

## Environment

### Decarbonization

#### Governance

- Climate Change Response Management System
- Risk and Opportunity Assessment Process

#### Strategy and Risk Management

- Scenario Analysis and Identification of Risks and Opportunities
- Net Zero Achievement Scenario
- NYK SUPER ECO SHIP 2050

#### Target

- New Decarbonization Goals

#### Initiatives

- GHG Reduction
- Zero GHG Emissions
  - Initiatives to Develop Next-generation Fuels and Renewable Energy –
- GHG Removal
- Research & Development

#### Co-creation with External Parties

- Participation in External Initiatives
- Co-creation with Stakeholders
- Co-creation with Customers
- Co-creation with Suppliers
- Co-creation with Regions
- Investment in Startups
- Distribution of Information at International Conferences

#### Related Data

# Decarbonization

## Governance

### Climate Change Response Management System

Our Group has established a management system in which we analyze the risks and opportunities associated with the impact of climate change on our corporate activities and businesses over the medium to long term, incorporate those risks and opportunities into our management strategy, and promote our responses to them. Please see “Environmental Management” for the governance structure of environment-related issues, including responses to climate change.

For more information, click on the link below

[P.029 Environmental Management](#)

### Risk and Opportunity Assessment Process

In our Group, based on consultation from the ESG Strategy Headquarters, the ESG Strategy Committee discusses risks and opportunities associated with climate change while considering the contents presented by each business unit. The ESG Strategy Headquarters compiles the details on the matters discussed by the ESG Strategy Committee, and reports the same to the Directors and management personnel.

The Risk Management Committee, which is attended by the chairman, president, executive officers who are chief executives of respective departments and full-time auditors, manages and evaluates risks that can potentially a significant impact on the Company as a whole, and risks associated with climate change. The ESG Strategy Headquarters and Risk Management Committee work closely together to integrate such risks into the company-wide risks, and report them to the Directors twice each fiscal year.

## Strategy and Risk Management

The Group considers the transition to a decarbonized society as an opportunity, and actively promotes initiatives to achieve low-carbon emissions and decarbonization, aiming for sustainable growth by decoupling environmental impact and business activities. We will continue to contribute to the realization of a sustainable society by strengthening our own competitiveness through decarbonization initiatives, making proactive, forward-looking investments that respond to social demands for a decarbonized society, and creating mutual benefits with our stakeholders.

### Scenario Analysis and Identification of Risks and Opportunities

Our group recognizes that it is important to assess risks and opportunities using scenario analysis for climate change and understand the impact of these risks and opportunities on our business strategy and performance. From the long-term business operations perspective, we continue to work towards managing risks and identifying opportunities based on rational scenarios by factoring in climate change elements into our own transportation demand forecast.

In the “Disclosure Report Based on Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)”, the business environment and strategies in 2050 are organized and disclosed using climate change scenarios for the “1.5°C scenario” and the “2-3°C scenario”. See “Disclosure Report Based on Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)” for details on the scenario analysis by each business segment.



For more information, click on the link below

<https://www.nyk.com/english/sustainability/pdf/environment005en.pdf>

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### Decarbonization

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## Decarbonization

### • Main Anticipated Risks and Opportunities Associated with Climate Change

Our Group continues to assess and manage the various potential risks and opportunities due to climate change, and strengthen our competitiveness while confirming the impact on our business from a long-term perspective.

Risks and opportunities Associated with Climate Change		Impact on the Group		Degree of impact		Our Company's strategy	
				1.5°C Scenario	2-3°C Scenario		
Transition Risks and opportunities	Regulations	Introduction of carbon pricing	Risks	• Increased investment burden for low-carbon technology due to stricter GHG emission regulations by the International Maritime Organization (IMO) and national authorities • Increased operating costs due to taxation related to GHG emissions from ships operated by our Company	Low	Low	• We will continue to improve operational efficiency through DX, and while working to reduce GHG emissions through the introduction of LNG and ammonia-fueled ships and alternative fuels, we will appropriately reflect these investment costs and the remaining carbon costs in transportation rates
			Opportunities	• Shortage of highly skilled seafarers who are capable of handling LNG-fueled ships and next-generation fuel vessels	Medium	Low	
	Technology	Securing seafarers for LNG-fueled and next-generation fuel vessels	Opportunities	• New business opportunities for ship management companies due to the growing demand for highly skilled seafarers	High	Medium	• In addition to the core Japanese seafarers, we also recruit highly skilled crew through the maritime academy in the Philippines and our own ship management company in Singapore
			Risks	• Decrease in revenue opportunities in the dry bulk and energy transportation business due to a decreased demand for existing energy resources with high GHG emissions	High	Medium	
	Market	Changes in cargo movement and transportation demand	Risks	• Expansion of new transportation businesses such as offshore wind power value chains, hydrogen, ammonia, and biofuels, in response to the increasing demand for renewable energy	High	Medium	• Strengthening of existing core businesses in a wide range of areas, as well as develop new growth businesses, to strengthen management resilience  • Promotion of proactive investment in low-carbon and decarbonized ships ahead of other companies, and securing environmental superiority • Review of scenarios and investment plans as needed, taking into account social trends, advances in decarbonization technology, etc.
			Opportunities	• Customer alienation due to the delay in efforts to reduce GHG emissions	High	Medium	
		Rapid changes in customer trends	Risks	• First-mover advantage due to increased demand for low-carbon and decarbonized marine transport services	High	Medium	
		Opportunities	• Delay in decarbonization of our fleet (including early widespread of zero-emission vessels) resulting in stranded assets of the existing fuel ships and LNG-fueled ships	Medium	Low		
	Physical Risks	Stranded assets due to the delay in decarbonizing our fleet	Risks	• There is a possibility that we will not be able to use Green Finance, etc., and will have to raise funds under conditions that are inferior to those of our competitors	Medium	Low	• Actively communicating policies on environmental issues to external parties via the website and integrated reports (NYK Report), etc., and focusing on raising funds through Green Finance
			Opportunities	• Reducing the cost of raising funds by utilizing Green Finance to secure environmental superiority	High	Medium	
Cost of raising funds		Risks	• Additional fuel costs incurred due to speeding up to avoid the storm zone due to encountering severe weather, or to maintain the vessel schedule	Low	Low		
Acute	Frequent and severe abnormal weather/ocean conditions	Risks	• Restrictions on the use of real estate, warehouses, terminals, and port facilities owned by the NYK Group located in low-lying areas • Occurrence of delays due to limited operational ports	Low	Medium	• Although the assets affected by the rising sea levels are limited, we are considering flexible measures such as using leases to prepare for the increased risk  • We seek to build a strategic relationship with the Panama Canal Authority	
		Risks	• The drought in Gatun Lake (the source of the Panama Canal) is becoming more serious due to the rise in temperatures and decreased rainfall around Panama	Medium	High		
	Chronic	Rise in sea levels	Risks	• The drought in Gatun Lake (the source of the Panama Canal) is becoming more serious due to the rise in temperatures and decreased rainfall around Panama	Medium		High

For more information, click on the link below

[P.066 ESG Finance](#)

# Environment

## Decarbonization

### Governance

Climate Change Response Management System  
Risk and Opportunity Assessment Process

### Strategy and Risk Management

Scenario Analysis and Identification of Risks and Opportunities

— Net Zero Achievement Scenario

NYK SUPER ECO SHIP 2050

### Target

New Decarbonization Goals

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Co-creation with Regions  
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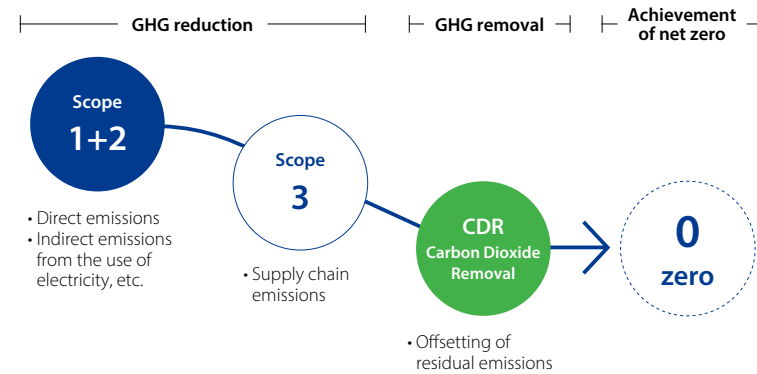
### Related Data

# Decarbonization

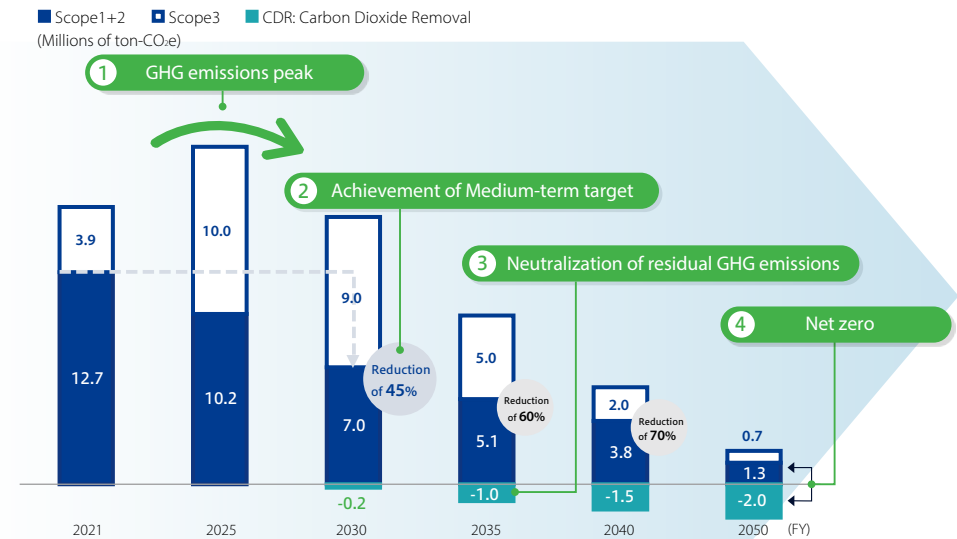
## Net Zero Achievement Scenario

To achieve net zero GHG emissions by 2050, our Group has formulated a scenario that takes a two-pronged approach of “reducing” and “removing” the GHG emissions. With steady implementation of this scenario, we aim to support the decarbonization of society from the perspective of marine transport, and ultimately to realize a sustainable society.

### Aiming for Net-Zero GHG Emissions through a Reduction and Removal Approach



### Scenario for Achieving Net Zero



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Risk and Opportunity Assessment Process

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NYK SUPER ECO SHIP 2050

#### Target

New Decarbonization Goals

#### Initiatives

GHG Reduction  
Zero GHG Emissions  
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GHG Removal  
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## Decarbonization

### ● Path to Net Zero / Reducing GHG Emissions

Our plan is to gradually deepen our efforts to reduce Scope 1 and 2 GHG emissions using two strategies. We will pursue Strategy ①, in which we will maximize energy efficiency (operation/specifications) till 2030, and then we will aim for Strategy ②, in which we will accelerate the use of alternative fuels after 2030.

With regards to Scope 3, we will share data with stakeholders and work with them in parallel with Strategies 1 and 2, with an aim to build an ecosystem through the creation of a low-carbon value chain.

### > Scope 1, 2 Strategy ① Maximize Energy Efficiency (Operation/ Specification)

We will promote the reduction of GHG emissions from our existing fleet by improving daily operations and energy efficiency.

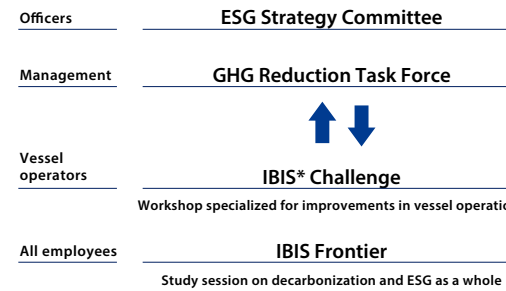
### > Scope 1, 2 Strategy ② Acceleration through Alternative Fuels

Starting in 2030, we will introduce alternative fuel vessels that take into account other environmental impact in addition to GHG emissions, and build a resilient fleet portfolio.

### ■ Scope 1,2 Strategy ①

#### Improvement of ship operation efficiency

Collaborating with customers to enhance frameworks and management aimed at maximizing the efficiency of vessel operations

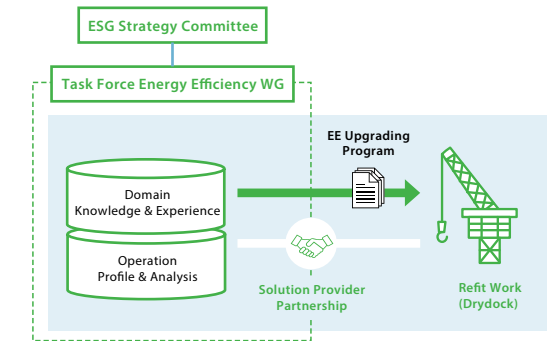


\*IBIS: Innovative Bunker and Idle-time Saving

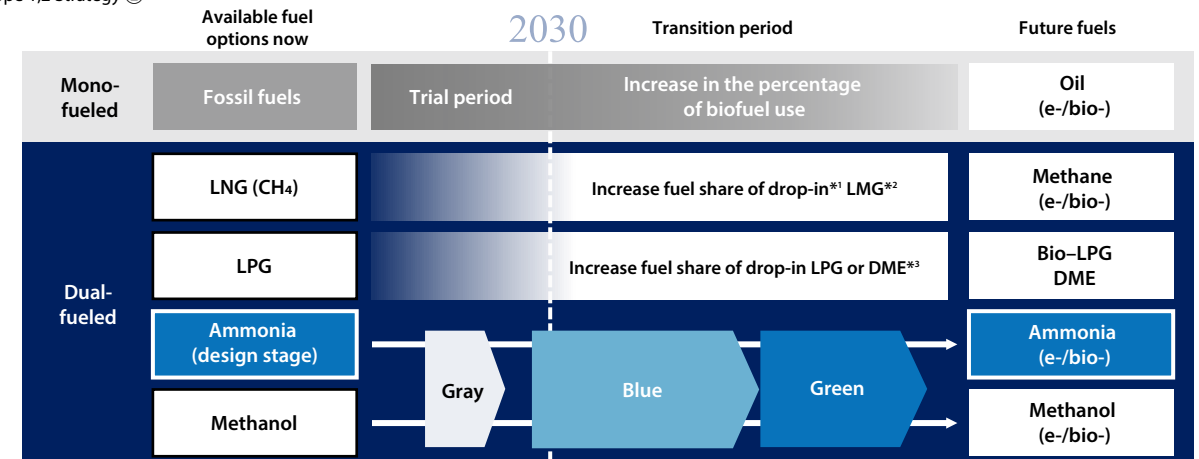


#### Enhancement of technical capabilities

Working with external partners to improve energy efficiency



### ■ Scope 1,2 Strategy ②



\*<sup>1</sup> Drop-in: Fuel that can be used without requiring remodeling the ship or its engines. \*<sup>2</sup> LMG: Liquefied Methane Gas \*<sup>3</sup> DME: Dimethyl Ether

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New Decarbonization Goals

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GHG Reduction  
Zero GHG Emissions  
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GHG Removal  
Research & Development

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### ● Path to Net Zero / GHG Removal

In order to cover the remaining GHG emissions that are difficult to shift to zero emissions, we will invest in and participate in projects to build a value chain for carbon capture, utilization, and storage (CCUS) that utilizes negative emissions technology (NETs)\*. We will also work to create new green businesses through carbon credits.

\*Negative Emission Technology (NETs): A general term for technologies that capture and remove CO<sub>2</sub> from the atmosphere or the ocean

### > Internal Carbon Pricing (ICP)

Our Group introduced an internal carbon pricing system (ICP) in fiscal 2020, and we are using it as reference information to aid investment decisions at the Investment and Credit Council and the Management Meeting in which investment decisions are deliberated. By linking financial information and GHG emissions using ICP, we visualize the value of GHG emissions reductions and promote sound decision-making by unifying the evaluation criteria for various departments and projects. The applicable prices are set at US\$120/t-CO<sub>2</sub> until fiscal 2026, US\$200/t-CO<sub>2</sub> from fiscal 2027 to fiscal 2030, and US\$250/t-CO<sub>2</sub> from fiscal 2031 onwards.

### NYK SUPER ECO SHIP 2050

In November 2018, NYK in collaboration with our group company MTI Co., Ltd., and Elomatic, a Finnish marine technology consulting firm, devised "NYK Super Eco Ship 2050" to achieve GHG reduction targets and realize the decarbonization of ships.

Equipped with the revised individual elemental technologies of the "NYK Super Eco Ship 2030" concept ship announced in 2009, this ship is a new zero-emission concept ship that reduces GHG emissions by 100% through the use of hull modifications, weight reduction, increased efficiency, and digitalization.

In the future, we will continue to promote collaboration with a wide range of global partners in the maritime industry with the aim of researching, developing, verifying, and introducing the elemental technologies set out in the NYK Super Eco Ship 2050.



For more information, click on the link below

<https://www.nyk.com/english/sustainability/pdf/environment006en.pdf>  
<https://www.youtube.com/watch?v=wXJTbcUjxmk>

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### Decarbonization

#### Governance

Climate Change Response Management System  
Risk and Opportunity Assessment Process

#### Strategy and Risk Management

Scenario Analysis and Identification of Risks and Opportunities  
Net Zero Achievement Scenario  
NYK SUPER ECO SHIP 2050

#### Target

— New Decarbonization Goals

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GHG Reduction  
Zero GHG Emissions  
— Initiatives to Develop Next-generation Fuels and Renewable Energy —  
GHG Removal  
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#### Related Data

## Decarbonization

### Target

In November 2023, our Group announced the “NYK Group Decarbonization Story” in which we established decarbonization strategies and GHG reduction targets towards 2050.



For more information, click on the link below.

**NYK Group Decarbonization Story**  
<https://www.nyk.com/sustainability/pdf/environment003.pdf>

### New Decarbonization Goals

Since the medium-term management plan announced in 2018, our Group has disclosed greenhouse gas emission reduction targets and has been steadily working to achieve these targets. In recent years, the movement towards decarbonization in the international shipping industry has been gaining momentum. In the light of this global trend, for our Group to continue to be a presence that is needed by society and industry, we have revised our medium to long term environmental targets (announced in 2018; 30% reduction in CO<sub>2</sub> emissions from ships and marine transport by 2030 compared to 2015, and a 50% reduction by 2050), and we have revised our targets to achieve a 45% reduction by 2030 (Scope 1+2) and net zero by 2050 (Scope 1+2+3) with 2021 as the base year. Details of the latest GHG reduction targets are as follows.

To reduce emissions, we have changed from an efficiency target to a total emissions target (in accordance with the 1.5°C scenario of the Paris Agreement).

Target year	2030	2050
Scope 1+2 for the entire group	45% reduction (compared to fiscal 2021)	Net Zero
Scope 3 for the entire group	—	

Past GHG emission reduction targets are as follows.

Established	2018	2021
Publication Medium	Medium-term Management Plan “Staying Ahead 2022 with Digitalization and Green”	Green Pledge*
Type of Target	Efficiency	Total amount
Scope 1+2 for the entire group	Oceangoing ships + aircraft 30% reduction	Oceangoing ships Net Zero
Scope 3 for the entire group		
Target year	2030	2050
Base year	2015	—

\* Green Pledge: On September 30, 2021, the NYK Group decided to set a long-term target for reducing GHG emissions related to its international shipping business of achieving “Net Zero Emissions by 2050”.