream)	Not applicable
	Others (downstream)	Not applicable
	Total	5,785

Coverage: Nippon Paper Industries, Nippon Paper Crecia, Nippon Paper Papylia, Opal, Nippon Dynawave Packaging

Target business: Paper and Paperboard Business, Dairy-Life Products Business, Energy Business
Category11: It is assumed that paper and paperboard products, which are our main products, do not use energy during product use.

- In its Energy Business, the Company uses biomass fuel appropriately procured in Japan and overseas to expand its renewable energy supplies.
- In 2023, Nippon Paper Crecia, at its Kaisei Mill, introduced a solar-power generation facility under a Power Purchase Agreement (PPA), and from September 2024 it expanded the PPA model to the Tokyo Mill, Koyo Mill, and Kyoto Mill in succession, expecting an annual reduction of approximately 2,183 tonnes of CO₂.

CASE STUDY

Initiatives in the Energy Business

The Yufutsu Energy Center, one of Japan's most extensive power generation facilities that exclusively burn biomass, has been steadily operated since its launch in February 2023. As fuel, the plant uses wood chips, palm kernel shells (PKS), and unused wood, such as forest residue leftovers from Hokkaido. In addition, Nippon Paper Ishinomaki Energy Center carried out renovation work to convert to high biomass cofiring (completed in December 2023) and increased the biomass ratio from 26% to 42%. This will help the center to contribute more to reducing GHG emissions.

CASE STUDY

Business to Strengthen Biomass Product Competitiveness by Significantly Reducing the Amount of GHG Emissions (Nippon Paper Industries)

The Company's Ishinomaki Mill has launched a fuel conversion project to significantly reduce the amount of GHG emissions by installing a high-efficiency black liquor recovery boiler and discontinuing one coal boiler. This project was granted by the Ministry of Economy, Trade and Industry of Japan under the "Energy and Manufacturing Process Conversion Support Program for industries in hard-to-abate sectors." Not only does this securely reduce transition risks related to climate change but also provides society with biomass materials, which emit little GHG during manufacturing, along with environmental value. With this project, the Company will work on the "creation of green markets," achieving both carbon neutrality and economic growth—GX.

<Overview of the capital investment plan>

Installation location Nippon Paper Industries Ishinomaki Mill

Investment scale ¥55.0 billion (including government support funding of up to ¥18.3 billion)*1

Investment details High-efficiency black liquor recovery boiler with an evaporation production capacity of 390 t/h

Steam turbine and generator with an electricity production capacity of 56 MW

Start of operation Fourth quarter of FY2028

Amount of GHG emissions reduction*2 500,000 tonnes of CO₂e (accounting for 10% of the Company's emissions*3)

*1 At time of adoption

*2 Including reductions from the discontinuation of the existing coal boiler

*3 Emissions related to production except for the Energy Business field

In-house Production of Solid Fuel from Waste (Nippon Paper Industries)

At the Company's Otake Mill in Otake City, Hiroshima Prefecture, paper sludge*1 and wastepaper residues*2 generated in the production of containerboards are solidified within the mill and used as fuel. Since April 2019, the mill has also accepted and utilized plastic waste produced in Otake City. In-house production and use of waste fuel are beneficial not only by reducing coal consumption and contributing to regional shift to carbon neutrality, but also by extending the lifespan of final waste disposal sites.

*1 A sludge produced in the manufacture of paper, containing mainly cellulose fibers and minerals drained during the paper dewatering/drying process

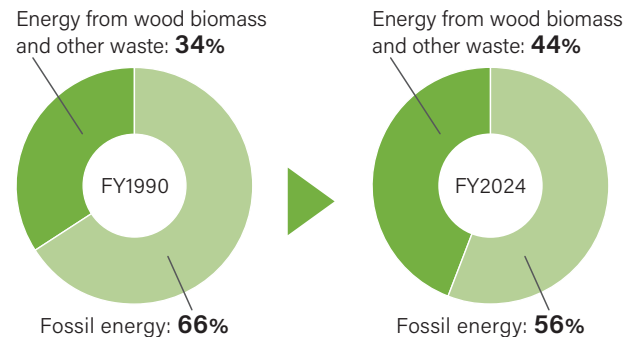
*2 Foreign matter produced when processing wastepaper

3 Fuel Conversion

- The Group uses black liquor (produced as a byproduct of the production of pulp) and construction waste materials as woody biomass fuels.
- In addition to woody biomass fuel, the Company actively uses waste fuels such as used tires and RPF*. Its non-fossil energy utilization rate in FY2024 was 44%.

* RPF: Refuse derived paper and plastics densified Fuel. This is a high-grade solid fuel made mainly from those paper and plastic industrial waste materials which are difficult to recycle (From the website of Japan RPF Industry Association)

Ratio of Fossil Energy Usage (calorie conversion)



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4 Energy Conservation in Production and Logistics Processes

1. Promotion of Energy Conservation in Production Process

- The Group is working hard to conserve energy in Japan and overseas by introducing high-efficiency equipment and reviewing its production processes.
- As for effective initiatives, the Group is expanding them to the mills of Group companies in Japan and overseas in an effort to increase their effectiveness.

<Examples of energy saving in production process>

- Optimization of the number of screens that remove foreign matter from materials and their capability
- Control of dissolved oxygen (DO) in the biological treatment tank in the drainage facility
- Utilization of a co-generation system (Use of steam with high temperature and pressure obtained in combustion at a boiler in power generation and production processes)

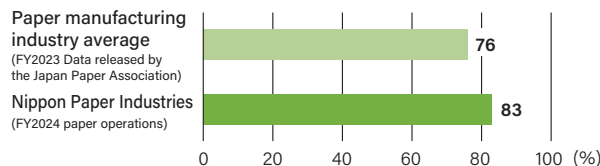
2. Promotion of Energy Conservation in Logistics Processes

From the perspectives of "improving loading efficiency" and "shortening transport distances," the Group is working on green logistics that will lead to a reduction in GHG emissions.

<Promoting energy-saving in logistics processes>

- Promoting a modal shift (Long-distance transportation by loading a large amount of goods at one time on railroads and coastal vessels)
- Promotion of joint transportation in cooperation with distributors

Comparison of Modal Shift Rates



Green Management Certifications*¹ (as of March 31, 2025)

Company name	Number of offices with Green Management certification* ²
NIPPON PAPER LOGISTICS	5
Nanko Logistics Support	1
HOUTOKU	1
NP-UNYU-KANTO	3
NP-UNYU-FUJI	2
NP-UNYU-KANSAI	1
NP-UNYU-IWAKUNI	2

*¹ A system in which the Foundation for Promoting Personal Mobility and Ecological Transportation acts as a certification body and certifies and registers businesses that are making efforts above a certain level based on the Green Management Promotion Manual

*² Awarded the "Green Management Certification Permanent Award" for all business sites that have been certified and registered continuously for 10 years from the first year of registration

Eco Rail Mark Certifications* (as of March 31, 2025)

Company name	Certification type
Nippon Paper Industries	Eco Rail Mark for companies
	Eco Rail Mark for products (paper, white paperboard)

* The certification, established by the Ministry of Land, Infrastructure, Transport and Tourism, applies to companies (and the products of companies) which use more than given percentage of rail freight transportation, which generates lower unit CO₂ emissions

CASE STUDY

Started Modal Shift Consolidation Transport with NISSIN FOOD PRODUCTS (Nippon Paper Industries)

In FY2024, the Company started modal shift consolidation transport with NISSIN FOOD PRODUCTS CO., LTD. ("NISSIN FOOD") to transport both roll paper and instant noodles in the same cargo between the Tokyo metropolitan area and the Kansai area. Before the initiative, products were transported to the Kansai area by each company's truck. Now, roll paper is loaded into containers at the Nakoso Mill first, and then instant noodles are loaded at the NISSIN FOOD PRODUCTS Kanto Plant. These products are transshipped to a domestic vessel provided by UTOC LOGISTICS CORPORATION and transported by sea from Tokyo Port to Osaka Nanko Port. With this shift, the Company will contribute to creating a sustainable society while reducing GHG emissions from transport by both companies and addressing the "2024 problem" (of reduction of transport capacity expected to result from regulations set to take effect in Japan that year) in the logistics industry, such as the diversification of transport methods.

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3. Absorption and Fixation of CO₂ through Appropriate Management of Company-owned Forests

- The Group is in compliance with the Clean Development Mechanism (CDM) under the Kyoto Protocol and considers that the forests absorb CO₂ while growing and the CO₂ is deemed emitted to the atmosphere when trees are harvested.
- The forests owned by the Group in Japan and overseas are harvested and replanted based on the business plan for the purpose of using resources.
- Part of the amount of CO₂ absorbed through proper forest management and continuous thinning has been certified as "J-Credits*" after inspection.

* A system in which the government certifies as "credits," the amount of CO₂ emissions reduced through the introduction of energy-saving equipment, the use of renewable energy, and the absorption of CO₂ through appropriate forest management
- The net amount of CO₂ absorbed by forests in company-owned forests in Japan and overseas (absorption amount minus logging amount) was about 1 million tonnes-CO₂ from 2022 to 2024, and the total fixation amount was about 32 million tonnes-CO₂ as of the end of 2024.
- The Group estimates that the amount of sequestered CO₂ in forests in environmental protection area established in plantation projects overseas is approximately 10 million tonnes-CO₂.

J-Credit Sales Performance

Company name	Credit name	FY2021	FY2022	FY2023	FY2024
Nippon Paper Industries	Fuji/Kitayama company-owned forest thinning promotion project	2 cases	2 cases	3 cases	1 case
Nippon Paper Lumber	Gunma/Sudagai company-owned forest thinning promotion project	2 cases	3 cases	3 cases	2 cases

CASE STUDY

Initiatives to Create 200,000 tonnes-CO₂ of J-Credits (Nippon Paper Industries)

As one of the themes to be covered in the 2030VISION, the Company has worked toward registering projects to create at least 200,000 tonnes-CO₂ of J-Credits by FY2027. In FY2024, the Company registered Itsuki, Company Forest Carbon Project and the Kosai City-Nippon Paper Industries Forest Partnership Project to make progress on the initiatives as planned.

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Information Disclosure on Climate Change Issues

In April 2021, NIPPON PAPER GROUP endorsed the Task Force on Climate-related Financial Disclosures (TCFD) to ensure appropriate disclosure of information on its response to climate change issues.

Governance

The Group has positioned the reduction of GHG emissions as a management issue and is working toward quantitative targets it set in 2008.

The Company's Board of Directors positions responding to climate change issues as vital for realizing the Group Mission. It receives reports on related activities from the Risk Management Committee (at least once a year) and from two executive officers, one in charge of GHG emissions reduction and one in charge of promotion of environmental management (at least four times a year), and supervises the execution of these operations.

Risk Management

The assessment of and responses to climate change-related risks are integrated into the Group's [risk management system](#) → P08 and managed by the Risk Management Committee. In order to carry out appropriate risk prediction, NIPPON PAPER GROUP Environmental Committee, established under the Risk Management Committee, collects and analyzes information in order to identify climate-related risks and promote measures against them. In addition, the Group has set up the Climate Change Strategy Working Group that gathers related information and anticipates risks.

Indicators and Targets (FY2030)

In the 2030VISION, the Group set a goal to achieve a 45% reduction in GHG emissions (compared with FY2013). However, as the path to achieving the target has become clearer due to the implementation of various measures and as societal demand for reducing GHG emissions is accelerating, the Group decided to accelerate its efforts toward decarbonization and in May 2023 raised the reduction target to 54%*.

* Emissions related to production except for the Energy Business field

Indicators	Targets			
	FY	2030	2024 (Implementation results)	2050
GHG Emissions Reduction Rate		54% Reduction (compared with FY2013)*	41% Reduction 5.04 million t-CO ₂	Carbon neutrality
Non-fossil energy use ratio		60% or more	44%	—

* Emissions related to production except for the Energy Business field

- Amount of investment to address climate-related risk: ¥52.0 billion
- Internal carbon price: Introduced in FY2021 but temporarily suspended since FY2022 due to the rising prices of coal and other fuels

Strategy and Scenario Analysis

The Group has envisioned a future society amid a backdrop of growing awareness of ESG issues. Using two types of scenarios (1.5°C scenario and 4°C scenario), the Company conducted qualitative and quantitative assessments of the impact that climate change risks and opportunities in 2030 and 2050 will have on its financial plans, focusing mainly on its business, and reported the results to the Board of Directors.

Scenario Analysis Methods

(1) Establishing an Image of Society 1.5°C scenario (RCP 2.6)

All kinds of policies will be introduced to keep temperature rise below 1.5°C, and at the same time, society as a whole will take action to limit temperature rise. As a result, temperatures will rise slowly, and therefore, by 2030, there will be little change from the current situation in terms of severe disasters, temperature rises, and precipitation patterns. In markets, production and consumption activities giving priority to environment conservation such as an expansion in ethical consumption, will increase.

4°C scenario (RCP 8.5)

No policies will be introduced to control temperature rise. While some stakeholders will take actions to limit temperature rise from the perspective of promoting ESG management, regardless of whether policies are introduced or not and regardless of what society as a whole is doing, society generally will not take actions to limit temperature rise. As a result, temperatures will

rise more rapidly than in the 1.5°C scenario, and the frequency of severe disasters will increase, temperatures will rise, and precipitation patterns will be more changeable in 2030 than in the current situation.

(2) Evaluation Items

Risk: likelihood of occurrence, timing of occurrence, timing of impact, financial impact

Opportunity: likelihood of occurrence, timing of occurrence, timing of impact, financial impact, market growth

Summary of Analysis Results

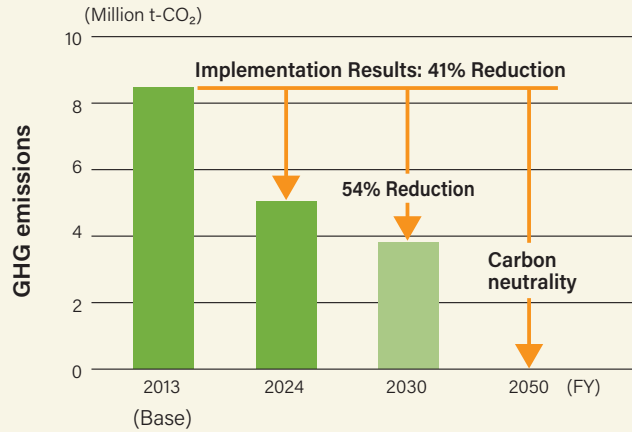
As the pulp and paper industry is energy-intensive, not only transitional factors, such as the introduction of policies and changes in market needs, but also physical factors, such as the increase in severe natural disasters, pose significant risks. Based on the results of analysis, the Company has been focusing on reducing GHG emissions through fuel conversion and energy conservation measures and advancing its green strategy. In particular, to address the increasing social demand to reduce GHG emissions and the trends of various policies, the Company brought forward the scenario presented in the 2030VISION and in May 2023 raised its GHG reduction target to 54% compared to FY2013*. The Company aims to ensure strategic resilience by promptly achieving the GHG reduction target.

At the same time, there are many opportunities for the Company to leverage its strengths to enter and grow in markets that are being created and expanded due to government policy introductions and changes in market needs. Moreover, in response to adaption to climate change, measures to establish multiple production bases will lead to sales expansion, and the development and sales of environmentally friendly and adaptable products that are needed by society will be a growth opportunity for the Company in markets where expansion is expected.

* Emissions related to production except for the Energy Business field

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NIPPON PAPER GROUP Plan for Shift to Carbon Neutrality



Period	Short-term	Mid-term	Long-term
Target	54% reduction compared with FY2013 (Scope 1 and 2)*		Carbon neutrality in 2050
Priority measures	Continuation and reinforcement of energy-saving measures Improve the basic unit by 1% or more compared to the previous fiscal year		
	Conversion to non-fossil fuels Non-fossil energy ratio of 60% or more by FY2030		
	Improved production efficiency Reorganization of production systems		Introduction of carbon-free fuels and CCUS
	Maximizing forest absorption of CO ₂ Sustainable forest management and utilizing breeding/propagation technology		

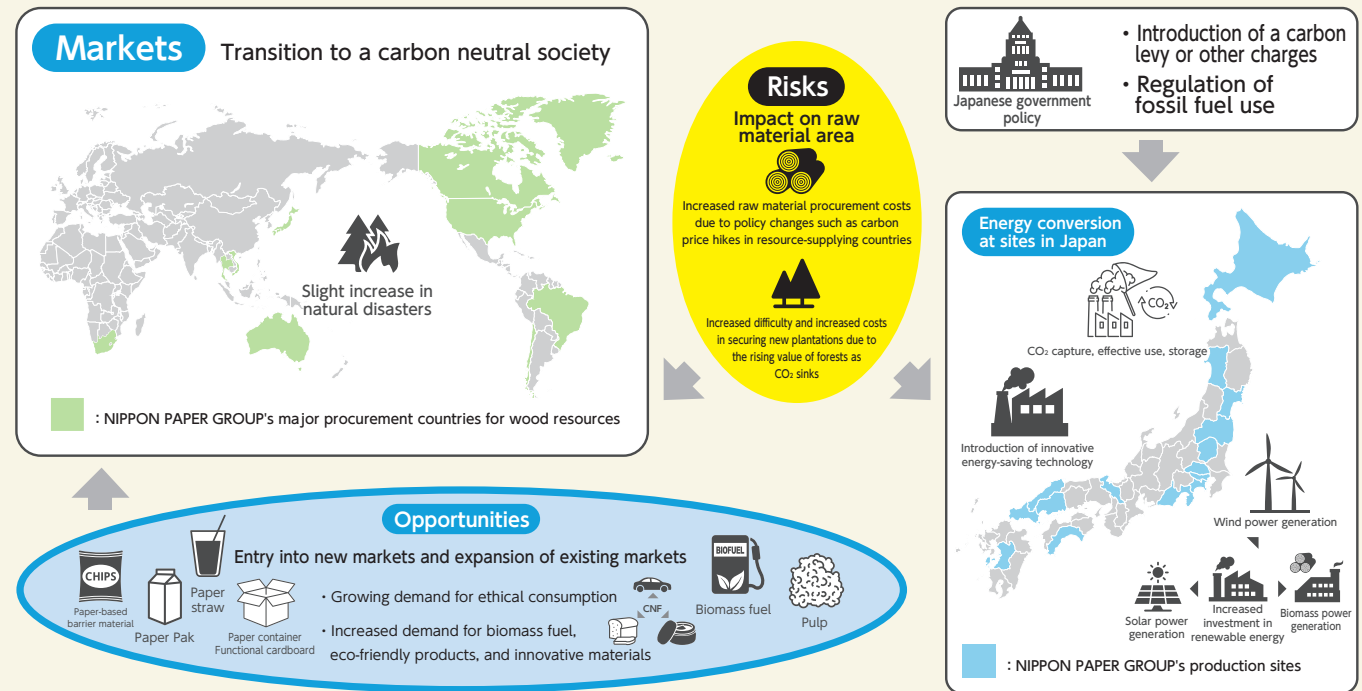
* Emissions related to production except for the Energy Business field

[1.5°C scenario]

2030

Costs, such as a carbon levy, increase.

On the other hand, new business opportunities such as biofuels, environmentally friendly products, and innovative materials will emerge.



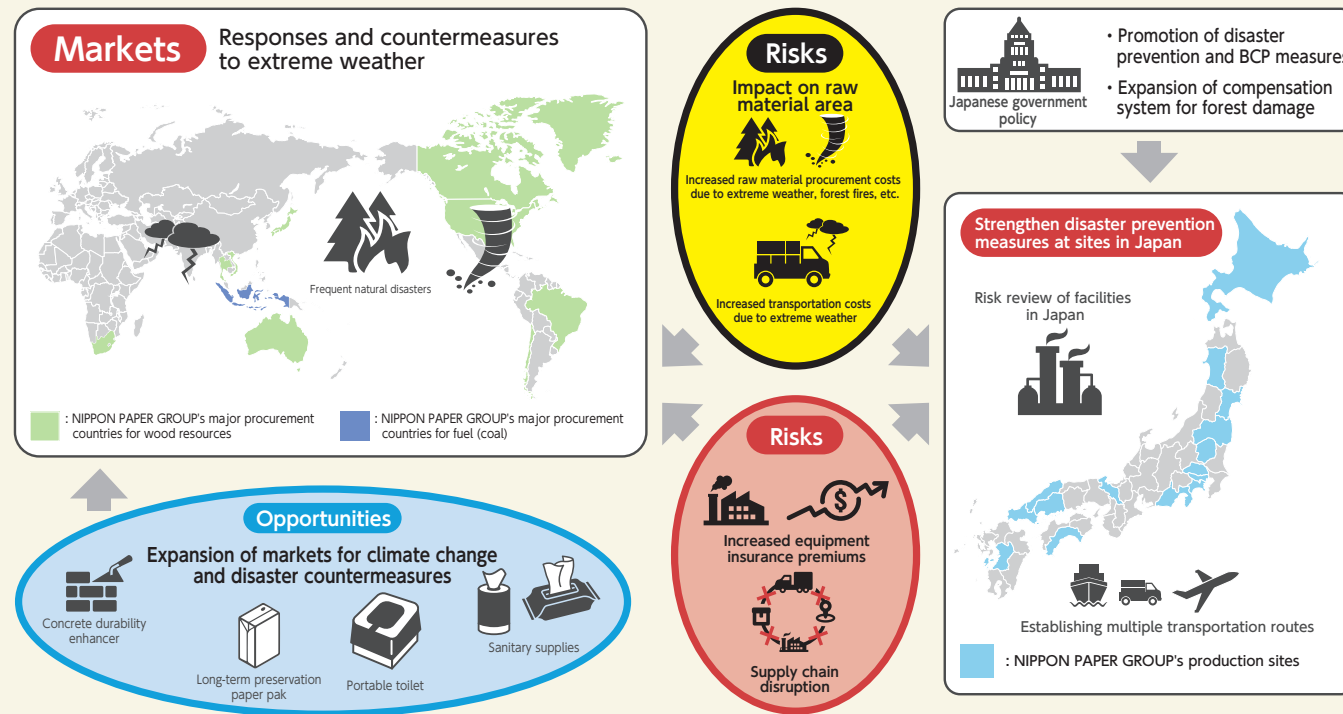
Response to Climate Change

[4°C scenario]

2030

Increased physical risk.

On the other hand, business opportunities for climate change and disaster-response products will expand.



Response to Climate Change

Climate Change-Related Risks

Risks as of 2030

Factors	Impact on the Group	Financial impact		
		1.5°C scenario	4°C scenario	
Transition factors	Policy introduction	Carbon prices and energy procurement costs will increase.	High*	Low*
		Capital investment costs for fuel conversion and energy conservation will increase.	High	Low
		Raw material procurement costs will increase.	High	Low
		Increased acquisition cost of plantation project sites.	High	Low
	Changes in market needs	Increased procurement costs for certified wood chips.	Medium	Medium
		Development costs and capital investment costs for reducing environmental impact will increase.	Medium	Low to Medium
Physical factors	Increase in the number of severe disasters (frequent typhoons and heavy rains)	Stoppage of raw material procurement, production, product transportation, etc., resulting in reduced production volume and delayed or halted deliveries of products.	Medium to High	High
		Procurement, manufacturing, and logistics costs will increase.		
		Increase in turbidity of rivers, etc., from which water is taken, resulting in production stoppage and delay or stoppage of deliveries of products.		
	Increase in temperature and change in precipitation patterns	Losses in the company's plantation assets.	Medium	High
		Raw materials will become difficult to procure and procurement costs will increase.		
		Costs for search for alternative materials and technology development will increase.		
		Sales volume decreases or sales price declines due to difficulty in maintaining quality.		

* Amount of impact: less than 10 billion yen (Low), 10 billion yen or more but less than 50 billion yen (Medium), 50 billion yen or more (High)
Qualitative evaluations, except for those marked with "*" ^{**}
Carbon prices are set based on the IEA's NZE (Net Zero Emissions) scenario

1. Transition Factors

1-1. Risks Mainly Due to the Introduction of Policy

<Hikes in carbon and fuel prices due to the introduction of carbon pricing policy>

In the 1.5°C scenario, the introduction of policies such as carbon levies, emissions trading schemes, and the prohibition of coal-fired power generation is expected to be the main factor in raising carbon prices and fossil fuel prices, which will increase fuel procurement costs. As the pulp and paper industry is energy-intensive, there is a risk that introducing these policies could significantly impact its financial planning.

Under the 4°C scenario, carbon prices will not increase and fossil fuel prices are not expected to rise significantly because no policies will be introduced, but changes in supply and demand for fossil fuel will occur and fuel prices will fluctuate. This is already part of the Company's normal risk management and the risk of being affected is considered small.

In response to the risk of higher fossil fuel prices expected in the 1.5°C scenario in which all manner of policies are introduced, to reduce this risk the Company will accelerate the shift to non-fossil fuels by maximizing the biomass procurement network of Nippon Paper Lumber, which has one of the most extensive timber procurement records in Japan.

Regarding the rise in carbon prices due to the introduction of emissions trading schemes and carbon levies, the Company aims to accelerate the reduction of GHG emissions to reduce the risk of impact on its financial plans related to carbon price rises as soon as possible. To reduce GHG emissions, the Company continues to implement energy-saving measures at its paper and paperboard mills to reduce coal consumption, with an index of improvement of 1% or more in energy consumption per unit each year. At the same time, the Company is also working on conversion to recycled fuels, such as biomass and waste fuels, and is maximizing the use of black liquor,* which is a carbon-neutral fuel.

By studying the reorganization of the production systems and GHG emissions reductions in an integrated manner, proceeding with the output reduction and shutdown of coal boilers, and transitioning to low-carbon consumption at an early stage, the Company will reduce, at an early stage, the risk of impact on financial plans related to carbon price hikes.

Although carbon prices are likely to increase in Japan in the future due to the introduction of emissions trading schemes and carbon levies, the Company will work to reduce risks by actively participating in the development of systems

and rules and other activities in the [GX League](#) **→P28** so that such policies will be conducive to corporate growth.

* Black liquor is comprised mainly of a wood component, lignin, and created as a by-product during the course of pulp manufacturing

<Changes in energy composition>

In the 1.5°C scenario, there is a risk that the demand for biomass fuels will increase due to policies to promote the introduction of renewable energy, causing fuel prices to rise and procurement costs to increase. At the same time, under the current FIT system, there is a risk that the procurement cost of wood chips for paper production will also increase due to competition with biomass fuels.

This phenomenon is already apparent, but under the 4°C scenario, no further policy tightening will take place, and price fluctuations will remain within the Company's normal risk management.

In response to the procurement risks associated with the increased demand for biomass fuel due to the introduction of various policies, the Company believes that it can procure biomass fuels stably and at a relatively attractive price by making maximum use of its Nippon Paper Lumber biomass procurement network, which has among the best wood procurement performance in Japan. With regard to wood chips for papermaking, the Company will reduce risks by securing raw materials and stabilizing purchase prices by strengthening relationships of trust based on our long track record with existing suppliers, and developing and adopting inexpensive local resources.

<Impact on raw material procurement>

Since the Company imports most of the raw materials necessary for its manufacturing from overseas, it may be affected by the policy trends of resource-supplying countries. In the 1.5°C scenario, there may be a risk of increased raw material procurement costs due to higher carbon trading prices arising from stricter policies in resource-supplying countries and CO₂ emissions levies imposed on raw materials and transportation.

By diversifying its supply sources, the Company is working to mitigate risks from geopolitical factors, policies in resource-supplying countries, and climate change.

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<Expansion of the carbon credit market>

In the 1.5°C scenario in which the world aims to become carbon neutrality (net zero CO₂), the market is expected to expand due to increased demand for carbon credits. Along with this, the demand for credits from forest absorption is also expected to be higher. As forest investment aimed at creating credits increases, there is a risk that the price of land suitable for plantation will rise, increasing the cost of acquiring land suitable for the Company's plantation business. This trend is already being seen.

On the other hand, under the 4°C scenario, some stakeholders may obtain plantations in view of government policies, social trends, and the promotion of ESG management. However, risks to the plantation business from such activity are considered insignificant.

While expanding the plantation business requires large areas of land suitable for plantation, and rising land prices may pose a risk to the Company, the amount of fixed CO₂ can be increased to generate credits by harnessing the Company's strengths, including utilizing its unique technology for breeding and proliferating highly efficient CO₂-fixing trees and promoting the plantation business in cooperation with third parties.

1-2. Risks Arising Primarily from Changes in Market Needs

<Rapid increase in demand for environmentally friendly products>

Under the 1.5°C scenario, demand for environmentally friendly products is expected to increase, and there is a risk that technology development costs, capital investment costs, etc. will increase in response to this demand while products and services with high environmental burden will no longer be selected in the market. In the future, the market is expected to favor products and services derived from renewable raw materials, due to expectations of being environmentally friendly. Therefore, the Company believes that by accurately identifying and forecasting customer needs and further promoting the "paperization" that it is already working on, the Company will be able to promote the replacement of materials with renewable biomass materials, reduce risks associated with changes in market needs, and at the same time seize this as an opportunity to expand its business. The Company will further accelerate reduction of GHG emitted over the course of product manufacturing. At the same time, by taking advantage of the fact that its production sites are dispersed throughout Japan, the Company will offer products that contribute to the reduction of GHG emissions throughout the supply chain by

shortening the transportation distance to delivery destinations and reducing GHG emissions during transportation through the use of multiple production sites.

In addition, regarding changes in market needs, the 1.5°C scenario predicts that greater public awareness of the importance of proper forest management and use will result in even greater demand than now for certified paper made from sustainable forest resources, such as those verified by a forest certification system. Certified wood chips are a limited resource, and higher demand may result in the risk of increased procurement costs.

To reduce this risk, the Company will continue to maintain good relationships with certified wood suppliers, while at the same time working to expand certified resources by obtaining certification for new plantations and supporting its suppliers, thereby ensuring a stable and efficient supply of certified resources.

2. Physical Factors

2-1. Risks Caused by an Increase in Severe Disasters

<Damage to production sites and distribution networks>

Under the 4°C scenario, severe disasters such as typhoons and torrential rains are expected to become more frequent, and the probability of damage to production sites and distribution networks is expected to increase, so the risk of a decrease in production volume due to temporary production stoppages and delays or stoppages in deliveries will become greater. In addition, in the event that the power supply is interrupted due to damage to power lines or other essential services, there is a risk that production sites that do not have their own power generation facilities will be forced to temporarily suspend production.

Although the Company cannot control the occurrence of natural disasters, it is working to reduce risks by establishing elaborate systems to ensure business continuation, such as backup systems for production and inventory controls. The Company is also trying to reduce risks by promoting measures to adapt to climate change, such as bulking up equipment installation sites and installing in-house power generation equipment for use in times of disaster.

<Deterioration of water intake quality>

The Company's main business, pulp and paper, uses water in its manufacturing process. If the water quality (turbidity) of the rivers, etc. from which water is taken deteriorates due to typhoons or heavy rains, product quality cannot be maintained, and there is a risk that production will be

suspended until the water quality improves. This event is already occurring, but is expected to become more frequent under the 4°C scenario.

Natural disasters are unavoidable, but the Company is taking measures to ensure that operations can continue as long as possible by strengthening its water intake purification facilities and methods, and at the same time, working to reduce risks by developing a detailed system for business continuity in case production is suspended.

2-2. Risks Caused by Rising Temperatures and Changes in Precipitation Patterns

<Forest fire occurrence>

As temperature rises, under the 4°C scenario, forest fires are expected to occur more frequently around the world.

As the Company has developed a business model based on forest resources, fires in forests owned by wood chip suppliers or company-owned forests could result in a significant risk in terms of stable procurement of raw materials and procurement costs. Moreover, if a company-owned forest is destroyed by fire, there is a risk that its value will decrease, and the profitability of the Company's plantation business is likely to deteriorate.

In order to mitigate this risk, the Company is strengthening the fire prevention and extinguishing systems in its own forests, and decentralizing its forests and suppliers to multiple countries and regions.

<Deterioration in plant growth>

The growth of plants is greatly affected by temperature and precipitation. Since the Company uses plant-derived raw materials such as wood chips, various types of pulp, starch, etc., there is a risk that procurement of raw materials will become difficult and procurement costs will rise in the 4°C scenario where plant growth is expected to decline due to rising temperatures and changes in precipitation patterns. In the event that the Company has difficulty in procuring raw materials, it would be hard to maintain the quality and function of its products, which may be a risk that its sales volume and price decrease. However, the Company is working to reduce these risks by diversifying its raw material supply sources and continuing to search for alternative materials.

Response to Climate Change

Opportunities for Business Expansion

Opportunities as of 2030

Factors		The Group's opportunities		The Group's strength		Market growth	
						1.5°C scenario	4°C scenario
Transition factors	Renewable energy will be introduced	Demand for power generation facility locations will increase	<ul style="list-style-type: none"> Company-owned forests and land in Japan, etc. Procurement network for domestic wood materials Biomass fuel production technology Procurement network for non-fossil fuels Utilization of existing boilers 	Expansion	Stable		
		Demand for biomass fuels will increase					
		Waste-derived fuels, such as RPF (refuse derived paper and plastics densified fuel), waste tire-derived fuel, and other fuels, will be utilized more often					
	Next-generation vehicles are becoming increasingly popular	Storage batteries will spread and demand for raw materials for storage batteries will increase	<ul style="list-style-type: none"> CMC Technology and Production Facilities CNF Technology and Production Facilities 	Significant expansion	Expansion		
		Demand for CNF will increase due to the need to reduce the weight of automobiles					
	Policy introduction (e.g., carbon levies, changes in energy mix)	Carbon credit market will be activated	Demand for forest absorption credits will increase	<ul style="list-style-type: none"> Company-owned forests in Japan Elite tree seedling business Overseas plantation business Forest management technology Breeding and propagation technology 	Significant expansion	Stable	
		Resources will become more difficult to obtain due to stricter policies in resource-supplying countries	Demand for domestic lumber will increase	<ul style="list-style-type: none"> Company-owned forests in Japan Elite tree seedling business Procurement network for domestic wood materials Collaboration with Stakeholders 	Expansion	Stable	
			Demand for wastepaper will increase	<ul style="list-style-type: none"> Wastepaper procurement network (including unused wastepaper) Collaboration with Stakeholders 			
		Carbon recycling is advancing (utilization of carbon resources)	Increasing demand for carbon fixation and utilization by forests		<ul style="list-style-type: none"> Breeding technology for high-efficiency CO₂-fixation trees Company-owned forests in Japan Elite tree seedling business Overseas plantation business 	Expansion	Stable
	Growing demand for chemical raw materials using wood-derived CO ₂		<ul style="list-style-type: none"> Biomass-derived CO₂ supply infrastructure (recovery boilers) Chemical CO₂ fixation and utilization technology 	Significant expansion	Stable		
Transition to a decentralized society	Increasing local production and local consumption of energy	Small scale fuel demand will increase	<ul style="list-style-type: none"> Procurement network for domestic wood materials Company-owned forests in Japan 	Expansion	Stable		
	Decentralization of product consumption	Increased opportunities to sell products with reduced CO ₂ emissions during distribution while handling shipments from each production site		Multiple production sites	Expansion	Stable	
Changes in market needs	Demand for biomass materials will increase as the need for paperization increases due to decarbonization	Demand for biomass materials will increase as the need for paperization increases due to decarbonization	<ul style="list-style-type: none"> Woody biomass materials development technologies (CNFs, paper-based packaging materials, liquid containers, functional corrugated cardboards, biocomposites, etc.) Technologies to extract and utilize lignin Technology for recycling unused wastepaper 	Significant expansion	Expansion		
		Demand for lignin products will increase					
	Demand for environmentally friendly products will increase	Demand for paper made from sustainably sourced forest materials will increase	<ul style="list-style-type: none"> Track record of procuring certified forest materials Relationship of trust with excellent suppliers Sustainable forest management 	Expansion	Expansion		
		Demand for products that reduce GHG emissions from livestock farming will increase	Cellulose material utilization technology	Expansion	Stable		
		Demand for halogen-free resins with low environmental burden will increase	Increased demand for functional coating resin "AUROREN [®] "	Expansion	Expansion		
		Demand for sustainable aviation fuel will increase	<ul style="list-style-type: none"> Technology for producing bioethanol from wood resources Multiple kraft pulp manufacturing facilities 	Expansion	Expansion		
Physical factors	A rise in demand for stable product supply	Growing demand for purchasing from suppliers with established flexible BCP systems		Multiple production sites	Expansion	Significant expansion	
	Increase in the number of catastrophic disasters	Overseas raw material suppliers and distribution networks are damaged	Demand for domestic wood materials will increase. Demand for elite tree seedlings will increase due to greater area for reforestation in Japan	<ul style="list-style-type: none"> Company-owned forests in Japan Elite tree seedling business Wastepaper procurement network Procurement network for domestic wood materials Forest management technology Breeding and propagation technology Procurement network for non-fossil fuels Collaboration with Stakeholders Unused wastepaper recycling technology 	Expansion	Significant expansion	
			Demand for wastepaper will increase				
			Domestic demand for waste-derived fuels and biomass fuels will increase				
	Increasing need to strengthen buildings	Demand for concrete admixtures and other materials will increase		Admixture for concrete (fly ash) technology	Expansion	Expansion	
	Demand for long-term food storage will increase	Increasing demand for aseptic paper cartons for long-term storage of contents		Total system supplier	Expansion	Expansion	
Increase in temperature and change in precipitation patterns	Decline in plant growth	Demand for environmental stress tolerant trees will increase		Breeding and propagation technology	Expansion	Expansion	

Response to Climate Change

1. Transition Factors

1-1. Opportunities Associated with the Introduction of the Policy

<Increase in demand for renewable energy>

In the 1.5°C scenario, policies are expected to promote the introduction of renewable energy, which will increase the demand for locations to install solar, wind, and small hydroelectric power generation facilities, as well as the demand for biomass fuels.

The Company owns its forests and land in Japan, and it has an opportunity to expand its business of supplying renewable energy in cooperation with power generation companies. Increasing demand for biomass fuels will provide an opportunity to expand the biomass fuel sales business by making maximum use of the procurement network of Nippon Paper Lumber, one of the largest wood collection and sales companies in Japan.

In the 1.5°C scenario, where a rapid increase in demand for renewable energy is expected, the Company believes that it has the tangible and intangible assets, such as biomass boilers and facilities and technologies that use black liquor, a carbon-free fuel, to meet this demand, and can quickly respond to this market expansion and capture business opportunities.

<Dissemination and expansion of next-generation vehicles>

Since the transportation sector accounts for about 20% of Japan's CO₂ emissions, it is predicted that next generation vehicles such as electric vehicles will become more popular in the future.

In 2021, the New Industry Creation Hatchery Center (NICHe) at Tohoku University announced that it had discovered that CNF*'s have a powerful energy storage effect, and that it had succeeded in developing the world's first dry, lightweight supercapacitor by using the Company's TEMPO-oxidized CNF to create an uneven surface with a controlled CNF surface shape. The Company participated in the Expo 2025 Osaka, Kansai, Japan, from June 10 to 16, 2025, as Nanocellulose Japan (NCJ) and unveiled a prototype device that uses this CNF supercapacitor in the Future Life Experience exhibition facility of the Future Life Expo. In addition to enabling high-voltage charging in a shorter period of time than conventional lithium-ion batteries, CNF-based energy storage is a technology that is expected to solve the problem of increasing energy storage capacity, which is currently an issue for electric vehicle batteries, and could make a significant

contribution to the spread of electric vehicles, etc.

The global market for supercapacitors was worth US\$5.16 billion in 2023 and is predicted to grow at a compound annual growth rate (CAGR) of 20.35% from 2024 to 2032 to reach US\$27.33 billion by 2032**.

In addition, with the spread of next-generation vehicles, the need for lighter-weight vehicles is expected to be even greater in the future. The market for composite material fiber-reinforced plastics (FRP), which reinforce a polymer matrix with fibers such as glass, carbon, or aramid, is projected to be worth US\$85.69 billion in 2023 and US\$92.8 billion by 2024 and is predicted to grow at a CAGR of 8.38% to reach US\$150.6 billion by 2030*3. While glass (glass fiber) and carbon (polymer-reinforced carbon fiber) are the most widely used fibers for reinforcing materials at present, due to the spread of electric vehicles, etc., there is a rising need for lightweight materials to achieve even greater fuel efficiency. The relative gravity (weight per unit volume) of CNF is lower than that of other fibers, making it an extremely lightweight fiber. Furthermore, CNF is a carbon-neutral, plant-derived material with multifaceted value in environmental conservation, as it suffers less performance degradation due to material recycling than glass fiber-reinforced plastics does. The global market for CNF is projected to be worth ¥6.29 billion in 2024. However, it is projected to expand to around ¥7.7 billion in 2025 as more businesses use it for composite reinforcement material, including in automotive components (from 132 tonnes in 2024 to 221 tonnes projected for 2025)*4.

The dissemination of next-generation vehicles is a highly feasible event in both scenarios, with or without the introduction of policies, but in the 1.5°C scenario, the diffusion will be rapid due to policy support. The Company believes that it has the technological superiority and technological development capability to respond to this rapid spread, and that it can promptly respond to the rapid market expansion and grow the Company's business.

*1 Cellulose Nano Fiber

*2 Straits Research "Supercapacitors Market Size and Share Report, 2032" (report dated July 22, 2024)

*3 360iResearch "Fiber-Reinforced Plastic Market by Material (Aramid, Basalt, Carbon), Application (Gas Distribution Networks, Oil Flow Lines, Water Injection Lines), Industry - Global Forecast 2025-2030" (report dated October 31, 2024)

*4 Yano Research Institute "CNF (Cellulose Nanofiber) Market 2024"

<Expansion of the carbon credit market>

In the 1.5°C scenario where the world is aiming for carbon neutrality (net zero CO₂), the carbon credit market is expected to expand due to increased demand, and the demand for forest absorption credits is expected to increase accordingly.

The Company owns approximately 90,000 hectares of its forests in Japan and is expanding its overseas plantation business in various countries. In addition to forest management technology cultivated through the management of company-owned forests in Japan and overseas plantation business, the creation of carbon credits by utilizing the Company's unique breeding and propagation technology that enables highly efficient CO₂ fixation is expected to enable the Company to enter the expanding market and capture business opportunities. Specifically, the Company will work toward registering projects that will create 200,000 tonnes of J-Credits in company-owned forests in Japan by FY2027. The Company is committed to contributing to the formulation of rules regarding how forest absorption credits should be shaped and utilized from a forest owner's perspective, through such initiatives as the GX League advocated by the Ministry of Economy, Trade and Industry.

<Strengthen the policies of resource-supplying countries>

Since a significant portion of its raw materials and fuel for manufacturing are imported from overseas, the Company could be impacted by policy trends in resource-supplying countries. In the 1.5°C scenario, there may be a risk of increased raw material procurement costs due to higher carbon trading prices arising from stricter policies in resource-supplying countries. On the other hand, the Company owns forests in Japan and utilizes such resources, and at the same time, it operates a seedling business that contributes to creation of new resources. The Company has also established diversified procurement networks in Japan for resources such as fuels and wastepaper. Accordingly, the Company is able to make a shift to utilization of domestic resources. In addition, the Company has already become one of the top-ranked companies in Japan in terms of the domestic timber utilization rate.

The Company is working with stakeholders to create a closed-loop recycling system for wastepaper and at the same time, it is leveraging its strengths to make efficient and stable use of diverse resources, such as utilizing technologies to make use of paper that is difficult to recycle, such as used paper containers for food and beverage applications.

In order to develop a used paper container recycling business, the Company began operating recycling facilities for food and beverage paper containers at the Fuji Mill in 2022, and its Group Company also began operating shredding and washing plant in 2023.

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The Company is working on recycling paper containers used in restaurants, shopping malls, and sports events such as marathons, increasing the recycling volume every year. By 2030, the Company aims to stably collect and utilize unused wastepaper (12,000 tonnes per year), such as used paper containers. Under the 1.5°C scenario, the Company expects the impact of the policies of resource-supplying countries to occur within five years, but the Company believes it can maintain and expand its business by taking advantage of its access to domestic resources.

<Promotion of carbon recycling >

In the 1.5°C scenario, carbon recycling, which is the process of capturing and reusing CO₂ from the atmosphere, is expected to progress rapidly, along with the reduction of GHG emissions through the reduction of fossil fuel use. In the overseas plantation business, the Company uses wood materials as a woody biomass resource by continuing the cycle of planting, nurturing, harvesting (wood chip production), and then replanting, allowing forests to freshly absorb and fix CO₂ from the atmosphere every year. As an example, the annual production volume of wood chips by AMCEL (Brazil), the Group's plantation company, is equivalent to approximately 1.5 million tonnes of forest CO₂ absorption. By positioning its overseas plantation business as a carbon recycling business and promoting the use of its proprietary breeding and propagation technologies that enable highly efficient CO₂ fixation, the Company can improve its CO₂ absorption and fixation capacity and contribute to the recycling of carbon resources, not just in the Company's own forests.

The Company aims to improve the CO₂ fixation efficiency in overseas plantation business by 30% by FY2030, as compared with 2013. The Company intends to secure future resources for the Company by contributing to improvement of productivity of forests across the globe and an increase in CO₂ fixation through provision of our breeding and propagation technologies, and plantation technologies to other companies. As an example, the Company entered into a strategic partnership agreement concerning an afforestation project in Indonesia with Marubeni Corporation in 2022, and commenced provision of technological support. In addition, the Company aims to secure about 100,000 hectares of new plantation resources mainly in Asia. In Japan, the Company has developed

tree breeding and propagation technologies based on its knowledge accumulated overseas to promote a business that produces selective seedlings of Japanese cedar and cypress that are called elite trees. Elite trees have their excellent properties, with growth rates more than 1.5 times faster and pollen production less than half that of conventional varieties. The Japanese government also supports the spread of elite trees to expand the forestry industry and combat pollen allergies. The Company aims to establish a system to produce 10 million elite tree seedlings by 2030. By promoting the widespread use of elite tree seedlings, the Company will not only ensure a stable supply of domestic raw materials, but also contribute to promoting the carbon recycling in Japan, expanding GHG sinks, enhancing resource security and self-sufficiency, supporting balanced land development through the return of economic benefits to local regions, and more. Since CO₂ derived from biomass obtained from sustainable forests is considered carbon neutral, carbon negativity (negative emissions) can be achieved by separating and recovering the CO₂ generated from the combustion of biomass fuels and storing it underground or recycling it. In the future, with the practical application of technologies for CO₂ separation, underground storage, and recycling, the Company can expect to achieve carbon negativity using CO₂ generated from biomass boilers and black liquor-fueled recovery boilers operating in Japan.

1-2. Opportunities Associated with Transition to a Decentralized Society

Under the 1.5°C scenario, the transition from a metropolitan-intensive society to a decentralized society is expected to proceed. As a result, local production and local consumption of energy will increase, and small-scale demand for fuel will likely increase. This trend has already begun, but it is expected to accelerate under the 1.5°C scenario. In response, the Company will have the opportunity to expand its biomass fuel sales business by making full use of the biomass procurement network of Nippon Paper Lumber, which is one of the largest wood collection and sales networks in Japan. In addition, with the shift to a decentralized society, the places of consumption of products are also expected to become more dispersed.

In the 4°C scenario, regardless of the temperature rise, there will be a shift to decentralization, but at a slower rate than in the 1.5°C scenario, in part due to the impact of increased risk of infectious diseases. In both scenarios,

the Company believes that it can maintain and expand its business by taking advantage of the fact that the Company's mills are dispersed throughout Japan and by responding to the decentralization.

1-3. Opportunities Arising from Changes in Market Needs

<Increase in demand for biomass materials>

The Company has built a business model based on carbon neutral forest resources, which enables it to provide products that meet the needs of customers who prefer environmentally friendly products. The shift in packaging materials from plastic to paper has continued as one way to address the marine plastics problem. Under the 1.5°C scenario, this trend is expected to accelerate further in conjunction with the problem of climate change, leading to increased demand for the use of biomass materials in a variety of products other than packaging materials.

As part of the Company's strategy to meet the increasing demand for biomass materials, it is promoting "paperization" under the slogan, "Let paper do what it can do." In addition to developing and marketing "SHIELDPLUS[®]," a paper packaging material with unprecedentedly excellent barrier properties against oxygen and water vapor, the Company has developed and begun selling other products, including "Waterproof Liner," a multifunctional containerboard that is a sustainable packaging material alternative to styrofoam boxes, "SPOPS[®]," a replaceable paper container that reduces plastic use by replacing plastic pouches with paper containers, and "School POP[®]," a strawless drinking carton. "SPOPS[®]" has been adopted mainly for hotel amenities in Japan since 2019, when products using this container were launched, and it was also adopted in South Korea in 2024. The Company has promoted it globally as an environmentally friendly container made in Japan. "School POP[®]" was first adopted by a dairy product manufacturer in January 2021, and since then, it has been increasingly adopted amid growing environmental awareness. In FY2025, about 600 million School POP[®] containers are expected to be used, accounting for 40% of school milk cartons. The Company also developed "LiterLyte[®]," which uses base paper that is 8% lighter than conventional products, as a new line of paper carton NP-PAK products, and has supplied it since October 2023. As a reduction in pulp use also reduces GHG emissions, the Company has promoted it as an environmentally friendly product to expand its application.

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Moreover, biomass composites, which are made of "KC FLOCK®," powdered cellulose created by finely grinding pulp, and plastic, are under consideration for various applications as a material with low environmental burden, as the Company can reduce the use of plastic while improving the strength by using biomass composites. It believes that, by providing powdered cellulose suitable for composite material, it can respond to changing market needs and capture and expand business opportunities.

<Increased demand for products derived from sustainable forests>

The Company confirms the legality and sustainability of all woody raw materials it procures and ensures traceability through its supplier questionnaires, site visits and audits. Additionally, all of its woody raw materials are either FM (Forest Management) materials under the forest certification system or risk-assessed and controlled wood.

In addition to utilizing the forest certification system, the Company has adopted a due diligence system to confirm the legality and sustainability of its woody raw materials, and it has established a system that enables it to promptly respond to inquiries from customers regarding raw material procurement. Furthermore, in order to supply certified paper, for which demand has been increasing in recent years, the Company has been working to strengthen its procurement system to secure certified forest materials. This includes securing new plantation sites, mainly in Asian regions, and establishing NPL Resources Asia as a base for resource procurement activities in the region.

The Company's sustainable procurement of forest resources ensures reliability through supply chain management, which is based on the trust it has built with its suppliers over many years, and the creation of forest resources. In 2022, the Group updated its "Principles and Basic Policies Concerning Raw Materials Procurement" to enhance its content and established the "Wood Resources Procurement Guidelines" under that policy. The Company continues to strengthen its efforts to further improve the reliability of the wood-based raw materials used and will continue to meet customer requests. With the aim of fully utilizing its wood resources, the Company produces pulp and various products, including industrial dispersants and additives for lead-acid batteries made from lignin. The Company is committed to continuing to provide environmentally friendly products that use sustainable wood resources as raw materials.

<Increase in products that reduce greenhouse gas emissions>

The amount of greenhouse gases from livestock accounts for about 30% of the total emissions from the agriculture, forestry, and fisheries sectors in Japan, and research is being conducted to reduce these emissions.

By utilizing its unique technology to extract from wood chips only cellulose fibers that are easily digestible by cattle, the Company has sold "Genki MoriMori™," a livestock feed high in fiber content and nutritional value. Feeding cows with easily digestible feed is expected to lower the amount of excrement and reduce GHG emissions generated when compost is made. Reducing GHG emissions from the livestock industry has become a global issue. In the 1.5°C scenario, efforts to address the problem may accelerate and create greater market demand for feed with this reduction effect. The Company believes that it can capture this business opportunity by utilizing the technologies it has accumulated in the Pulp and Paper Business.

<Increased demand for sustainable aviation fuel (SAF)>

SAF*¹ is often used for decarbonization in the aviation sector, but the supply of waste cooking oil-derived SAF, which is currently the most common, is limited. Therefore, the market for ethanol-based SAF (ATJ)*² is expected to grow. This ethanol is assumed to be bioethanol, which is derived from corn or sugarcane, but it induces competition with food use, and its domestic demand is covered by imports.

Having strengths in the procurement of domestic wood materials that produce less GHG emissions due to short transport distances, the Company makes pulp-based non-food bioethanol using these materials to respond to climate change and expand the range of applications of pulp. Specifically, the Company has launched the "Morisora Project" with the slogan "Turning the Power of Forests into the Power of Flight" in collaboration with Sumitomo Corporation and Green Earth Institute Co., Ltd., and is considering starting to produce tens of thousands of kiloliters of bioethanol using domestic wood materials per year by FY2030. Japan Airlines Co., Ltd. and Airbus SE have also joined the project, and all the companies will work together on producing SAF from bioethanol in Japan.

At the same time, the Company will raise the environmental value of non-

food bioethanol made from domestic wood materials as a pilot operator of the SAF Certification Task Group of the Public-Private Council to Promote the Introduction of Sustainable Aviation Fuel (SAF) and a member of "ACT FOR SKY," which aims to commercialize and promote the use of SAF produced in Japan. By incorporating its propagation business of elite trees, which absorb more CO₂ and grow faster than conventional varieties, into this project by leveraging the "Power of Forests," the Company will contribute to the circulation of forest resources, the revitalization of local communities, and the creation of a carbon neutral society.

*1 SAF: Sustainable Aviation Fuel. This sustainable aviation fuel significantly reduces CO₂ emissions in its lifecycle, from production and collection to manufacturing and combustion, compared to conventional fuels, and can be utilized as is with existing infrastructure

*2 ATJ: Alcohol to Jet. This refers to aviation fuel made from alcohol (ethanol or butanol)

2. Physical Factors

2-1. Opportunities Due to the Increase in the Number of Severe Disasters

<Increase in demand for stable supply of products>

Severe weather disasters, such as typhoons and torrential rains, are expected to cause damage to production sites and distribution networks, further intensifying the demand from customers to maintain a stable supply of products.

In response, the Company is working to formulate a detailed system for business continuity. It is developing a system that will allow it to manufacture products at multiple plants. Since severe disasters are expected to become more frequent in the 4°C scenario, the Company believes that it can take advantage of the fact that its mills are dispersed throughout Japan to accelerate the transition to a more flexible production system and further strengthen its system for business continuity, thereby leading to business expansion.

Also, in the event that its overseas raw material suppliers are damaged and opportunities for domestic timber, wastepaper and domestic non-fossil fuel use expand significantly, the Company can take advantage of its strong timber, wastepaper and fuel procurement network as well as its efforts to secure wastepaper raw materials in collaboration with its customers. Furthermore, it believes that it can also maintain and expand its business by utilizing its unused wastepaper recycling technology and making extensive use of domestic resources.

Response to Climate Change

<Increase in demand for long-term storage food containers>

The market for containers for long-term storage is expected to grow, as local governments and households are becoming increasingly concerned about the importance of storing emergency food supplies to prepare for severe disasters that are expected to occur not only in a 4°C scenario but also in a 1.5°C scenario.

In addition to "FUJIPAK[®]," which enables room-temperature distribution and long-term storage of beverages and tofu, the Company sells a "non-aluminum FUJIPAK," which allows room-temperature distribution without using aluminum foil. This product has drawn attention as an environmentally friendly container that improves recyclability and reduces GHG emissions. The Company has also developed and launched "NSATOM[™]" as a new container designed for solid-particle, long-fiber, and high-viscosity beverages, which can hold a wider variety of contents and has a long-term storage function. As paper containers capable of long-term storage are believed to help eliminate plastic and reduce food waste, the Company will continue to develop new containers that meet market needs and strengthen its system of stable supply.

2-2. Rising Temperatures and Changing Precipitation Patterns

<Increasing demand for environmental stress tolerant plants>

Plants cannot move on their own, which means that environmental changes like higher temperatures can stress them and hinder their growth. So, efforts have been made for many years to breed plants that can withstand high temperatures, salt damage, dry conditions, and the like.

Under the 4°C scenario, the demand for environmental stress tolerant plants may increase because the appropriate areas for plant growth are expected to change and decrease due to climate change.

The Company has been developing tree breeding and propagation technologies for many years and has developed a number of proprietary technologies for these.

Because tree breeding takes time, it will be difficult to expand the business rapidly in 2030, but the Company will work to expand its business quickly after 2030, when the value of forests will further increase toward carbon neutrality.