

2024

# Disclosure Report Based on Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)

Nippon Yusen Kabushiki Kaisha



World's First Commercial-Use Ammonia-Fueled Vessel (Ammonia-fueled tugboat Sakigake completed in August 2024)

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## Promotion of Disclosure Aligned with TCFD's Recommendations

We view climate change as an important management issue. In December 2018, we expressed our support for the TCFD's final recommendations, and we are currently working to promote appropriate information disclosure aligned with said recommendations. This report explains our analyses, strategies, and initiatives related to climate change in the four basic categories of "governance," "risk management," "strategy," and "metrics and targets."

The material provided in this report reflects the content of the NYK Decarbonization Story, which clearly expresses the NYK Group's high aspirations and commitment to actively promote decarbonization initiatives. This report also reflects Progress Report 2024, an annex to the NYK Group Decarbonization Story that summarizes the progress made up to October 2024. Additional material reflected includes the NYK Group ESG Story, CDP response, NYK Report 2024 (an integrated report published in Nov. 2024), and long-term future forecast scenarios that serve as a compass for management, among other materials. All these materials were discussed and formulated through the preparation of NYK's medium-term management plan "Sail Green, Drive Transformations 2026 — A Passion for Planetary Wellbeing" released in March 2023.

June 2022, First Edition

April 2023, Second Edition

April 2024, Third Edition

Nov. 2024, Fourth Edition, Dec.2024 Correction of Fourth Edition

# Governance

## Disclosure Report Based on TCFD Recommendations

### 1. Introduction

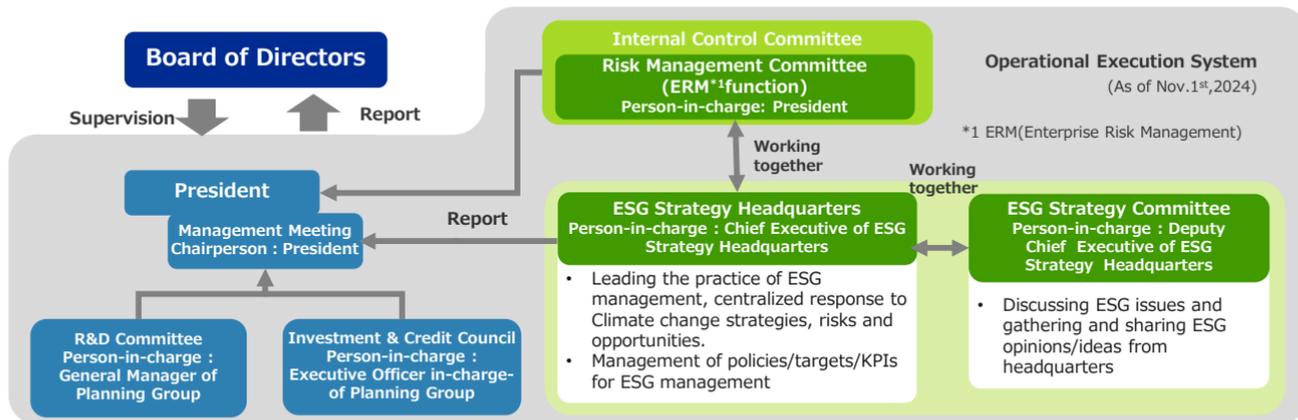
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## Execution

- The ESG Strategy Headquarters and ESG Strategy Committee were established in April 2023. The president is the chief executive of NYK's ESG strategy. Under the president, the Executive Vice President serves as the chief of the headquarters and promotes ESG-related work, including climate change countermeasures.
- The chief executive and the deputy chief executive of the ESG Strategy Headquarters participate in Management Meeting which is one of the important meeting bodies, and each General Manager of ESG Strategy Headquarters participate in Investment and Credit Council and R&D Committee which are also important meeting bodies. Under the long-term management strategy that places ESG management at its core, the ESG yardsticks are reflected in management decisions on individual project.
- The ESG Strategy Committee (composed of executive officers representing each headquarters/division and outside experts) discusses a wide range of ESG-related themes, including climate change measures, in a concrete and strategic manner, such as setting company-wide policies and targets and checking the progress on action plans formulated by each headquarters. The ESG Strategy Headquarters compiles the contents discussed by the ESG Strategy Committee and submits it for discussion to the Management Meeting and Board of Directors as necessary.
- Climate change risks are managed by the ESG Strategy Headquarters working together with the Risk Management Committee.

- The Company has transitioned from a Company with a Board of Auditors to a Company with Audit & Supervisory Committee as of the Ordinary General Meeting of Shareholders held on June 21, 2023. As the environment surrounding our business changes even more, the Company speed up decision-making by delegating decision-making authority for important business execution to the Executive Directors and improve the effectiveness of board meetings by focusing on deliberations at the Board of Directors meetings on matters that lead to an increase in corporate value.
- In addition, the Company established a Board of Directors comprising a certain number of independent outside directors\*<sup>1</sup> and an Audit & Supervisory Committee with a majority of independent outside directors in order to strengthen the monitoring function of the Board of Directors.

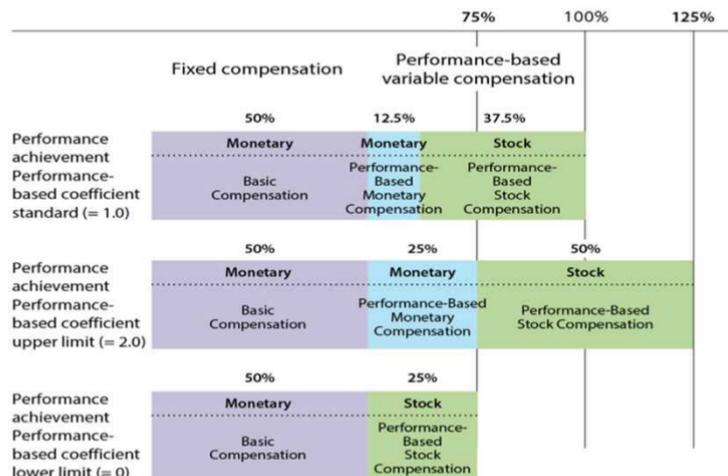
\*1: The Company have appointed 12 directors, 6 of whom are outside directors in accordance with the Company's independence standards.

## Performance-Based Stock Compensation Plan

- The Company introduced a performance-based stock compensation plan in fiscal 2016 to provide a highly transparent and objective executive compensation plan. In fiscal 2022, the Company partially revised the details of said plan with a view to further accelerating ESG management and establishing shared interests between executives and shareholders over the medium to long term.
- The Company use stock price indices\*<sup>2</sup> as an indicator for calculating the number of shares related to the performance-based portion, as well as the Company's own ESG indices\*<sup>3</sup> based on its ESG policy. The performance-based coefficient shall vary between 0.0 and 2.0 depending on the degree of achievement of each index.

\*2: Stock price indices : Relative TSR, Total Shareholder Return (compared to TOPIX growth rate and competitors TSR)

\*3: Non-financial indices : Status of progress on materiality initiative for safety, environment, and human resources based on "NYK Group ESG STORY", and status of compliance discussed qualitatively and quantitatively, with degree of achievement comprehensively evaluated, by the Compensation Advisory Committee. Based on the evaluation, they are determined by the Board of Directors.



(Note) The above percentages are assumed values in each case, and they may vary depending on each position.

For more details, please refer to the link <https://www.nyk.com/english/profile/gvn/action/>

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## Core Strategies and Response to Climate Change

NYK has integrated ESG into its management strategy and aims to contribute to resolving social and environmental issues from a long-term perspective. In March 2022, the Company's Sustainable Growth Study Task Force formulated scenarios and strategies from a very long-term perspective by looking ahead to the business environment approaching 2050. With the core strategy of "ambidexterity" in the medium-term management plan announced in March 2023, we are engaging in the further development of existing core businesses and the exploration of new growth businesses, aiming to improve the profitability of each business and achieve sustainable growth by bringing value to customers, contributing to a sustainable society, and balancing investment and earnings. Furthermore, in Nov. 2023, we announced the NYK Group Decarbonization Story, which analyzes risks and opportunities related to climate change, details strategies for sustainable growth, and provides newly requested environmental values.

(Link : <https://www.nyk.com/english/esg/envi/decarbonization/>)

### Medium-term Management Plan Further development of existing core businesses

We will promote low-carbon and decarbonized investment in our own vessels ahead of other companies to enhance our environmental advantage and competitiveness.

### Exploration of new growth businesses

In growth fields where the impact of climate change is neutral, and in fields where growth is expected due to climate change responses, etc., we will actively develop and invest in businesses based on the knowledge we have cultivated through existing core businesses and develop them into pillars of earnings.

### NYK Group Decarbonization Story

Under the resolve to lead the world's decarbonization efforts towards the realization of a sustainable society, we have explicitly demonstrated, both internally and externally, a strong commitment and proactive stance in pursuing high aspirations and initiatives for decarbonization.

We have formulated a series of measures aimed at reducing GHG emissions, including the direction of these efforts, goal setting, and transition plans, in addition to developing a concept for sustainable growth.

## Resilience of the Strategies

We incorporated the core strategies into our business and investment plans on a timeline up to 2050 and estimated the impact in terms of the financial aspect using multiple scenarios. As a result, even under the 1.5°C scenario, it is expected that the decline in earnings in existing businesses due to climate change can be covered by an increase in earnings in new growth businesses. Therefore, we have judged that our strategy has a certain degree of resilience at this stage. Going forward, we will continue to review the scenarios that form the prerequisites as appropriate and strive to improve the resilience of our strategies.

# Strategy

## Risks and Opportunities Related to Climate Change

We are striving to ascertain the various risks and opportunities expected to be brought about by climate change and are working to strengthen our competitiveness while confirming the impact on our business from a long-term perspective. Including responses to tightening government regulations, the Company expects that it will become even more necessary to take measures in various areas, such as adopting new technologies. In addition, as climate change progresses, natural disasters such as rising temperatures, typhoons, and floods are expected to intensify. Although there is a possibility that these disasters may affect our business domains and pose risks, we recognize that if we respond appropriately, we can strengthen our competitiveness and create new growth opportunities. Based on this recognition, we have organized the risks and opportunities related to climate change and identified risks of particularly high importance, taking into account the degree of impact and importance, as well as interest from stakeholders.

## Risks and Opportunities of High Importance

We identify and analyze the climate-change-related risks and opportunities of high importance that may have a financial or strategic impact on our business. We formulate and implement appropriate strategies not only to reduce the impact of risks but also to expand competitiveness and business opportunities. We identified high-priority transition risks, physical risks, and opportunities, analyzed their impact based on two climate change scenarios, and confirmed our strategy for responding to the risks and taking advantage of the opportunities.

# Strategy

## 【Risks and Opportunities of High Importance and the Company's Strategies】

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Risks/Opportunities		Impact on the Company	Level of impact		Strategies of the Company
			1.5°C Scenario	2-3°C Scenario	
Transition risk	Introduction of carbon pricing	<b>Risk</b> Tighter GHG emission regulations by the IMO and each country's authorities may increase the burden of investment in low-carbon technologies. In addition, there is a possibility that operating costs will increase due to the taxation of GHG emissions from vessels operated by the Company.	S	S	In anticipation of the tightening of regulations and introduction of carbon pricing in the future, with the aim of securing an environmental advantage, the Company will (1) reduce GHG emissions from ships by improving operational efficiency through DX and promoting the introduction of LNG-fueled vessels, (2) reduce GHG emissions by more than 80% via investing in ammonia-fueled vessels, and (3) progressively proceed with the switch to biogas, synthetic methane, biofuels or synthetic fuels for some types of vessels. By 2050, investment in low-carbon and decarbonized vessels is expected to be on the scale of approximately 2.1 trillion yen (as of 2021). Meanwhile, regarding a portion of the carbon costs corresponding to GHG emissions that are expected to remain, and the costs of investing in and using low-carbon and decarbonized fuels on vessels, we shall proceed with the transfer of such costs into ocean freight rates in an appropriate manner.
			Opportunity	<b>Securing seafarers for LNG-fueled and next-generation fuel vessels</b>	
<b>Opportunity</b> The demand for highly-skilled seafarers will increase, which could create new business opportunities for ship management companies with these personnel.	L	M			

Risks/Opportunities		Impact on the Company	Level of impact		Strategies of the Company
			1.5°C Scenario	2-3°C Scenario	
Transition risk	Changes in shipment and transportation demand	<b>Risk</b> Demand for existing energy resources with high GHG emissions is expected to decrease, and there is a risk of a decrease in revenue opportunities in the dry bulk energy transportation business.	L	M	The Company transports a wide range of cargo, including general consumer goods, automobiles, energy resources, mineral resources, agricultural, forestry, and fishery products. These items currently constitute a well-balanced business portfolio. However, based on forecasts of future changes in cargo movements, we are striving to strengthen our management resilience by not only strengthening existing core businesses, but also exploring new growth businesses. (By 2050, we plan to make strategic investments of 3.6 trillion yen to further develop existing core businesses and 1.2 trillion yen to explore new growth businesses (as of 2021).)
		<b>Opportunity</b> In light of the increase in demand for renewable energy, the offshore wind power value chain, and the transportation business of hydrogen, ammonia, biofuel, etc. is expected to expand.	L	M	
Transition risk	Rapid changes in customer Trends	<b>Risk</b> There is a risk of customer attrition due to delays in efforts to reduce GHG emissions.	L	M	The Company is actively promoting investment in low-carbon and decarbonized vessels ahead of other companies. The number of vessels announced so far has reached a total of 123. (As of Sep. 2024, this includes 47 container ships, 25 car carriers, 23 bulkers, 22 tankers, and six other types of carriers.) As of 2021, we expect a total of 2.1 trillion yen in ship decarbonization investment by 2050, but we plan to review the scenarios and investment plans as appropriate in light of social trends, advances in decarbonization technology, etc.
		<b>Opportunity</b> Growing demand for marine transportation services that have low GHG emissions could favor companies that are ahead of the curve in related investments.	L	M	

# Strategy

## [Risks and Opportunities of High Importance and the Company's Strategies]

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Transition risk	<b>Stranded assets due to delays in Decarbonization of our fleet</b>	<p><b>Risk</b></p> <p>Delays in the decarbonization of the fleet (including the earlier-than-expected popularization of zero-emission vessels) may lead to existing fuel vessels and LNG-fueled vessels becoming stranded assets.</p>			<p>The Company has positioned LNG-fueled vessels as a realistic solution to reduce GHG emissions in the near future and plans to introduce zero-emission vessels that use next-generation fuels with a lower environmental impact, such as ammonia and hydrogen, in the future. The full-scale popularization of such zero-emission vessels is expected to occur in the mid-2030s, but since there is a possibility that the LNG-fueled vessels under construction by the Company may become stranded assets due to the earlier-than-expected popularization of zero-emission vessels and other factors. Development has commenced on ammonia-ready LNG-fueled vessels that can be efficiently converted from LNG-fueled vessels, enabling a phased approach to decarbonization while utilizing existing assets. This includes the identification of challenges and impact assessments for the use of drop-in fuels, such as biofuels in existing vessels and bio-LNG in LNG-fueled vessels, aiming for a gradual transition to low-carbon alternatives.</p>
Transition risk	<b>Cost of funding activities</b>	<p><b>Risk</b></p> <p>We may not be able to utilize green financing(*), etc., and may have to conduct funding activities under conditions that are less competitive compared to our competitors.</p>			<p>In addition to earnestly addressing environmental issues including climate change, we strive to raise funds through green financing* by disseminating our policies externally through our website and integrated reports (the NYK Report). The scale of funds acquired has reached tens of billions of yen. We will continue to work on strengthening environmental investment, utilizing green financing by disseminating information to a wide range of stakeholders, and aiming to achieve a balance between investments and earnings.</p>
Opportunity		<p><b>Opportunity</b></p> <p>By securing our environmental advantage, there is an opportunity to utilize green financing and reduce funding costs.</p>			

Risks/Opportunities		Impact on the Company	Level of impact		Strategies of the Company
			1.5°C Scenario	2-3°C Scenario	
Physical risk	<b>Frequent occurrences and intensification of abnormal weather and marine phenomena</b>	The vessels we operate are constantly exposed to the risk of encountering stormy weather in various marine regions of the world. In particular, the impact of typhoons, monsoons, and giant cyclones in high-latitude regions is significant, and in recent years, cases of vessels being affected just by typhoons have been on an increasing trend. If a vessel encounters stormy weather, there may be additional fuel costs associated with route changes to avoid the storm zone, or additional fuel costs associated with increased speeds to maintain the transportation schedule.	S	S	<p>Simulations of various scenarios on the impact to our fleet suggest that the risk of encountering severe weather conditions is expected to increase only marginally in the future. However, prioritizing safe navigation, we will continue to implement measures to minimize delays and fuel consumption due to adverse weather conditions. (Specific Measures)</p> <ul style="list-style-type: none"> <li>• Support for determining the optimal new route using our unique system</li> <li>• Implementation of stormy weather avoidance simulations by vessel operator and seafarers working on land, who will send instructions to the vessel</li> </ul> <p>Although the determination of the new route and the final decision on the vessel's speed are made under the captain's authority, risks and costs are minimized by having vessel operator responsible for ship operations on land share with the vessel crew a comprehensive set of information, which includes the impact on revenue and expenses, adjustments to the estimated arrival date, customer requests, etc. We view such measures as part of ESG management put into practice by the reduction of fuel consumption.</p>
Physical risk	<b>Rising sea levels</b>	Among the assets held by the Company, real estate, warehouses, terminals, and port facilities located in low-lying areas may become unusable due to rising sea levels as a result of climate change. In addition, as an operational risk, due to the limited number of operating ports, there is a possibility that ships may incur demurrage, etc.	S	M	Many of the terminals and port facilities used by vessels operated by the Company are operated by public entities or third parties in each region. Therefore, the assets that may be affected by a sea level rise can be said to be limited in terms of the scale of the Company's overall assets. A quantitative assessment has been conducted for the risks posed by climate change-induced floods and wind damage to the assets we manage. Furthermore, we have implemented strategies for the properties and warehouses located in low-lying areas, such as advancing their leasehold conversion, to ensure flexible responses to the increasing risks of sea-level rise.

# Strategy

## [Risks and Opportunities of High Importance and the Company's Strategies]

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<b>Physical risk</b>	<b>Climate Change Impacts on the Panama Canal</b>	<p>The Intergovernmental Panel on Climate Change's 6th Assessment Report (IPCC-AR6) predicts that the area around Panama will become hotter and drier. There is concern that the risk of drought will increase in the future, as the water level in Gatun Lake, the source of the Panama Canal, has been dropping in recent years, causing drought problems. As global warming is expected to continue to increase the range of annual rainfall fluctuations, there is concern that the risk of both flooding and drought will increase further.</p> <p>We used statistical and hybrid models to perform a simulation of the water level of Gatun Lake for the period 2016 – 2023. Based on the water level under future climate conditions that take into account the effects of climate change, we predicted future changes in four types of indicators related to the difficulty of ship navigation. In all scenarios, the water level of Gatun Lake will decrease as global warming progresses.</p>			<p>As a result of evaluating the medium- to long-term impact of climate change on the Panama Canal, we found that there would be a negative impact on our business model. (Specific Measures)</p> <p>The Panama Canal Authority has begun taking measures to maintain water levels, such as saving water and discharging water from the secondary reservoir lake, Lake Alajuel. We will monitor the situation and, if necessary, call on the Panama Canal Authority to make further improvements.</p>

# Strategy [Scenario Analysis (By major business)]

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Due to climate change and the accompanying regulations and policies, etc. of each country, the shipping industry, which is deeply involved in the economic activities of society as a whole, is highly likely to be exposed to major changes. These represent risks and opportunities for the Company. We select business fields that we believe will have a particularly large impact or a high degree of importance and use climate change scenarios of different increases in temperature, namely the 1.5°C and 2-3°C scenarios, to organize our business environment awareness and strategies for 2050.<sup>(\*)</sup>

<Business environment recognition (by type) ● Red : Decrease of more than 50% ● Orange : 1- 50% decrease ● Gray : Largely unchanged (10% decrease - 10% increase) ● Green : More than 10% increase>

Scenario	1.5°C Scenario	2-3°C Scenario
<b>Dry bulk transportation</b>  <div style="background-color: #34495E; color: white; padding: 5px; text-align: center; margin-bottom: 10px;">Basic Policy</div>	<p>The Company transports a wide range of dry bulk cargo, including cargo for which cargo movement is expected to increase due to climate change (minor bulk such as copper, etc., biomass), cargo for which movement is expected to decrease (coal), and cargo for which demand is expected to increase due to the increase in population and middle class in emerging countries (grain). With this business portfolio as our strength, we aim to achieve sustainable growth in the dry bulk business, which accounts for half of the world's ocean cargo movements, by securing the environmental advantage of our dedicated fleet and building a business model suitable for incorporating cargo with increasing cargo movement, while flexibly responding to changes in the medium- to long-term business environment.</p>	
<b>Coal transportation</b>  <div style="background-color: #3498DB; color: white; padding: 5px; text-align: center; margin-bottom: 10px;">Business Environment</div>	<div style="border: 1px solid #3498DB; border-radius: 15px; padding: 5px; display: flex; justify-content: space-around;"> <span style="color: red; font-weight: bold;">Decrease</span> <span>Unchanged</span> <span>Increase</span> </div>	<div style="border: 1px solid #3498DB; border-radius: 15px; padding: 5px; display: flex; justify-content: space-around;"> <span style="color: red; font-weight: bold;">Decrease</span> <span>Unchanged</span> <span>Increase</span> </div>
	<p>Marine transportation of coal fuel will be significantly reduced due to replacement with natural gas and renewable energy with low GHG emissions. Demand for coking coal is also expected to decrease due to the progress of electric furnaces for steelmaking and the introduction of the hydrogen reduction method.</p>	<p>Compared with the 1.5°C scenario, the rate of decline is expected to be smaller, but demand is still expected to decrease by at least 50%.</p>
<div style="background-color: #9B59B6; color: white; padding: 5px; text-align: center; margin-bottom: 10px;">Strategy</div>	<p>While promoting the low-carbonization and decarbonization of our own ships, we will maintain an appropriate fleet size that meets demand. Meanwhile, we will incorporate biomass, which is renewable energy, and grain, for which demand is expected to increase due to economic development and population growth in Asia and Africa, as alternative dry bulk cargo.</p>	

(\*) For each climate change scenario, we referred to a virtual model based on current estimates of possible developments made by a third-party organization.  
 1.5°C scenario: A scenario where net-zero emissions are achieved globally by 2050, and the temperature rise (compared to pre-industrial levels) is kept to 1.5°C  
 2-3°C scenario: A scenario where the range of the temperature rise (same as above) is kept to 2-3°C in 2050

# Strategy [Scenario Analysis (By major business)]

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## Scenario

1.5°C Scenario

2-3°C Scenario

### Energy transportation

Basic Policy

In our energy-related businesses, we aim to maintain and expand our business presence by promoting low-carbonization and decarbonization while supporting the entire value chain. Specifically, we will focus on capturing growth opportunities for renewable energies, such as the hydrogen and ammonia businesses, and on capturing demand for new fuel transportation (such as biofuels and hydrogen carrier transportation) in line with the progress of energy transitions. At the same time, we will appropriately respond to the risk that fossil fuel transport vessels may become stranded assets.

### Oil transportation

Business Environment

Decrease ●    Unchanged    Increase

Oil demand as a whole is expected to decline significantly due to the progress of electrification in the land transportation sector, etc., but a certain amount of demand for petrochemicals, etc. is expected to remain.

Decrease ●    Unchanged    Increase

Although the decline in demand on the whole is no different from the 1.5°C scenario, the overall rate of decline is expected to be smaller as demand is expected to be more robust, particularly in developing countries.

Strategy

While enhancing competitiveness by promoting the low-carbonization and decarbonization of our fleet, we will transport crude oil with thorough consideration for the environment through safe operations. Also, to maintain an appropriate fleet size according to the market size, we will continue to pay close attention to see which scenario plays out.

### LNG transportation

Business Environment

Decrease ●    Unchanged    Increase

Introduction of renewable energy, which has low GHG emissions, is expanding, and LNG transportation demand is expected to decline from the second half of the 2030s onwards.

Decrease    Unchanged ●    Increase

As a "bridge" solution with low GHG emissions, LNG transportation demand is expected to expand until around 2050.

Strategy

As an important low-carbonization energy source during the transition period to a decarbonized society, demand for LNG is expected to expand until the second half of the 2030s, even in the 1.5°C scenario. We will support the LNG value chain, pay close attention to trends in transportation demand around the world that fluctuate depending on the scenarios, and proceed with investment while balancing the continued accumulation of stable profits and the risk of stranded assets.

# Strategy [Scenario Analysis (By major business)]

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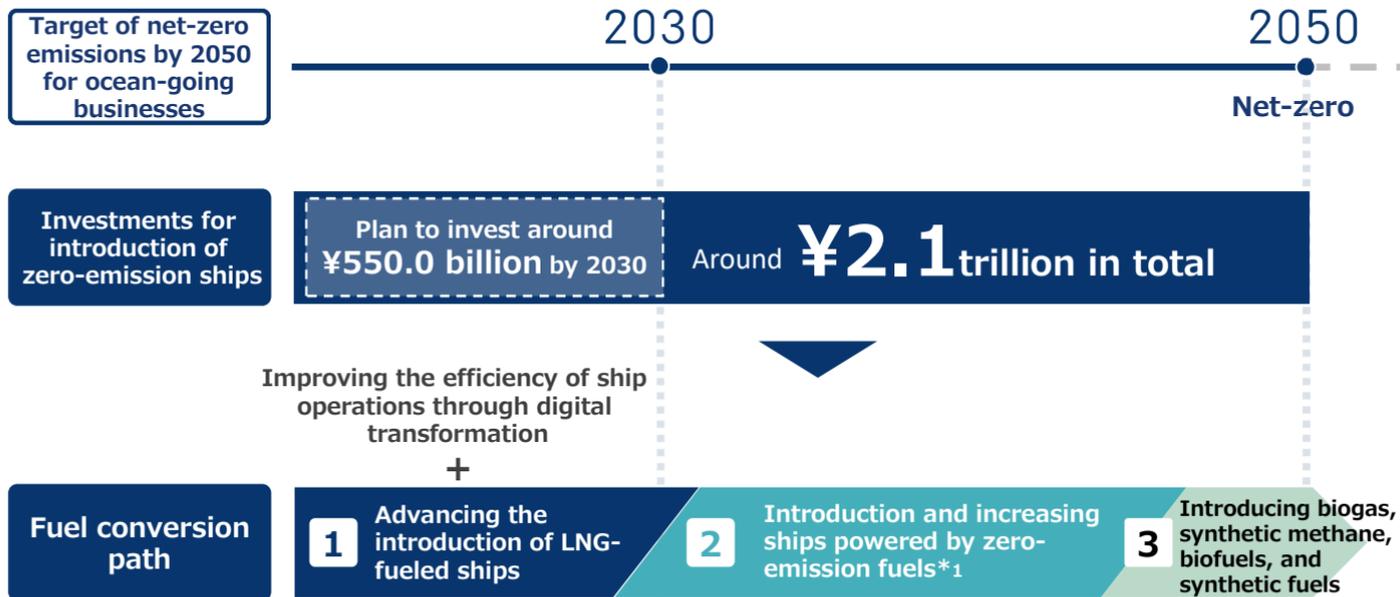
Scenario	1.5°C Scenario	2-3°C Scenario
<b>Automobile transportation</b>	<p>Decrease <span style="display: inline-block; width: 100px; border-bottom: 1px solid black; position: relative; top: -5px;"> <span style="position: absolute; left: 50%; transform: translate(-50%, -50%); background-color: #FFC000; border-radius: 50%; width: 10px; height: 10px;"></span> </span> Unchanged Increase</p> <p><b>Business Environment</b></p> <p>Due to the tightening of decarbonization regulations and the saturation of consumption in major markets (Europe, the United States, Japan and China), global new automobile sales are expected to decrease by at least 10% from the current level. With the advancement of electrification in automobiles, production areas will become more diversified, and there is a possibility that the distance of marine transportation will also change.</p> <p><b>Strategy</b></p> <p>As the movement to conduct a life cycle assessment on GHG emissions in the automotive industry progresses, we aim to evolve into a shipping company of choice by promoting the low-carbonization and decarbonization of our automobile transport fleet and securing an environmental advantage.</p>	<p>Decrease <span style="display: inline-block; width: 100px; border-bottom: 1px solid black; position: relative; top: -5px;"> <span style="position: absolute; left: 50%; transform: translate(-50%, -50%); background-color: #A9A9A9; border-radius: 50%; width: 10px; height: 10px;"></span> </span> Unchanged Increase</p> <p>Compared to the 1.5°C scenario, the decline in global new automobile sales is expected to be smaller, but demand is expected to decline by almost 10%.</p>
<b>General consumer goods transportation</b>	<p>Decrease <span style="display: inline-block; width: 100px; border-bottom: 1px solid black; position: relative; top: -5px;"> <span style="position: absolute; left: 50%; transform: translate(-50%, -50%); background-color: #90EE90; border-radius: 50%; width: 10px; height: 10px;"></span> </span> Unchanged Increase</p> <p><b>Business Environment</b></p> <p>The growth rate is expected to slow down even though cargo movement is expected to continue increasing due to economic growth and population growth in emerging countries. The impact of climate change on demand is expected to be neutral.</p> <p><b>Strategy</b></p> <p>We will provide logistics solutions that contribute to the decarbonization of our customers' supply chains and aim for sustainable growth of our business.</p>	<p>Decrease <span style="display: inline-block; width: 100px; border-bottom: 1px solid black; position: relative; top: -5px;"> <span style="position: absolute; left: 50%; transform: translate(-50%, -50%); background-color: #90EE90; border-radius: 50%; width: 10px; height: 10px;"></span> </span> Unchanged Increase</p> <p>Differences from the 1.5°C scenario are expected to be minor.</p>

# Strategy [Estimates of Investments for Ship Decarbonization]

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To achieve net-zero emissions by 2050 in the oceangoing business, as of 2021, the Company plans to invest 550 billion yen by 2030 and a total of 2.1 trillion yen by 2050 to convert its existing fleet of vessels to zero-emission ships, in accordance with simulations based on technological development and the timing of implementation.



- Announced in March 2022, this roadmap has been prepared based on the Company's current projections with respect to technological innovation, economic efficiency, laws, regulations, and policies. The roadmap will be revised in step with changes in these projections.
- GHG emissions reduction targets are for the Company's operating ships.

\*1: The amount of investment in ships powered by zero-emission fuels is premised on the introduction of ammonia-fueled ships.

# Risk Management [Climate Change Risks]

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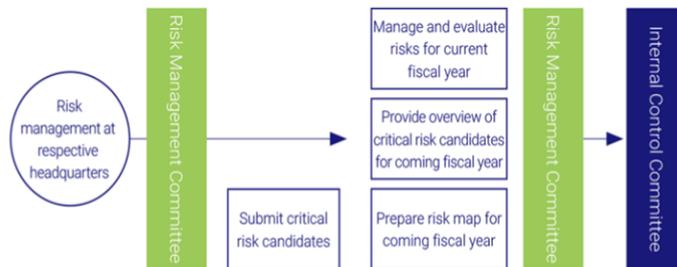
The NYK Group has set an ambitious GHG reduction target in line with the latest scientific knowledge of the 1.5°C target level, and we are working hard to reduce the GHG emissions of our entire group with the aim of achieving a decarbonized society. On the other hand, to achieve this goal, it is essential to put zero-emission fuels such as ammonia and hydrogen into practical use, which will require major technological innovation from the current level. Since the service life of large oceangoing vessels is about 15 to 20 years, considerable time and cost will likely be required before zero-emission fuels become widespread throughout the world's shipping industry.

With this in mind, we believe that, as we move forward with technological innovation and implementation, we need to respond to the transportation needs required for sustainable global growth with solutions that have the lowest environmental impact at each stage, while also gaining the understanding of society for the burden that this will entail.

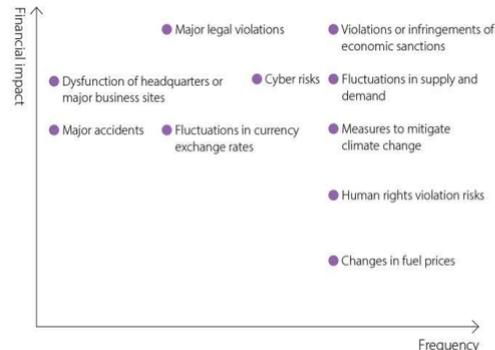
### Climate Change Risk Management Process

The NYK Group defines “uncertainties that could affect the Group's continued growth” as risks, and the Risk Management Committee, chaired by the president and comprising the heads of each division/headquarters and the deputy head of the ESG Strategy Headquarters, identifies key risks based on qualitative and quantitative assessments by each division/headquarters that has the best understanding of the nature of the business. It is then determined which division/headquarters will take the lead in responding to each key risk and promoting risk reduction activities for the entire Group. The Risk Management Committee has selected climate change risk as one of the “most important risks” that could significantly impact the business continuity of the Group. In accordance with NYK’s risk management policy and risk management rules, the Risk Management Committee is held twice a year to receive reports on the status of management of important risks, including climate change risk, and to evaluate them. The results are then reported to the Board of Directors.

#### Risk Management System

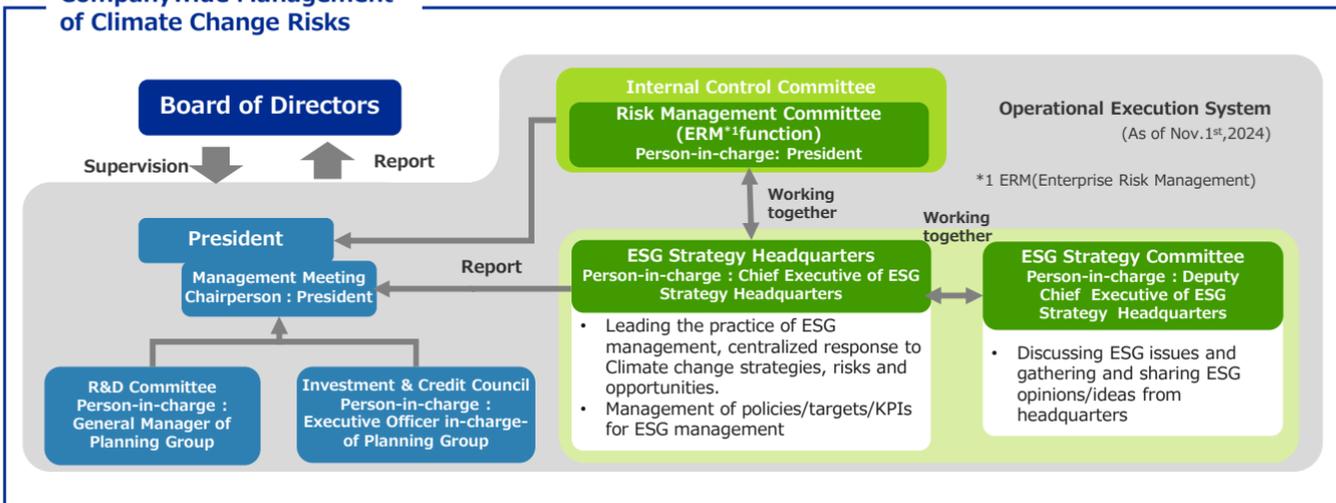


#### Risk Map



# Risk Management

## Companywide Management of Climate Change Risks



## Identification and evaluation of risks and opportunities

The ESG Strategy Headquarters discusses and identifies the risks and opportunities associated with environmental issues, including climate-related issues, rooted in our business activities. When identifying risks and opportunities, we take into account not only our Group's direct business activities but also related upstream (e.g., procurement of ships and fuel) and downstream (e.g., ship sales and ship scrapping) value chain activities from a medium- to long-term perspective, not just a short-term perspective. The ESG Strategy Headquarters coordinates climate change risk and integrates it into the enterprise risk, and reports this to the Board of Directors. The headquarters/division that should be responsible for promoting responses to the assessed risks and opportunities are identified and decided. Then, the executive officers representing each headquarters/division take the lead in incorporating specific responses into business plans.

# Metrics and Targets

## [NYK Group target for reducing GHG emissions]

Target year (Fiscal Year)	Target	Scope of the target
2030 (medium-term)	-45% [Base year : 2021] (*1)	Scope1 · Scope2
2050 (long-term)	Net zero emissions	Scope1 · Scope2 · Scope3

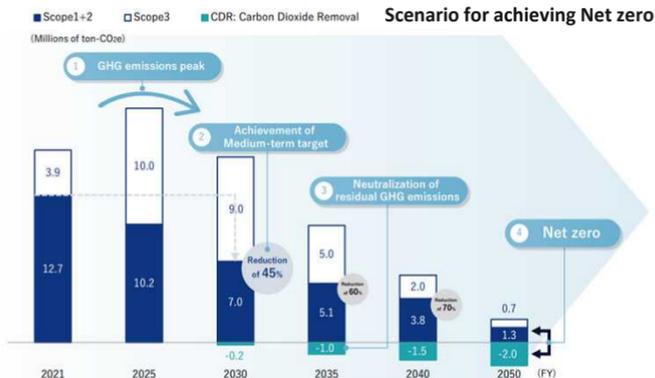
(\*1) Absolute corporate emissions. Aligned with 1.5°C Paris Agreement goal.

For more information, please refer to NYK Group Decarbonization Story (Link : <https://www.nyk.com/english/esg/envi/decarbonization/>)

## [Metrics]

Absolute corporate emissions have been monitored to ascertain our GHG emissions and manage reduction targets. The progress towards achieving the medium-term and long-term targets based on this indicator is shown in the table below.

Metrics (ton-CO <sub>2</sub> eq)				Rate of change
Fiscal Year	2021	2022	2023	(Base Year:2021)
Scope1+Scope2	12,724,086	11,331,299	11,473,705	-9.80%
Scope1+Scope2+Scope3	16,614,748	14,595,322	14,929,553	-10.10%



- By implementing effective measures on an ongoing basis while maintaining business activities, we aim to achieve our 2030 target of reducing Scope 1 and 2 emissions by 45% compared to fiscal 2021 levels.
- With regard to Scope 3, we are strengthening our data aggregation system to improve the capture rate. We will strive to refine the data, peak out in 2025, and aim to achieve net zero emissions by 2050.

For more details, please refer to Progress Report 2024

(Link : <https://www.nyk.com/english/esg/envi/decarbonization/>)

# Metrics and Targets

## [Internal Carbon Pricing, ICP) ]

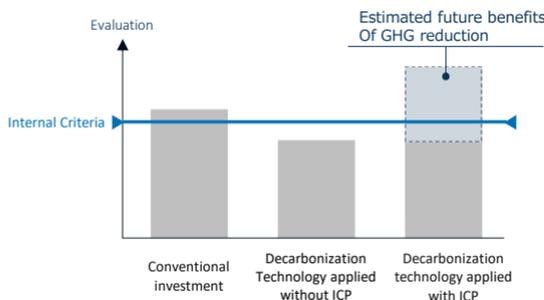
The NYK Group has introduced an ICP that assigns a price to carbon within the company since 2020 in order to promote investment that contribute to the long-term reduction of total GHG emissions and to reduce the carbon footprint of the services and products provided by our group. The pricing per tonne of GHG emissions is set using the Group's own implicit price, which is based on the marginal cost of the technology that should be introduced at that time to achieve the GHG reduction target (GHG abatement cost), as shown in the table below. The ICP has already used in more than 70 investment decisions\*<sup>1</sup>

**ICP Pricing** \*1: As of Nov. 2024. Only counted according to the latest standards after the revision of the standards in Oct. 2024.

ICP Pricing (As of FY2024)			
FY(Fiscal Year)	2023 ~ 2026	2027 ~ 2030	2031~
ICP Price (US\$/ton-CO2eq)	US\$120	US\$200	US\$250

- Example of applying ICP to investment evaluation :

In general, when decarbonisation technology is applied, total costs increase and profitability deteriorates. If investment evaluation is carried out using ICP to include estimates of future profits from GHG reduction, it will be easier to make a decision to apply decarbonisation technology.



- Application : Not limited to ships, but also includes the purchase of assets that affect GHG emissions, hiring or leasing in of ships, adoption of technology, implementation of modification work, etc.
- Calculation : Add ICP x GHG<sup>2</sup> saving on income  
\*2: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O
- Scope : Scope 1 & 2 (includes Scope 3 categories 13 and 15 for shipping)
- Governance : Report at Management Meeting every six months

# Appendix : Revision Log

Disclosure Report  
Based on TCFD  
Recommendations

1. Introduction

2. Governance

3. Strategy

4. Risk Management

5. Metrics and Targets

6. Appendix

Edition	Date of Issue	Revision contents	Page / Title
First	June 2022	First Edition issued	
Second	April 2023	Revised contents	① [Introduction]、② [Governance] ③ [Strategy]、④ [Risk Management]
		Updated data	⑤ [Metrics and Targets]
		Revised contents、inserted remarks	⑥ [Appendix]
Third	April 2024	Revised contents	① [Introduction]、③ [Strategy] ④ [Risk Management]、⑤ [Appendix]
		Updated data	⑤ [Metrics and Targets]
Forth	November 2024 <b>December 2024</b>	Revised contents	① p.2 [Introduction]、② <b>p.3,4 [Governance]</b> 、 ③ p.5, 6, 8 [Strategy]、④ p.16, 17 [Risk Management]
		Moved pages	③ p.7~11 [Strategy] Move from previous Appendix:P6~9, Add an item:P10 ⑥ p.20 [Appendix] Move from previous introduction - Revision Log -
		Updated data, inserted supplementary information	⑤ p.18 [Metrics and Targets]
		Added an item	③ p.10 [Strategy]、⑤ <b>p.19 [Metrics and Targets]</b>



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