The NYK Group ESG Story

February 3, 2021





Remaining Essential to Society

Addressing social issues through our businesses to create new value

Sustainable Solution Provider



Initiatives and foundations the NYK Group has developed

What Will the NYK Group's ESG Management Look Like?

Advancement of business management, Increase in value creation

Existing yardsticks

X

Advancement of business management, Increase in value creation

New yardsticks

Maximization of earnings

- Economic efficiency
- Business scale
- Market

Bringing value to life.

ESG management

Acceleration of ESG management

Governance

Sustainability of society and the environment

- The global environment
- Local communities
- Job satisfaction
- Stakeholders

Materiality (safety, the environment, and human resources)

The Approach of ESG Management

Remaining Essential to Society

Becoming the preferred choice of clients and partners/ Enhancing employee satisfaction

Creating new value

Differentiating existing businesses

Expanding business fields

Addressing social and environmental issues



Using ESG yardsticks



Investing management resources

(talent, assets, investments, and data)



New Value Creation
to Realize the NYK Group of Tomorrow

Value the NYK Group Will Create Going Forward

Maximization of earnings



Sustainability of society and the environment

Expansion and advancement of logistics field

Facilitation of efficient ship operations

Fostering and cooperation of partners

Development of new businesses Keeping logistics lifelines operational

Environmental burden reduction

Collaborative creation with stakeholders

Evolution of businesses

Inclusiveness

Climate change countermeasures

Clean energy

Job satisfaction

High-quality education

Global partnerships

Industrial and technological innovation

Pursuit of Goals in New and Existing Fields

Value the NYK Group Will Create Going Forward

Maximization of earnings



Sustainability of society and the environment

Priority Goals

Existing Fields

Ensuring
Safe Ship
Operations

Reducing GHG Emissions

New Fields

Taking On
Ambitious
Initiatives in
the Energy Field

Addressing Social Issues

Medium-term management plan

Digitalization and Green

Data analysis application development

- Streamline methods for collecting ship data and establish a cleansing and storage environment
- Develop applications for optimal ship operations

Enhancement of ship operation technologies

Optimization of the supply chain

 Research and introduce practical utilization of digital twin and automation technologies

Fuel conversion

Green business

 Unearth new businesses directly and indirectly linked to renewable energy

Technological innovation



Capabilities We Have Developed

1980s	Frequent maritime accidents
1990s	
'92	Establishment of the Safety Promotion Committee
'93	Release of SIRE Program by OCIMF with standardized Vessel Information Questionnaire ⇒Beginning of sharing of safety information within industry
' 97	The Diamond Grace oil spill
'9 8	Introduction of our unique NAV9000 quality assurance standards
'98	Enforcement of the International Safety Management Code ⇒Introduction of stricter rules for safe ship operations
'98 2000s '01 '02	Acquisition of ISO 9002 in the safety management field Establishment of the Safety & Environmental Management Committee (SEMC) Acquisition of ISO 14001, including for chartered ships
'04	Introduction of TMSA for self-assessment of ship-management companies and the ship-management methods employed therein ⇒ Strengthening of governance throughout value chain
2010s '11 '18	Unification of the safety management systems of in-house ship-management companies Introduction of the NiBiKi integrated ship-management system Sharing of data between ships and ship-management companies

Advancement structure

Safety & Environmental Management Committee Chair: President

Safety Promotion Headquarters

Safety Steering Committee Environmental Management Headquarters

Environmental Steering Committee

Regional committees and subcommittees

N-MEC Technology Committee

Administers the education, training, and development of crew members

Regional SEMCs

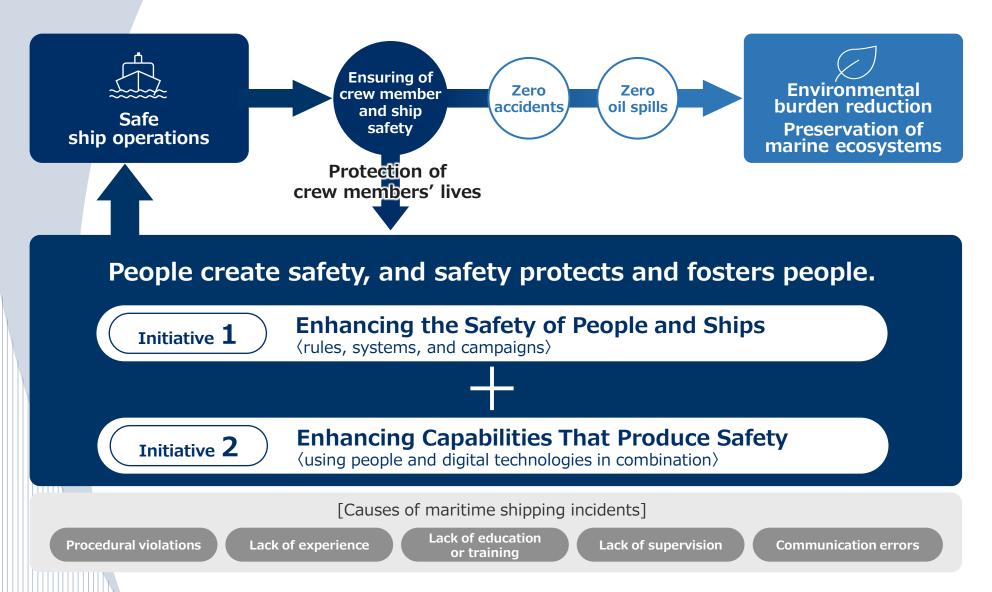
- East Asia
- South Asia
- Europe
- North America

Committees for specific ship types

Containerships, pure car and truck carriers, tankers, liquid gas carriers, dry bulk carriers, cruise ships

Committees for specific tasks
Save Bunker Committee, etc.

Protect Crew Members' Lives and the Environment through Safe Ship Operations



Clients



Enhancing the Safety of People and Ships



Implementation of rules and regulations and understanding of safety concerns

NAV9000



aimed at safe ship operations and environmental preservation

Request ship safety assessment or improvement Covering the entire fleet, approximately 750 ships, including owned and chartered ships

Conducting safety assessments of approximately 250 ships and 30 companies per year

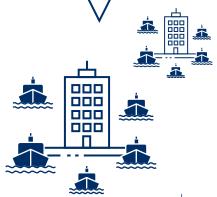
NAV9000



Sharing Safety Culture through

Face-to-Face Dialogue

- Sharing information on current status of safety standards on board ships
- ✓ Pointing out areas to be improved
- Providing advice on ship operations and ship-management







External events

INPUT

Countermeasures to incidents, revisions to rules and regulations, revisions to industry standards and guidelines, etc.

Submit corrective action plan

Initiative **1**

Enhancing the Safety of People and Ships



Forming safety DNA rapidly and embedding behavior

Crew member education and campaigns

Establishing safety DNA

Practicing and embedding safety



Third officers and third engineers

Captains and chief engineers

NYK-operated maritime academy **NTMA** (Philippines)

NYK-TDG Maritime Academy

Cultivating **high levels of safety awareness and loyalty** through a
curriculum developed based on more than 10
years of experience since establishment



NYK Maritime College

Forming a **unified safety culture among all seafarers**, regardless of their academic backgrounds or nationalities

Providing experience of advanced safety training close to actual operational conditions through the use of independently developed STARS educational software, on-the-job training, and simulators

Acquiring additional skills required for each elevation in class



Activities for promoting safety

- Safety campaigns
- Near Miss 3000 (DEVIL Hunting!)
- Calm Sea
- Seamanship calendar
- NYK AWARE, etc.





Enhancing Capabilities That Produce Safety



Utilizing big data to avoid danger

SIMS Ship Information Management System

LiVE for Shipmanager

A viewer application that allows users to compile and process various data on ship operations for engine performance analysis, reduction of GHG emissions, early prediction of latent system/machinery failure, condition-based maintenance, etc.





Sharing of data on ship operations, fuel efficiency, and sea conditions

SIMS

Measuring ship operation status and fuel efficiency data

Utilizing weather data to calculate efficient routes







Enhancing Capabilities That Produce Safety



Toward higher safety levels

Remote Diagnostic Center (Manila, Philippines)

DQMS Q

Data Quality Management System

Monitoring data loss/delay ratio derived from quality fluctuations in ship—shore communication and sensor accuracy

Maintaining data quality at an acceptable level for big-data analysis

Anomaly detection program

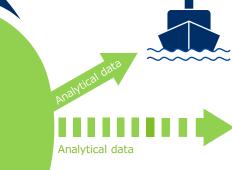
Using AI to detect anomalies in ship engine plants

Data accuracy monitoring

"Expert in the Loop"

Based on the results of the anomaly detection program, expert navigation officers and engineers analyze the accuracy of results and the severity of phenomena and take measures that include providing explanations

Data to clients. analysis



To ships and ship-management companies

Planning to develop a system for transmission of control information to autonomous ships in the future (RCC)

Assessment by **experts**



Using Live for Shipmanager, experts conduct diagnostic analyses of anomalies detected by AI.

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Ensuring Safe Ship Operations



Enhancing Capabilities That Produce Safety



Lightening workloads through common work platforms

NiBiKi



Lightening workloads through data sharing

Accumulating accurate data through automatic recording



Benefits

- Heightening the quality of ship-operations work and reducing the risk of accidents and environmental pollution
- More-accurate data analysis
- Utilization in crew member education and training

Aiming for more-advanced analysis through combination with SIMS data

Utilizing research on manned autonomous ships in decision-making on safe ship operations

APEXS Action Planning and Execution System



Research underway

- Reduction of accidents through automatic collision avoidance functions
- Efficient ship operations through support from onshore facility
- Remote operation in emergencies

Aiming to realize the operation of manned autonomous ships from onshore facility (RCC: Remote Control Center)



Growing Awareness of Environmental Preservation

Adoption of the Kyoto ProtocolAdoption of conventions related to energy efficiency (EEDI and SEEMP)

2015 Adoption of the Paris Agreement

2018 Initial IMO GHG Strategy

of the International Maritime Organization (IMO)

CO₂ SOx Carbon Ballast water

Ship Renewable recycling energy

"Pledge to reduce Japan's GHG emissions to net zero by 2050"

in a policy speech by Japan's prime minister Yoshihide Suga

GHG Reduction Targets of the IMO Average fuel consumption per unit of transportation compared with 2008 2030 **40%** less 2050 **70**% less Total emissions 50% less Phase out GHG

as soon as possible in this century

Reduction of GHG emissions a prerequisite for business continuity

Growing Awareness of Environmental Preservation

The NYK Group's reduction targets for GHG emissions

(Science Based Targets certification acquired)

FY2015 FY2030 FY2050

GHG emissions (intensity target)

30% less

*50% less

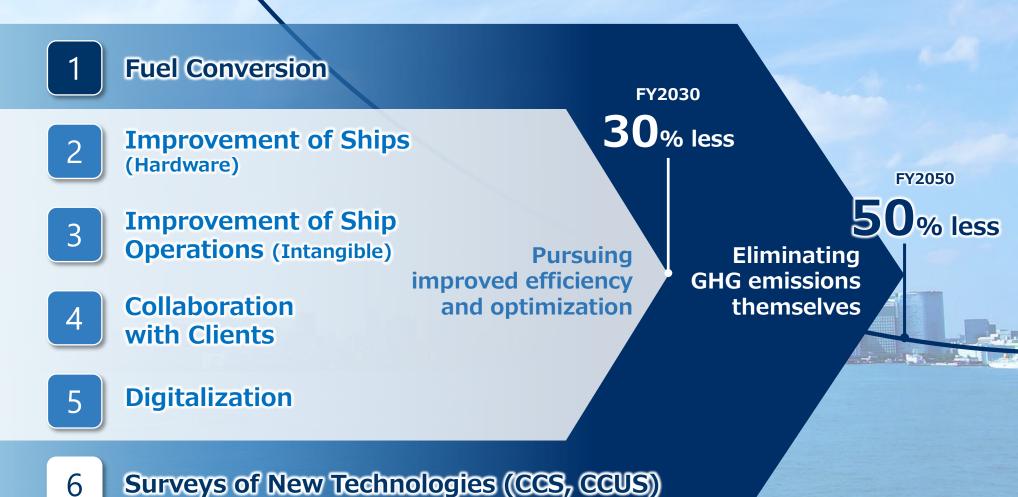
GHG emissions



Transportation volume × Transportation distance

Working with various clients and partners to acquire a competitive advantage through an environment-friendly value chain

Process for Achieving Environmental Targets



For details on "3 Improvement of Ship Operations (Intangible)" and "6 Surveys of New Technologies (CCS, CCUS)," please see the booklet





Aiming to introduce zero-emission ships early to reach 2050 target

2030 2050

STEP 1: Converting to LNG fuel

Training crew members for **LNG-fueled ships**



▶Training crew members at NTMA

Converting to STEP 2: zero emissions

> **Conducting R&D on** zero-emission ships

▶ Researching alternative energy





2 Improvement of Ships (Hardware)



NYK SUPER ECO SHIP

2050

Weight reduction and stability



Hull optimization and new materials

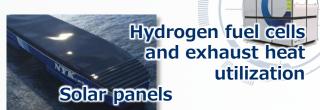


Propulsion efficiency



Friction reduction:
Air-lubrication
system and
hull-cleaning
robots

Alternative-fuel equipment



Optimizing voyage plans
Digital twins and AI analytics





Intangible Innovation

Hardware Innovation

2 Improvement of Ships (Hardware)



Advancing joint development through open innovation

Industry collaboration

Example: Getting to Zero Coalition

Advancing R&D for the introduction of zero-emission ships

Improving propulsion performance of the entire fleet

Pursuing fuel efficiency for the entire fleet

Technology development

Example:
The Maersk Mc-Kinney
Moller Center for Zero
Carbon Shipping

Marine industry collaboration

Example: International Shipping GHG Zero Emissions Project

Collaboration with Clients



Building deeper collaborative relationships by offering solutions that help solve clients' issues

Increasing the efficiency of route and cargo-handling plans

Carbon credits

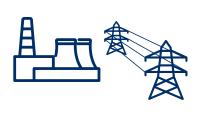
Sustainability marketing





Solution examples





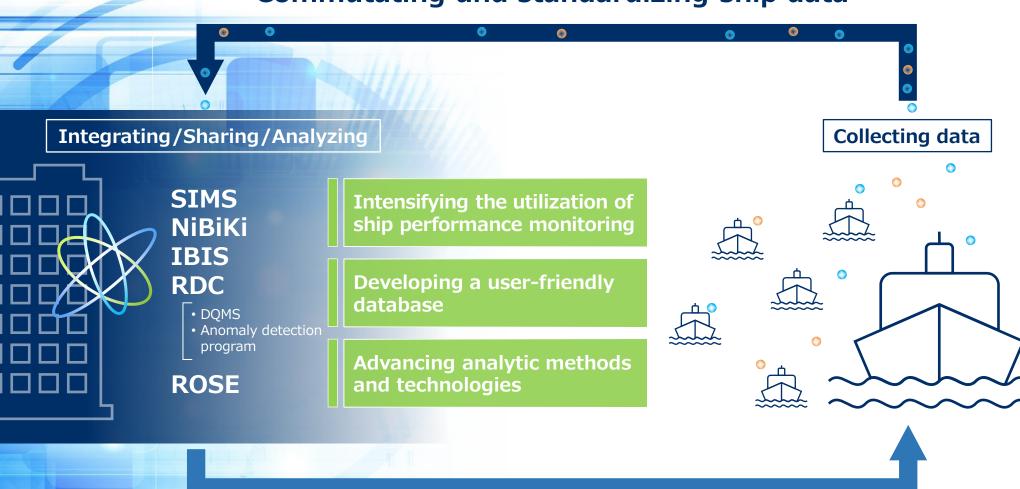
Purchasing and utilizing based on client requests



Conducting exploratory interviews with various clients



Commutating and standardizing ship data

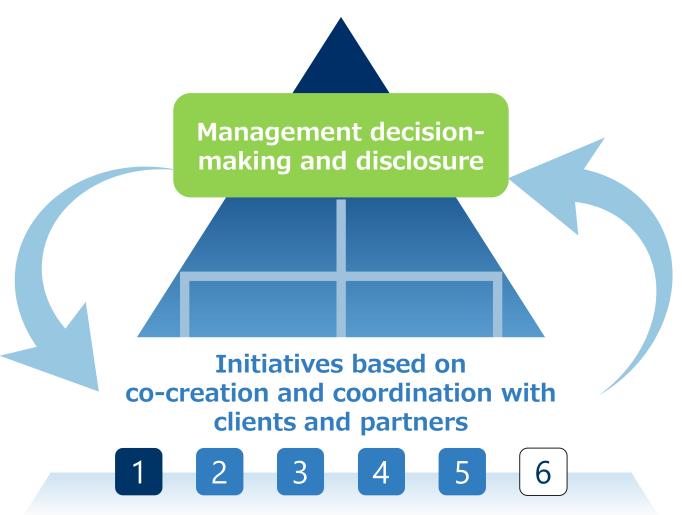


Utilizing to improve ships and ship operations

Management Decision-Making and Disclosure



Building trust with stakeholders



Management Decision-Making and Disclosure



Supervision performed by the Board of Directors

Ensuring rigorous risk management

- · Identifying climate change risks
- Monitoring the progress of measures

Utilizing ESG indicators in investment and funding activities

- Introducing ICP
- Sustainability-linked finance

Monitoring and disclosure based on TCFD



Governance

Structure and examination methods



Strategies

Short-term, mediumterm, and long-term corporate management



Risk management

Methods of identifying, evaluating, and reducing risks

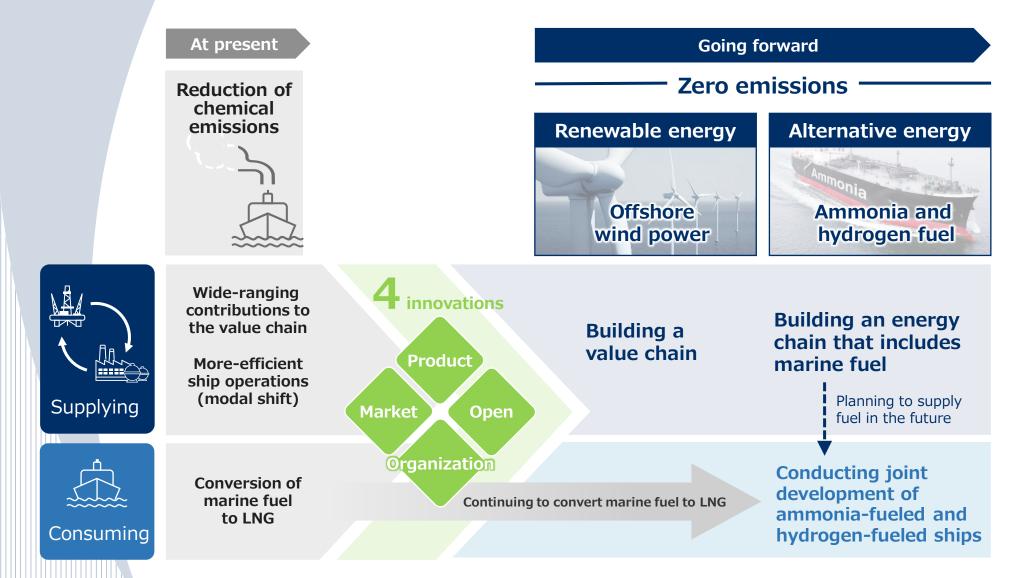


Indicators and goals

Evaluation indicators for risks and opportunities and progress toward goal attainment



Taking On Ambitious Initiatives in the Energy Field







Target Contributing to the development of Japan's offshore wind power

Supplying Building the value chain

European partners

- Strong connections with offshore wind powerrelated companies
- · Conversant with the business model

Business

Track record and expertise in offshore wind power

Technolog

- Installation
- Technologies for selfelevated platform (SEP) vessel operations
- Crew transfer vessel (CTV) design and operations

The NYK Group

Green Business Group Business management **Know-how**

Headquarters opportunities Know-how in shipbuilding and operations Japan MTI Marine

Science

Technical

Business

Investigation and feasibility studies

Transportation and logistics

Installation

Operation and maintenance

Marine consulting

Offshore geotechnical investigation vessel

Module ships

Heavy-lift ships

Logistics

Self-elevated platform (SEP) vessel

Crew transfer vessels (CTVs)

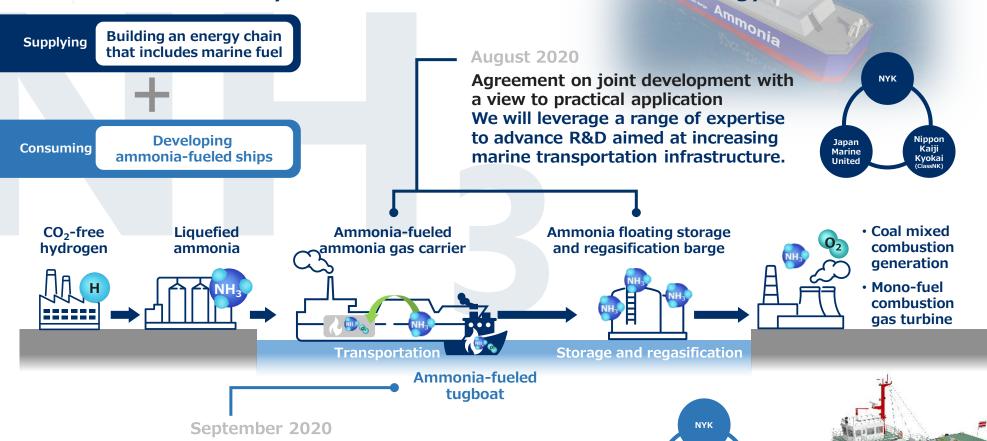
Logistics

Ammonia Fuel





Leveraging the partnerships and know-how we have developed to realize early commercialization and to build an energy chain



Development of technologies and ship operations

drawing on our knowledge of LNG-fueled tugboats.

We aim to realize early practical application by

with a view to practical application

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Kaiji Kyokai (ClassNK) **Taking On Ambitious Initiatives in the Energy Field**

Hydrogen Fuel



Target profile

With research on transportation and marine fuel utilization as main focuses, creating a global energy chain to realize a hydrogen energy-based society

Brunei

Supplying Building an energy chain that includes marine fuel

June 2020

AHEAD

Beginning of demonstration of the world's first international hydrogen supply chain

We will conduct further examinations with the aim of building a supply chain going forward.

Production of hydrogen from LNG

H

Toluene
MCH

Transportation of toluene produced by the dehydrogenation process

Marine transportation

Dehydrogenation

Power station

H

Transportation of toluene produced by the dehydrogenation process

NYK

Ship development,

building, and operation

Toshiba Energy Systems & Solutions Corporation

Japan

 High-power fuel cell modules

Kawasaki Heavy Industries

- Onboard fuel supply system
- Energy management system

Nippon Kaiji Kyokai (ClassNK)

Verification of ship safety

Consuming

Developing ammonia-fueled ships

September 2020



Demonstration project for the commercialization of ships equipped with high-power hydrogen fuel cells We are planning to begin proving tests at Yokohama Port in 2024.

ENEOS

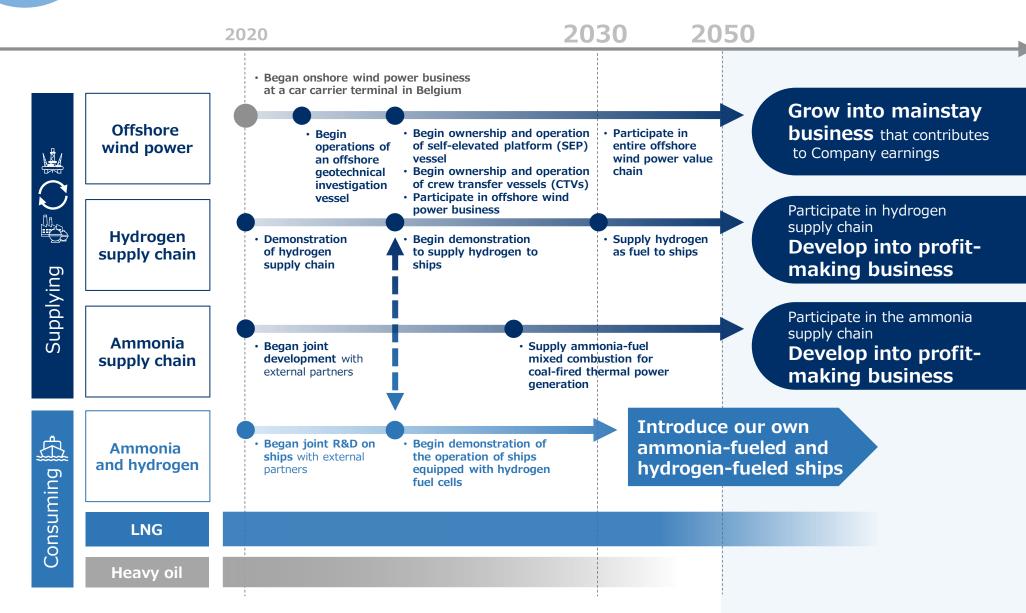
 Supply of hydrogen fuel



Taking On Ambitious Initiatives in the Energy Field

The Timelines of New Businesses in the Energy Field











Ambitious In-House Initiatives with Global Scope



Aiming to enrich the quality of life of 1.5 million seafarers worldwide

MarCoPay

<u>Challenges</u> <u>seafarers are facing</u>

- Fixed-term employment contracts (2–9 months)
- Financial infrastructure in some seafarers' home countries is not yet well developed

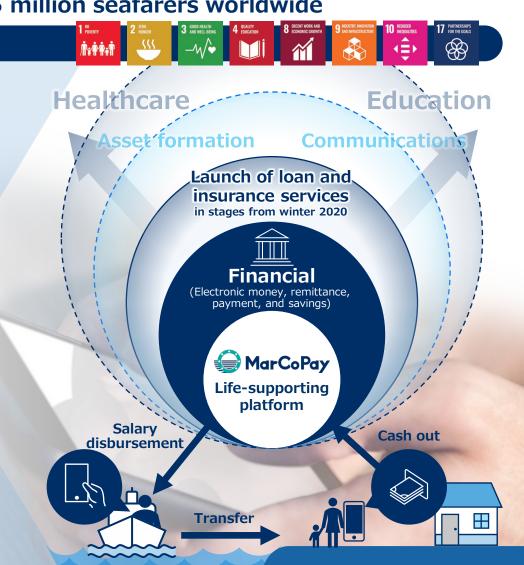
Difficulty in acquiring credit commensurate with income due to underdeveloped credit systems (credit issue)

Lack of financial literacy and services

(financing, insurance, and asset formation)

Difficulty in contacting families while on board ships

(communications issue)



Taking Up the Challenge of Solving Global Issues



Contributing to sustainable oceans is our role as a leading shipping company

Collecting microplastics to map and highlight the issue of plastic ocean pollution







The microplastics issue

More than 8 million tons of plastic waste ends up in oceans each year.



Microplastics have diameters of 5 mm or less.

No data available to grasp the extent of microplastic pollution.



It is said that microplastics may penetrate living organisms and end up affecting the entire ecosystem.



Using our fleet of approximately 750 ships to collect microplastics

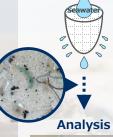
The NYK Group



Chiba Institute of Technology

Conducting analyses and creating a worldwide microplastic map that shows the sizes, types, distribution densities, etc., of microplastics in oceans







Microplastic map



Bolstering of Human Resources and Organizations

to Advance New Value Creation

The Creation of New Value

Bolstering of Human Resources and Organizations

to Advance New Value Creation

Fostering
Personnel
Who Drive
Transformation

Building an Organization That Fully Leverages the Diversity among Our Approximately 35,000 Employees

Developing the Skills of Each Individual, Creating Systems That Evaluate Personnel Appropriately, and Realizing New Workstyles



The Creation of New Value

External factors that are strongly related to personnel development

Expectations of ESG management

Strengthening of environmental restrictions

Emergence of the IT industry

Structural reform of shippers

Big data analysis

. .

Personnel who drive transformation

Sensitive to social issues, attentive to the opinions of diverse personnel in the Group

Tolerance and flexibility

Incorporating
different cultures and
different ways of thinking and
being able to respond to all
kinds of changes

Leadership

Taking the initiative in setting clear targets and motivating coworkers through communication

Management skills

Having a broad perspective and high level of expertise and being able to mobilize one's own organization





Creating New Value as a Sustainable Solution Provider









Fostering Personnel Who Can Provide Powerful Leadership for Transformation

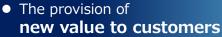
NYK Digital Academy

Developing business leaders with entrepreneurial mindsets and skills who can create new value and open up markets

The incorporation of wisdom from beyond the maritime shipping industry







 The drive to enhance the NYK Group's corporate value

Transitioning to concrete activities from proposals by first two batches of graduates

Presentations to senior managers



Theme creation

- Insight into the potential expectations of customers
- The business philosophies of trainees themselves
- Financial and non-financial knowledge
- Applied statistical analysis

- Preparation of business plans
- Strategy stories



NYK × Hitachi Solutions Injury-prevention solution that utilizes biological data



Pulse Vibration

Behavior pattern

Acquiring

the basics





Fostering Personnel Who Can Provide Powerful Leadership for Transformation

Training navigation officers and engineers in-house

An in-house training system that began in 2006 to develop graduates of non-maritime four-year universities or non-maritime technical colleges as senior management candidates.

Introducing diverse viewpoints to frontline operations

Information and systems

Engineering

International studies

Science and engineering

Sociology

Economy

Sports

Fisheries science

Training navigation officers and engineers in-house over two years

Assigning navigation officers and engineers with diverse viewpoints

Currently **One-sixth** of the Company's Japanese officers and engineers have been trained in-house

In 2020,

our first in-house trained captain educated at a non-maritime university





Fostering Personnel Who Have the Frontline Capabilities to Support Transformation

NTMA

Securing and developing crew members with the qualities NYK requires

- Internalizing the NYK Group Values
 —Integrity, Innovation, and Intensity—along with technical skills
- Studying for four years at a facility that integrates classroom learning, hands-on practice, training, and drilling and being able to contribute to operations immediately



1,100 graduates to date

- Working on board tankers and other high-risk ships as senior crew members
- All have passed the Philippine national exam for navigation officers and engineers

Job-specific training

Unified transnational training that enables the implementation of transformation in lockstep



Enhancing overall capabilities as businesspeople

- Stratified training and training on more than 60 general business skills (finance, etc.)
- Participation of more than 7,000 employees in e-learning in Japan and overseas each year



Acquiring advanced skills for the respective duties of navigation officers and engineers

- Learning the knowledge and skills needed for each position—from third officer and third engineer through to captain and chief engineer—based on onthe-job training, advanced simulators, and e-learning
- Approximately 6,000 participants in fiscal 2019



Building an Organization That Fully Leverages the Diversity among Our Approximately 35,000 Employees



Diversity

Human resource philosophy

Continually develop diverse talent at all Group companies across global fields



Integrity
Innovation
Intensity







Seeking from them a more-active involvement in management decisions

Evaluating them as candidates for the headquarters management team



Building an Organization That Fully Leverages the Diversity among Our Approximately 35,000 Employees



Empowering Women

Percentage of female employees

March 2013

March 2020

35.5% Group

NYK Standalone

17.7% 17.5%

Percentage of female managers

March 2013

March 2020

The NYK Group 20.1%

NYK Standalone

12.6% 17.1% (((

A variety of programs and support measures designed for life events

Leave system

- Parental and family care leave
- Short-term paternity leave (Iku-papa Plus)
- Spouse transfer leave

Time and place

- Flextime system
- Shorter working hours
- Working from home

Raising awareness in-house

- Iku-boss seminars
- Iku-papa seminars
- Nursing-care seminars
- Distribution of nursing-care handbooks



From October 2020 onward

Support for returning to work

Strengthening equal opportunities and follow-up capabilities to create a system in which periods away from work are not a disadvantage

Developing the Skills of Each Individual, Creating Systems That Evaluate Personnel Appropriately, and Realizing New Work-styles



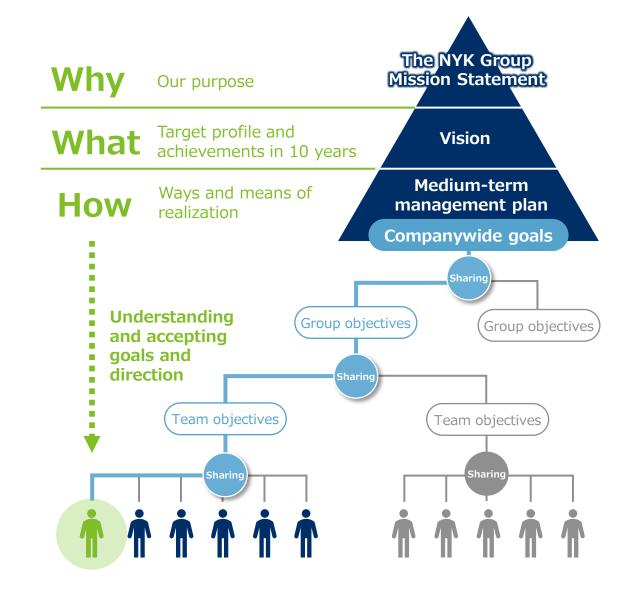
[NYK head office]

Establishing clear goals that link organizations and individuals

Objective tree

Ensuring each employee works
based on an understanding of the
Company's ambitious goal, thereby
leveraging the combined
capabilities of the entire
organization and accelerating
transformation into a

Sustainable Solution Provider



Developing the Skills of Each Individual, Creating Systems That Evaluate Personnel Appropriately, and Realizing New Work-styles



50



[NYK head office]

Developing a human resource system that evaluates contributions to transformation



Making "My Contribution"

Thinking about whether individual goals have been reached and whether the achievement thereof contributes to the goals of the team and group



Doing day-to-day work / Putting ESG management into practice / Correctness of decisions / Time management / Work improvement / Management and visualization of "My Job"

Companywide goals

NEW

Creativity, adaptability, and the ability to stay "half a step" ahead

Far-sighted actions

Efforts to change

Responding without fixation on precedent

Awareness of promising innovations outside the Group

Developing the Skills of Each Individual, Creating Systems That Evaluate Personnel Appropriately, and Realizing New Work-styles



Establishing clear goals that link organizations and individuals

Developing a human resource system that evaluates contributions to transformation

Promoting expert personnel proactively

Evolving work-styles

Setting clearer tasks based on the organization's goals

Diversifying work-styles

Utilizing IT to manage duties

3.

Strengthening of the Management Base to Support ESG Management

In What Ways Does the Management Base Need Strengthening?

Supervising ship-handling (personnel and organization)







Communicating with those outside the Company

Management base

Checking the direction of ESG management

Establishing
Support Systems
for ESG
Management

Ensuring Sound Governance Groupwide

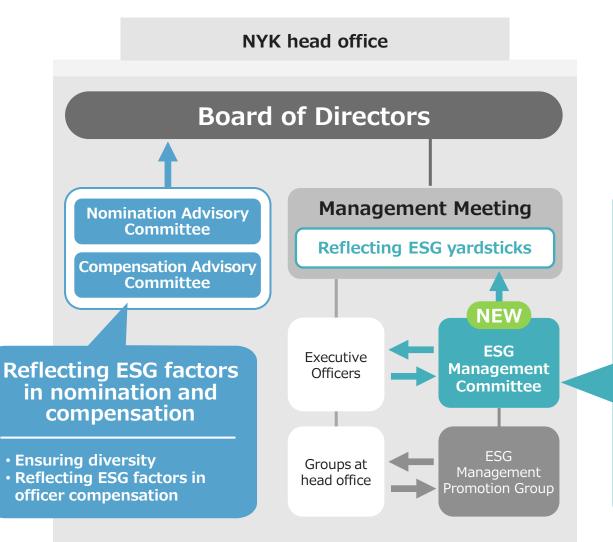
Reconfirming
Human Rights
Compliance



Establishing Support Systems for ESG Management



Steady implementation of ESG management through the establishment of a new committee



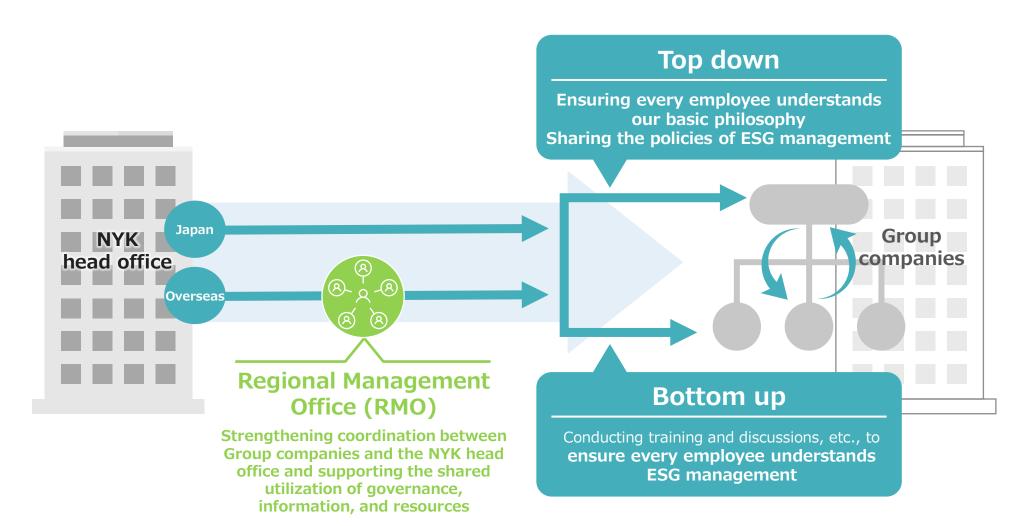
Establishment of a new ESG Management Committee

- Checking and evaluating the progress of the NYK Group ESG Story
- Establishing companywide policies and goals
- Co-opting external experts and checking direction

Ensuring Sound Governance Groupwide



Through approaches both from the top and the bottom, we will ensure the penetration of ESG management throughout the Group





Reconfirming Human Rights Compliance



Respecting the human rights of all Group employees and stakeholders and helping everyone to have fulfilling lifestyles

The NYK Business Credo

4. Compliance with laws and ordinances, respect for human rights (excerpt)

We recognize our role in society and act in a manner that is fair and just by complying with national laws and ordinances and international norms. We believe that corporate activities should adhere to social mores, respect human rights, honor local customs and practices, and address the concerns and interests of stakeholders.

Respect for Human Rights, Prohibition of Discrimination

Prohibition of Harassment

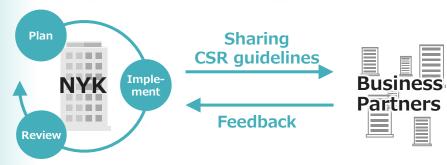
Respect for Cultures of Countries and Regions

Prohibition of Forced Labor or Child Labor

Establishment and Operation of Fair Personnel Treatment System

Nippon Yusen Kabushiki Kaisha Code of Conduct Chapter 4 Respect for Human Rights and Diversity of Cultures (excerpts)

Supply chain management



Heightening awareness of human rights

- Human rights due diligence activities
- Human resource factfinding surveys
- Establishment of an employee help desk
- E-learning



Stakeholder Engagement Program, organized by Caux Round Table (CRT) Japan ©2020 Caux Round Table Japan

Megatrends

Energy

The NYK Group's Value

- Ships
- Weather and sea conditions data
- Global network
- Technologies
- Sales
- Safety

Aiming to create a new future through collaborative creation with other industries

Sustainability Marketing Science

Technology

We will update the NYK Group ESG Story annually, and its preparation is part of a long-term growth strategy.

Schedule Going Forward

Review and report on progress annually

Incorporate the Story into the activities of Group companies in Japan and overseas

Establish quantitative targets

Return On Earth

Giving back to the oceans, earth, and people ———

Return on Earth

The NYK Group **Sustainability Initiatives**

Total of ¥1 billion/year

Maritime education field

- Hikawa Maru
- **NYK Maritime Museum**
- NTMA



Taking on the Challenge of **Establishing Solutions Businesses** That Create the Norms of the Future



Alliances with external partners

- **Donations, subscriptions**
- **Transportation cooperation**
- Volunteering

New initiatives

¥150

million

Existing

initiatives

¥530

million

Support related to natural disasters, etc.



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