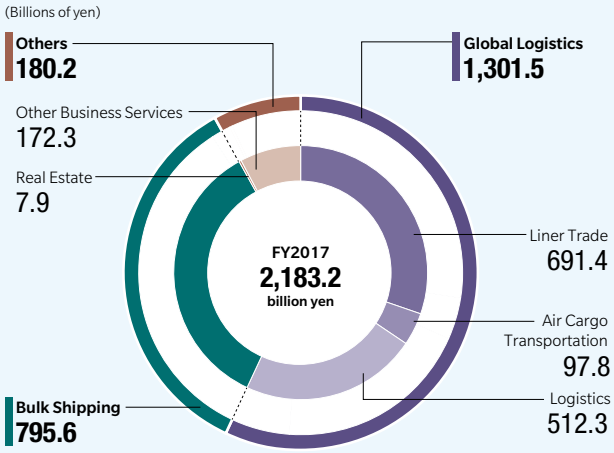
Toward Sustainable Growth (Strategy by Business)

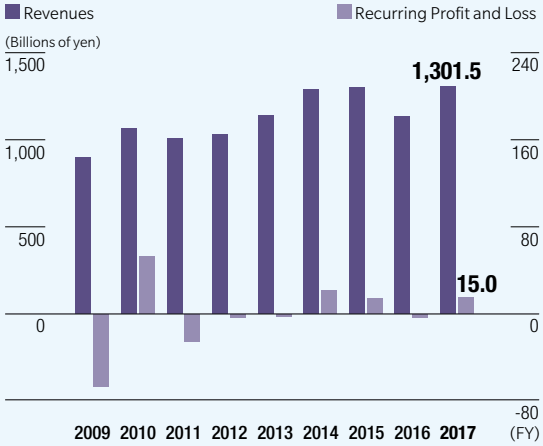
We promote growth strategies for each business and division based on our new medium-term management plan. Here we review a summary of the performance in fiscal 2017 for each business, and the chief executives of each division talk about their understanding of the current business environment and corresponding strategies and measures to implement.

At a Glance

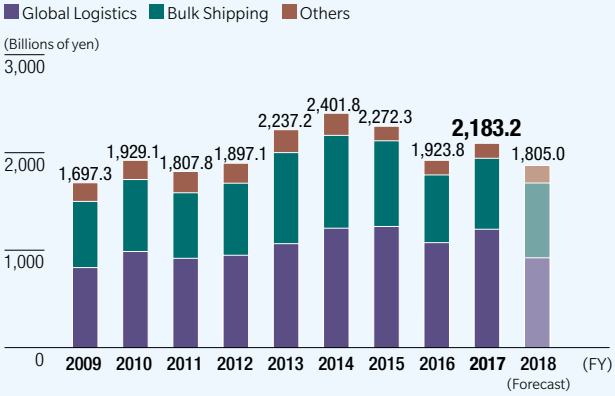
Revenues by Business Segment



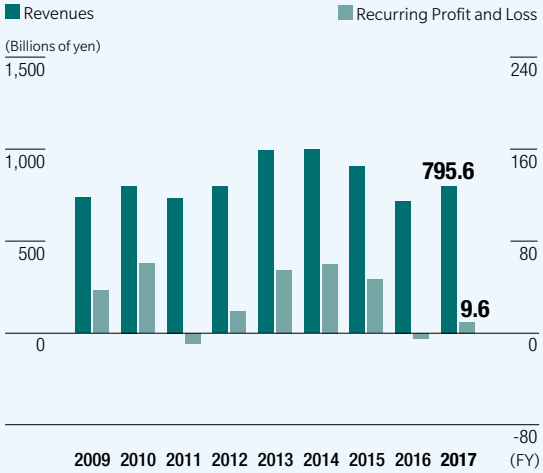
Global Logistics



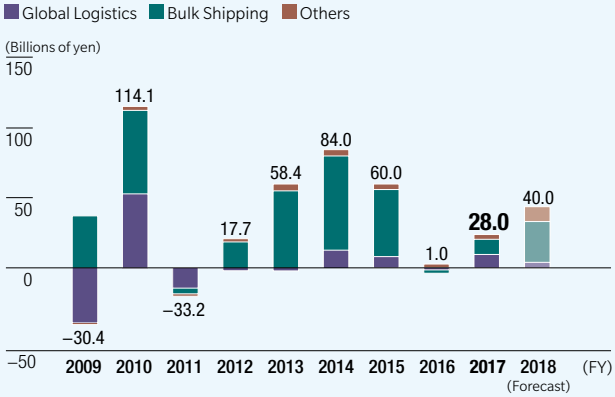
Revenues



Bulk Shipping



Recurring Profit and Loss



Summary by Business

Global Logistics

Liner Trade

With robust cargo movement overall, we increased our profitability and market resilience by implementing various measures, such as optimizing vessel assignments while also making our services more efficient. Handling volume at our container terminals both inside and outside Japan increased, and the liner trade business greatly improved overall, enabling us to post a profit with increased revenues compared to the previous fiscal year. Cargo movement is expected to remain robust, and our new integrated company that started operation in April 2018 will strive to improve profitability.

Air Cargo Transportation

Robust demand for cargo shipments created a good market throughout the entire year, and freight rates rose. Cargo volume also increased thanks to more efficient operations by utilizing code sharing, etc. Although income decreased on a year-on-year basis due to the absence of substantial one-off foreign exchange gains posted in the previous fiscal year, our actual performance greatly improved.

Logistics

Gross profit improved for our air freight forwarding business. On the other hand, it took time for gross profit to improve for our ocean freight forwarding business because procurement cost rose despite an increase in cargo handling volume. Our logistics business slowed down due to a slump in the handling volume of inland transportation and rising labor costs in the United States. Although shipping traffic remained robust throughout the year for our coastal transportation business, revenue increased but profit down overall for the logistics business on a year-on-year basis. We will strive to improve our income in fiscal 2018 by increasing cargo handling volume and reforming the structure of unprofitable businesses, etc.

Bulk Shipping

Car Transportation Division

The automobile transport market was slow to recover amid persistently low crude oil prices and a declining volume of automobile shipments to emerging and resource-rich countries. Nevertheless, automobile shipments to North America, Europe, and Asia are robust, and the volume of finished automobile shipments exceeded that of the previous fiscal year. The volume of automobile shipments for fiscal 2018 is expected to be equal to this fiscal year. In the automobile logistics business, our established operations such as in China, India, and Europe remain mostly steady. Meanwhile, we proceeded to proactively develop environmentally friendly "green" terminals around the world (see page 53 for details).

Dry Bulk Division

In the dry bulk shipping market, although excess tonnage still exists, cargo volumes of iron ore, coal, and grains have been increasing, and the market condition continues to trend toward recovery. Under these circumstances, we strove to secure long-term shipping contracts while also reducing costs by promoting efficient operations. We also worked on improving our earnings by optimizing vessel allocation and combining cargoes. The market condition is also expected to continue gradual recovery in fiscal 2018.

Liquid Division

The market for VLCCs*1 worsened because the supply of new vessels exceeded demand. The market for petroleum product tankers/LPG vessels also slumped due to increased supply resulting from the commissioning of new vessels. The market for tankers in fiscal 2018 is forecast to recover in the second half of the year, which is the demand season. We will secure favorable conditions in long-term contracts and steady earnings from our fleet of LNG tankers, and we will start to transport shale gas from the United States in fiscal 2018. Our offshore business saw steady sales of FPSOs*2 and our performance is expected to remain strong.

*1 Very Large Crude-oil Carriers *2 Floating Production, Storage, and Offloading units (see page 5 for details)

Others

Real Estate

In the Real Estate segment, income decreased on a year-on-year basis due to the absence of a one-off gain from the sales of trust beneficiary rights in the previous fiscal year, but the performance remained stable throughout the fiscal year.

Other Business Services

In the cruise business, despite a slump in attracting passengers before and after Japan's consecutive holidays in May, total cruise sales inside and outside Japan remained robust from summer. Furthermore, our bunker oil sales business recovered, leading to an increase in income compared to the previous fiscal year, based on the strength of chemical product sales and marine technology services at oil storage sites, in addition to electrical/machinery services.

Global Logistics

Hiroki Harada

Managing Corporate Officer
Chief Executive of Global Logistic Services Headquarters

Profile

Joined the company in 1983. His 18 years of experience in the liner trade business and worldwide network of connections built up in his 10 years of work overseas in London and Brussels are his major assets. In his work, he interacts with people that hold diverse values, and strives to carefully listen to the opinions of the other party before having discussions. Upon assuming the position of managing Global Logistics, he says that "First of all, I want to polish the strengths of each operating company and then pursue the synergy that results".

Liner Trade

Business Environment

- With business alliances being formed on a global scale, companies involved in the container shipping business worldwide have been consolidated into seven or eight companies
- Although the trade volume is steadily recovering, the excess-supply is expected to continue for a while due to construction of large vessels

Basic Strategy Based on the New Medium-Term Management Plan

- Create new value and improve business efficiency by integrating the best practices of the three Japanese shipping companies
- Achieve the effect of integrating the annual 110 billion yen of the container business and attain stable income

Strengths of the NYK Group

- One of the biggest ventures in the world with almost 1.5 million TEUs due to the integration of the three Japanese shipping companies
- Wide-range network that connects over 90 countries over the world
- Safe and optimal economic operations utilizing cutting-edge information technology and navigation technology

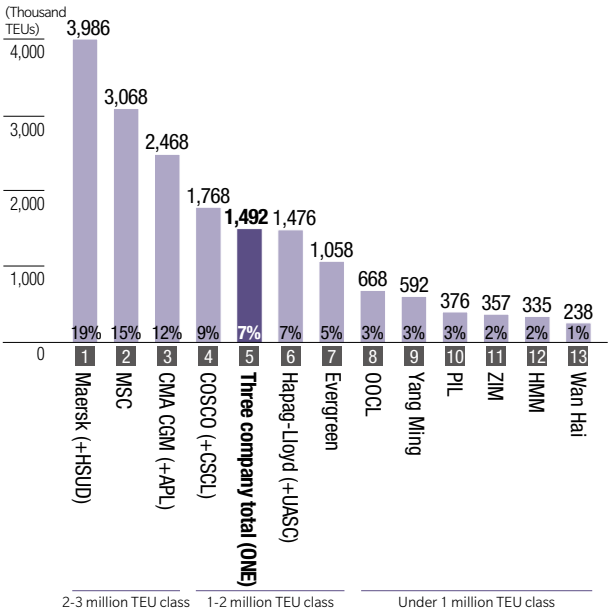
Strategies/Measures

- Smooth start of the ONE business
- Quickly achieving the effect of integration

The business environment surrounding container shipping has changed dramatically in the past few years, and with business alliances being formed on a global scale, major companies involved in container shipping have been consolidated into seven or eight companies from 20. Even with the commoditization of the container shipping business, there was room for us to exert our competitiveness, but in order to rank amongst the world's best, we would need to increase the scale of our operations. That is why three Japanese shipping companies decided to establish Ocean Network Express Pte. Ltd. (ONE). I believe that this is a revolutionary initiative as it involves integration of the ancestral businesses of each company.

ONE has its head office in Singapore and started operations in April 2018. With the fifth largest fleet in the world (1.49 million TEUs), the company will work toward enhancing its competitiveness by utilizing the technologies and expertise of the three companies to make services and container terminal management more efficient. The container shipping business is the infrastructure that supports the world economy and society, and as such is irreplaceable. We will continue to strive to achieve stable business growth to play our role as part of this infrastructure.

Container Shipping Capacity as of December 2017



Source: Based on data disclosed by the three companies integrating their shipping businesses

Ocean Network Express Pte. Ltd.
Message from Managing Director

Yasuki Iwai
Managing Director
Product & Network

Scale and Complexity of the Container Shipping Business

The container shipping business is an extremely complex and deep business. At the start of business in 2018, ONE was already in charge of providing services for carrying more than 1.5 million containers on as many as 230 vessels to more than 100 countries over the world, and it is no simple task to manage the efficient operations of as many as 10,000 employees stationed over the world.

Even now, major players in Europe and Asia are competing to achieve optimal solutions for this huge and complex business, and ONE clearly has its own style of competing. We focus on our eight core values above all else when conducting our business management in order to maximize the sincerity, creativity, and passion of ONE employees while integrating and evolving the various best practices built up over the history of the three Japanese shipping companies.

Aiming to Be No.1 in the Industry

Our aim is not simply to achieve integration and expand the scale of our business. Our aim is to become the number one player in the industry. All of our employees will work together to implement concrete measures to achieve this in a lean and agile manner.

As one of our best practices for organizational management, we created a system called ONE-FORCE. When an issue is identified, the human resources required for solving it gather together from across the organization, diverse experts also participate from outside the company, and everyone works together to think of an innovative solution and execute it swiftly. This is one method that will enable us to survive increasingly severe international competitions and become No.1.

While proceeding with business integration, we worked on such integrated management systems and earnestly promoted the concrete launch of ONE-FORCE. Such new corporate culture born on-site at ONE has its roots in the empowered excellent staff, as well as superb teamwork.

We must work together on achieving goals with true meaning, identifying clear goals and the routes leading to them, and creating innovative solutions using the latest technologies. When this leads to concrete results, ONE will truly become as one and be able to generate a far greater power than ever before. Here, we do not give importance to which country or company our employees have come from.

In the first fiscal year of integration, continuing to integrate and stabilize our inherited business will be an important challenge, but at the same time, every single one of our employees will do their utmost to achieve real results in the unified management systems and implement a wide variety of concrete strategies for the future.

Eight Core Values

Lean & Agile	Break through conventions to make efficient ideas into reality.
Best Practice	Continuing to improve ourselves with the knowledge cultivated by the three shipping companies and delivering the best services.
Quality	Pursuing the best quality that always exceeds customer expectations.
Innovation	Delivering services that contribute to the customer's business through self-innovation and creativity.
Teamwork	Recognizing individual diversity and building a team that can cooperate to create new value.
Challenge	Making full use of individual strengths and to challenge incessantly without the fear of making mistakes.
Reliability	Delivering professional, stable and sustainable services.
Customer Satisfaction	Continuously exceeding expectations by focusing on customers needs.

Air Cargo Transportation

Business Environment

- Demand for airfreight is expanding thanks to the growth in the e-commerce market, etc.

Basic Strategy Based on the New Medium-Term Management Plan

- Constructing and maintaining a production system that enables full utilization of the 11 aircraft we operate

Strengths of the NYK Group

- As the only dedicated international airfreight company in Japan, we have a network based in Narita that connects a total of 15 cities in Asia, the United States, and Europe
- We have 15 dedicated Boeing 747 jumbo cargo aircraft capable of handling oversized freight, and we operate 11 of these

Strategies/Measures

- Enhancing operation/service systems for handling increased demand
- Effectively utilizing cargo space and achieving flexible service via enhancing strategic alliances

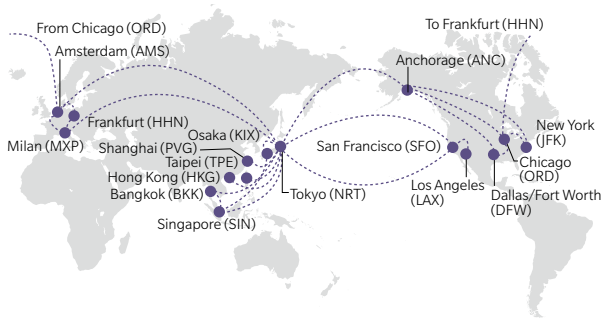
The airfreight market continues to be robust in China and other Asian countries including Japan. With strong demand for semiconductor-related items, etc., and the expansion of the e-commerce market, cargo aircraft have come to be utilized for transporting a wide range of products and materials, and demand for airfreight is expected to continue rising in the future.

Nippon Cargo Airlines Co. Ltd. (NCA) has become the only company operating Boeing 747 (B747) jumbo jets in Japan. Maintaining a production system is essential for achieving safe and stable operation. However, in contrast with the shipping business, it is not easy to develop human resources, since the maintenance and crew licenses that are required differ according to the model of aircraft involved. Therefore, we are now working on building a system for linking and cooperating with other operating companies in order to fully utilize our aircraft.

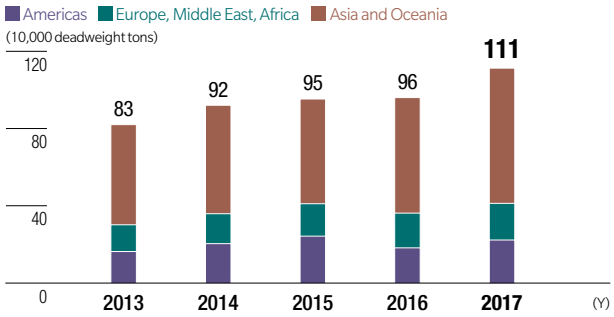
On the other hand, in addition to being able to efficiently transport large cargo over long distances, large B747 aircraft has the advantage of being able to carry cargo of a size that cannot be handled with medium-sized aircraft. With demand for airfreight expected to continue to increase, we will aim to maximize profit, expand BSAs*, and work on increasing the ratio of cargo. Furthermore, we will enhance our strategic partnerships with All Nippon Airways Co. Ltd. and Singapore Airlines Cargo to effectively utilize cargo space by code-sharing and focus on providing flexible service through smooth transshipments, etc.

* BSA (Block Space Agreement) refers to an agreement for selling a space for a certain period to avoid the risk of cargo space being empty due to reservation cancellations, reduced weight, etc.

NCA Service Network



Changes in Annual Ex-Japan Air Freight Volumes by Destination Region



Source: Compiled by NYK Line based on JAFA results

Logistics

Business Environment

- Demand for global logistics continuing to expand
- Need for one-stop services expanding

Basic Strategy Based on the New Medium-Term Management Plan

- Pursue Group synergy with Yusen Logistics Co. Ltd., which was made a fully-owned subsidiary
- Promote the growth of a stable-freight-rate business with logistics positioned as a core business of the Group

Strengths of the NYK Group

- A portfolio that balances regions and business
- Rich human resources with a wide range of experience and knowledge regarding global logistics

Strategies/Measures

- Improving in-Group collaboration such as automobile logistics
- Enhancing our sales ability, technical development ability, and financial power by effectively utilizing groupwide management resources

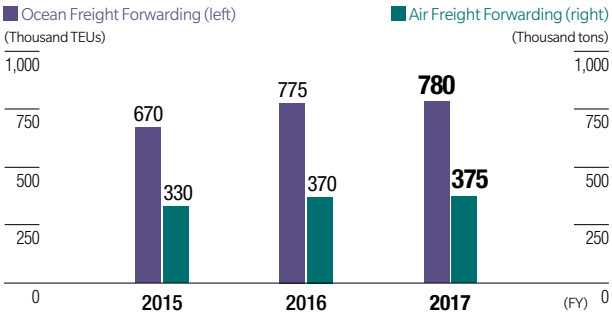
In February 2018, Yusen Logistics Co. Ltd. (YLK) was made a fully-owned subsidiary to expand our logistics business with stable-freight-rates, while aiming to pursue enhanced sales and group synergy by utilizing groupwide management resources.

The advantage of YLK is the fact that it has a good balance in both business portfolio and regional segmentation. Another strength it has is its global network of human resources with rich experience and knowledge regarding global logistics, which can be utilized to identify customer needs and turn them into business.

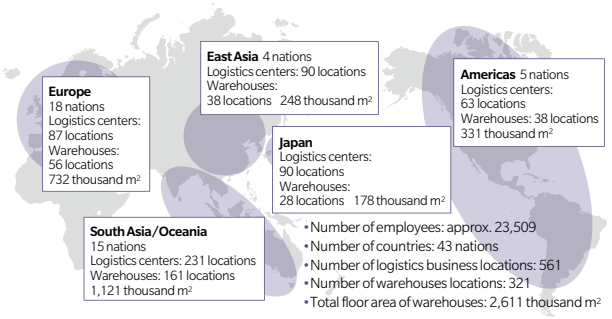
The business of YLK includes forwarding for ocean and air cargo, which is a non-asset type of network business, and contract logistics via warehouses, trucks, etc. around the world. The business situation has been severe in the past few years, due to growth in freight handling volume reaching a plateau and high procurement costs impacting the former, and the impact of unstable foreign subsidiary performance impacting the latter. In order to improve our profitability in these businesses, we will not only increase the amount of freight that we handle, but also secure profit margin and enhance purchasing power by matching the procurement timing of freight and space, as well as work on structural reforms of unprofitable businesses. We will also promote the activities of the nine committees launched when YLK became a fully owned subsidiary to pursue group synergy and achieve quick performance recovery. Furthermore, we will support the completion of the "TRANSFORM 2025" medium- to long-term management plan of YLK.

Although global logistics demand is expected to steadily increase overall, there are likely to be industry and regional differences. The Group will accurately identify demand in growing industries and emerging markets and utilize YLK's mobility based on YLK's non-asset based logistics to expand business and grow logistics into a core business of the Group.

Cargo Volume in Ocean Forwarding and Air Forwarding



Logistics Center Locations (As of September 2017)



Bulk Shipping Business

Car Transportation Division

Takaya Soga Managing Corporate Officer
Chief Executive of Automotive Transportation Headquarters

Profile

Joined the Company in 1984. Has spent more than 13 of his 34 career years in Singapore, London, Bangkok, etc. Gained unique overseas experiences such as maintaining the safety of local employees at work and at home during periods of unrest. In addition to his career in Japan and overseas in the liner trade business, was also in charge of starting the cruise business for five years. Says that he learned "the fun and difficulty of opening up a new business through trial and error" due to there being a lack of experienced people at the Company. After returning from Bangkok in 2010, started working at the Car Transportation Division.

Business Environment

- Industry structure changing due to CASE (Connected, Autonomous, Shared, Electric)
- Demand for an advanced logistics service that responds to changes in the automobile supply chain is increasing
- Demand for transporting finished automobiles to the emerging markets where automobiles are expected to become prevalent, such as Africa

Basic Strategy Based on the New Medium-Term Management Plan

- Achieve more efficient finished automobile logistics in anticipation of structural changes to the automobile industry and the motorized society
- More efficient transportation/cargo handling and proactive environmental conservation via digitalization

Strengths of the NYK Group

- The world's largest fleet and a global shipping network
- 39 automobile logistics sites over the world that provide high added-value services, terminals, and inland transportation
- Maintaining excellent transportation technology and pursuing high quality services
- Collaboration with Yusen Logistics Co. Ltd. (YLK) for the global expansion of auto parts logistics

Strategies/Measures

- Provide complete multimodal finished automobile logistics
- Utilize digital technologies to improve efficiency both offshore and inland
- Differentiate from competitors with green support over the entire supply chain

The automobile industry is facing the kind of turning point that comes only once in a century, as exemplified by the acronym "CASE", which stands for Connected, Autonomous, Shared, and Electric. The development in these four fields may dramatically change not only the functionality and structure of automobiles, but also their usage methods and sales channels.

These changes to the motorized society will have various impacts on the finished automobile logistics business of the Group. For example, since electric vehicles with large capacity batteries are heavier than gasoline vehicles of the same class, the floor strength of car carriers and the load limit of overland semitrailer trucks will have to be increased. Although the popularization of autonomous vehicles may decrease stevedoring work and result in labor savings, vessel and terminal layouts will probably also need to be reviewed. Moreover, if the popularization of car sharing leads to the need to transport automobiles between sites and the electrification of vehicles, we will need to provide updates for software and digital programs and repairs for fuel cells when providing added value services such as PDI (Pre Delivery Inspection) for finished automobiles. Furthermore, online automobile sales will surely lead to the need for individual vehicle information to be provided in a timely and highly precise manner so that the customer can see the current status and position of the customized ordered vehicle after it has left the manufacturing plant.

The Group plans to identify the changes to the motorized society and customer needs in advance and make full use of our resources in order to provide an advanced finished automobile logistics service.

The Group runs terminals and inland logistics facilities that provide high added value services such as PDI in 39

locations over the world, as well as the largest fleet in the world and a high level of transportation quality supported by organizations and human resources with a wide range of experience. Our Group company YLK is expanding auto parts logistics globally, and we believe that YLK can provide efficient and diverse logistics solutions from upstream to downstream via cross-site utilization and enhanced collaboration.

Furthermore, we promote advancement, efficiency, and cost reduction for finished automobile logistics via "digitalization", as indicated in our medium-term management plan, in order to further increase the comprehensive ability and competitiveness of the Group. More specifically, we analyze data accumulated in a SIMS that enables vessel operation data to be understood in real time, and utilize that data to improve operational efficiency and plan optimal medium-term vessel deployment plans. We also accumulate and analyze inland transport data such as vehicle operation status and driving routes to review transportation plans and promote the calculation of optimal routes, etc.

This logistics efficiency and rationalization contributes to lead time shortening and cost reduction, while also limiting our environmental impact by reducing CO_2 emissions. In terms of hardware, we have commissioned two medium-sized pure car and truck carriers in Europe that use environmentally friendly LNG as their main fuel source, in a world first. We will utilize the knowledge and experience gained with these vessels to investigate how we can use large-sized LNG-fueled pure car and truck carriers on long-distance routes in the near future.

Furthermore, we operate our car carrier terminals in an environmentally friendly manner, by installing solar panels for power generation, adopting LED lighting at harbors, and promoting 100% recycling of the water used to wash vehicles. At the major European terminal of ICO (International Car Operators N.V.) in Belgium, we are installing wind power generators that are scheduled to start operation in 2019. Our policy is to roll out "green" terminal initiatives such as these to other regions to promote reduced environmental impact in the entire supply chain and allow us to differentiate from our competitors.

The Group takes pride in our status as the No. 1 provider of finished automobile logistics services that connect land and sea. We will further increase our on-site technical ability for logistics, cultivate specialist engineers and operators, etc. that can meet various needs, and focus on improving our environmental consciousness and work environment in order to strive for sustainable growth together with the automobile industry and regional society.

Global Car Transport Fleet Ranking (As of December 31, 2017)

Ranking	Operator	Vessels	Share (%)	Capacity (Cars)	Share (%)
1	NYK Line	110	15.9%	654,000	16.2%
2	Mitsui O.S.K. Lines	87	12.5%	516,000	12.8%
3	"K" Line	77	11.1%	453,000	11.2%
4	EUKOR	71	10.2%	476,000	11.8%
5	WWL	60	8.6%	402,000	10.0%
5	GRIM	60	8.6%	265,000	6.6%
7	GLOVIS	52	7.5%	346,000	8.6%
8	HAL	48	6.9%	314,000	7.8%
9	SCC	14	2.0%	80,000	2.0%
10	ECL	12	1.7%	50,000	1.2%
11	Toyofuji Shipping Co., Ltd.	10	1.4%	51,000	1.3%
11	NEPTUNE	10	1.4%	37,000	0.9%

Source: Created by NYK based on Hesnes Shipping As "The Car Carrier Market 2017"
Note: This table includes only vessels with a capacity of 2,000 cars or more

NYK Group Automobile Logistics-service area (As of April 2018)

Dry Bulk Division

Koichi Uragami

Managing Corporate Officer
Chief Executive of Dry Bulk Division

Profile

Joined the Company in 1984. In addition to the Dry Bulk Division, also experienced a wide range of positions in the Corporate Planning and Human Resources Divisions. From the early 2000s, was in charge of developing overseas markets for dry bulk, and obtained large-scale projects mainly from Asia. After that, started a regional dry bulk company in Belgium from scratch. Reflects on this time by saying "The things the company could do expanded as new employees joined, and I was happy to see my workmates increasing". He also says that what is important in business is "Realizing that customer needs do change, and creating a system that enables us to try over and over again even if we fail".

Business Environment

- The gap in supply and demand for cargo and vessels improved overall in fiscal 2017, and the market conditions recovered for all vessel types and sizes
- Cargo movement growth will remain robust
- The improved market conditions may lead to increased orders for new vessel construction, and this could produce another imbalance in supply and demand

Basic Strategy Based on the New Medium-Term Management Plan

- Build a bulk shipping business that is highly resilient to market conditions to ensure stable earnings
- Reduce costs by achieving efficient vessel allocation and operation through the use of advanced ICT and our own unique technologies and knowledge
- Enhance customer partnerships with proposal-based sales

Strengths of the NYK Group

- Flexible and efficient vessel allocation utilizing our global network of offices and world-class dry bulk fleet
- Long-term partnerships with customers based on relationships of mutual trust
- On-site proposals and high-quality transport utilizing our sophisticated maritime culture and expertise

Strategies/Measures

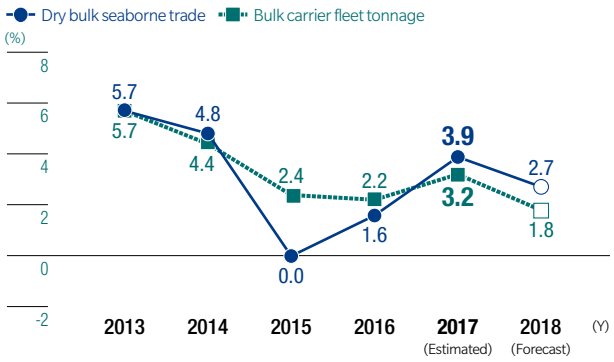
- Thoroughly managing market exposure by creating vessel portfolios that match transport contract duration
- Improving profitability by utilizing sales lead information collected by our global network
- Enhancing market forecast analyses and further improving our fleet allocation
- Further identifying customer needs and proactively promoting business activities in new fields

After the shipping bubble burst in the late 2000s, the market for dry bulkers continued a long-term slump, but in fiscal 2017 the gap in supply and demand improved due to increased cargo movement such as iron ore for China, while fleet growth was limited to about 2%, and this spurred market recovery for all vessel types and sizes. Cargo movement is expected to remain robust, but there is the risk of new vessel construction orders causing another imbalance in supply and demand in several years due to the influx of new tonnage, and the situation will therefore remain unpredictable. In this business environment, the NYK Group will fundamentally review its Dry Bulk Division in order to implement reforms aiming to establish a business structure that is resilient to market changes.

The Dry Bulk Division provides the Group with a major source of income by transporting cargo on dedicated vessels under long-term contracts with customers such as steel, paper, and electric industry that procure resources in large quantities on a stable basis. We will aim to provide services that better suit the needs of our customers by bringing together our advanced navigational and operational ability, along with our sophisticated maritime culture and expertise, and promoting more efficient usage of big data. On the other hand, since our customers' ways of thinking about resource procurement are changing, we also need the flexibility to be agile to respond to such changes. This is another reason that we need to focus on the balance between cargo and vessels and transform our fleet configuration, despite the hardships that may be involved.

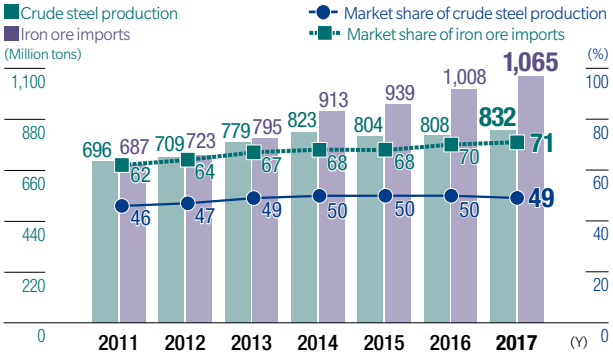
We will also enhance our ability to respond to changing market conditions to ensure a stable income. The Tramper Group inaugurated in April 2018 is in charge of promoting

Increase in Seaborne Trade and Fleet Tonnage



Source: Created by NYK based on Clarkson Dry Bulk Trade Outlook (February, 2018)

China's Crude Steel Production, Iron Ore Imports, and Global Market Share



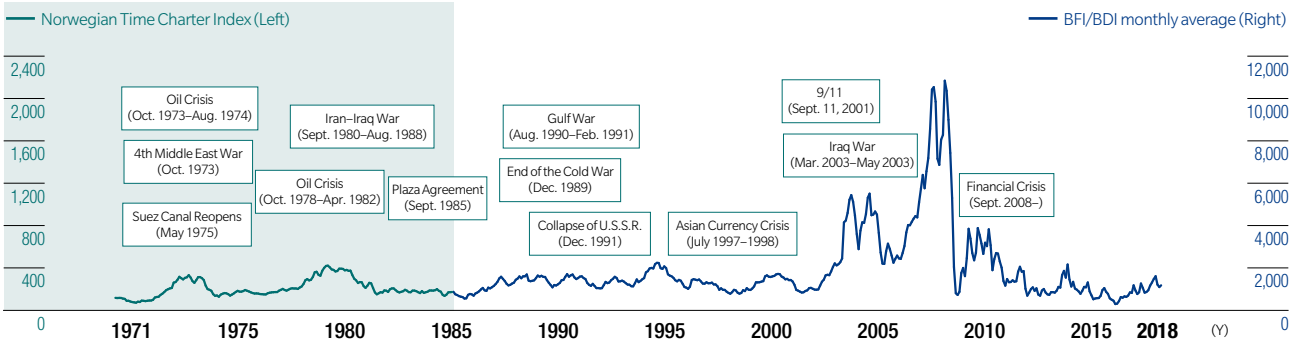
Source: Information on crude steel production created by NYK based on data from the World Steel Association
Information on iron ore imports created by NYK based on data from the Global Trade Atlas

this ability for larger vessels. Its mission is to thoroughly manage fleet market exposure and increase income in a fluctuating market via various efforts. The Group has become able to shorten the period of ballast voyages, etc., by quantitatively analyzing cargo information around the world via our global sales network and striving to perform allocation and matching for vessel procurement. Furthermore, with the advancement of market forecasts and optimization of vessel operations, there is an increasing possibility that this will become a new revenue stream for our dry bulk business.

As a matter of fact, the strategy of adapting ourselves to market changes to increase income came from a suggestion made by young employees who were enjoying being involved in such work on a daily basis. Team leaders, group leaders, and executives subsequently got together for discussions to get the strategy worked out and come up with a realistic system. Although the group certainly has some challenging targets, we have high expectations for achieving results.

There are also good signs of the situation taking a turn for the better from a totally different perspective. Since the dry bulk business has relatively lower barriers to entry, there has been an inflow of speculative funds, and the entry of a large number of players has led to commoditization. However, in recent times there has been a movement toward cargo owners starting to select shipping companies that have a certain level of transport quality due to increasing awareness about safe operation and environmental conservation. As a result, this is leading to a situation where the operation and vessel management ability of the Group are becoming points of differentiation from our competitors. In actuality, we have been making efforts to respond to the various requests being received from a large number of cargo owners and believe that this will lead to the formation of new shipping contracts in the future. This will enhance stable, long-term partnerships, be reflected in shipping prices and the market as the fair outcome of promoting safe vessel operations, and ultimately lead to the healthy development of the dry bulk market.

Dry Bulk Market Trends



Jan. 1971–Dec. 1984 Norwegian Time Charter Index (1971 = 100)
Jan. 1985–Oct. 1999 Baltic Freight Index (Jan. 4, 1985 = 1,000) Nov. 1999– Baltic Dry Index

Liquid Division

Akira Kono Managing Corporate Officer
Chief Executive of Energy Division

Profile

Joined the Company in 1984. Worked at the Liner Division, the Car Carrier Division, and the Corporate Planning Division, before transferring to the Liquid Division in 2006. From this time, he was involved in the energy transportation business, such as the LNG business. From his time at the Liner Division and the Car Carrier Division, he has concentrated on customer sales channels and focused his efforts on increasing the added-value of our services based on an overview of the entire value chain. At the Corporate Planning Division, he was in charge of fleet development, investment management, shipmanagement, etc. to meet trends in demand. These experiences have greatly contributed to improved competitiveness in the energy transportation business.

Business Environment

- Global energy demand will continue to expand, particularly in emerging regions
- In developed countries, although growth in demand for petroleum is slowing down due to a shift to renewable energy, demand for LNG is increasing
- Oil field and gas field development is shifting from shoreside to offshore

Basic Strategy Based on the New Medium-Term Management Plan

- When expanding business in the upstream to downstream of the energy value chain, enhance links with major petroleum and resource companies to rapidly identify changes to global energy trends
- Enhance support for increasing demand for LNG in emerging countries
- Further promote the LNG supply/sales business for LNG-fueled vessels ahead of other global players
- Focus investment on new fields of business where we can utilize our Group's technical ability
- Link with companies that have strengths in various fields to achieve services with high added-value

Strengths of the NYK Group

- Comprehensive ability regarding energy transportation (diverse human resources with sophisticated maritime expertise and rich experience in sales, operations, and technologies)
- Advanced technologies and knowledge accumulated regarding things such as fuel supply and the operation of LNG-fueled vessels
- The financial constitution essential for resource development projects and deep knowledge regarding safety management and legal affairs

The Liquid Division is in charge of transporting energy resources such as crude oil and LNG, in addition to petroleum products. Since this involves transporting hazardous materials, the division puts safety first and strives to expand cost-competitive services and thereby increase stable income. The division owns 187 vessels including very large crude-oil carriers (VLCCs), product tankers for transporting petroleum products (MR/LR), chemical tankers, LPG vessels, LNG vessels, FPSOs (see page 5 for details), etc., making us one of the largest energy tanker shipping companies in the world.

The International Energy Agency's (IEA) long-term energy-demand outlook* forecasts that energy demand in the year 2040 will increase by 30% compared to 2014 levels due to global economic growth and population increases. The shift to renewable energy is gaining traction due to the rising concern over climate change, particularly in developed countries, but since it will take time for a complete transition, demand for clean energy such as LNG is expected to expand in the meantime.

The Group widely contributes to the entire energy value chain—upstream and downstream—and we are strengthening our relationships with the energy industry. With our upstream development project, we promote business expansion in accordance with our strengths, such as offshore transport and operation technologies, as a partner that is needed by our customers. We are also seeking expansion in the LNG supply/sales business for LNG-fueled vessels ahead of other global players, as well as handling increased demand for LNG in emerging countries. We will continue to enter partnerships with companies that have excellent technologies and knowledge in each field to pursue business with high added-value.

* The intermediate "New Policies Scenario", which supposes that the policies promised by national governments will be achieved, of the three scenarios indicated in the IEA's World Energy Outlook 2017

Tanker Business

Strategies/Measures

- Entering medium- to long-term transportation contracts according to customer needs to ensure stable income
- For petroleum product vessels, building a system that enables the fleet size to be flexibly adjusted in order to quickly respond to variations in demand

We operate the eighth largest number of VLCCs in the world, and have a 30% share of transportation in Japan. Our income structure is stable thanks to our vessels being allocated based on long-term contracts with major petroleum companies both inside and outside Japan. In order to secure these long-term contracts into the future, we will maintain and strengthen relationships with our customers. Medium- to long-term contracts for LPG tankers and chemical tankers are also expected to provide stable income. In particular, demand for LPG is expected to grow as a relatively clean fossil energy, and we will aim to expand our numbers of contracted vessels.

On the other hand, although the product tanker business is susceptible to market conditions, we plan to focus on market trends and flexibly adjust our fleet size. We also plan to produce stable income in combination with demand for transporting new cargo such as vegetable oil.

LNG Business

Strategies/Measures

- Actively promoting value chain strategy to secure stable long-term transport contracts
- Adopting an in-house fleet management system to achieve safe operation and rapidly respond to technical innovations for LNG vessels

Since entering the LNG transport business in 1983, the Group has provided a stable service for transporting LNG for the electricity and gas industries in Japan, and in recent years we have been expanding our transport business to emerging countries in Asia. We currently own 71 LNG vessels, including those partially owned through joint ventures, which accounts for about 10% of the world's LNG fleet, or about 6% of the world's capacity, making NYK amongst the largest in the world. Forty-one of these 71 vessels have ship management services provided by an NYK Group company, services that include quality management, technology management, and manning management to achieve safe operation and a competitive transport service. We also adopt cutting edge devices according to innovations in LNG vessel technology to promote the development of LNG vessels with excellent safety and environmental friendliness ahead of other players in the industry.

Furthermore, we actively promote a value chain strategy that involves ownership of upstream LNG interests and participation in the midstream liquefaction business. In addition to the transportation service we provide, we participate in the upstream/midstream processes for a shale gas liquefaction project in North America and an LNG production project in Australia, where we have obtained commercial rights. We are also considering to participate in businesses for LNG projects planned in Africa, Canada, the Middle East, Oceania, etc.

Offshore Business

Strategies/Measures

- Strengthening partnerships with resource companies and engineering companies around the world and considering to participate in new projects
- Focusing on investment in fields where we can leverage our technical ability

In regard to crude oil and natural gas, development of offshore oil and gas fields is expected to intensify, along with shale gas, etc.

Since 2008, NYK has been actively involved in the offshore business, where we have expanded into businesses such as drillships for offshore oil fields, Floating Production, Storage, and Offloading (FPSO) units, and shuttle tankers for shuttling crude oil between offshore and shoreside facilities. Together with a Norwegian partner, we have established a shuttle tanker company called Knutsen NYK Offshore Tankers AS (KNOT) that currently operates 29 vessels. This company is part of the world's two largest industry players, and increased transportation demand is expected due to the development of new offshore oil fields.

Furthermore, we are also considering to utilize our experience and knowledge of shipmanagement and hazardous-material handling, which has been cultivated in the energy transport business, to enter the market for floating liquefied natural gas (FLNG) units and downstream floating LNG storage and regasification units (FSRU). And due to our preparations for entering the Engineering, Procurement, and Construction (EPC) business, we are fully capable of participating in the FSRU industry.

Fuel Supply/Sales Business

Strategies/Measures

- Enhancing sales in the supply/sales business for LNG-fueled vessel
- Promoting the provision of LNG supply infrastructure

As a result of increasingly stringent environmental regulations, the Group is considering the adoption of scrubbers (exhaust gas cleaning equipment) and use of low-sulfur fuel oil, while also utilizing our experience gained in our long years in the LNG transport business to develop vessels that use LNG as fuel. After launching a tugboat that became the first LNG-fueled vessel in Japan in 2015, we commissioned two LNG-fueled car and truck carriers in European waters in 2016 in advance of environmental regulations, which were a world first. We have also linked with partners inside and outside Japan to participate in the LNG fuel sales business. And in Belgium in 2017, we started service of the world's first newly constructed LNG bunkering vessel. The Group will continue to link with national governments, industries, and partners to promote the provision of LNG supply infrastructure.

With regard to hydrogen, which is expected to become used for next-generation energy, we have established the Advanced Hydrogen Energy Chain Association for Technology Development (AHEAD) together with Japanese engineering companies and trading companies, and are working on research and development for the technologies required to stabilize and transport hydrogen as a material.

Energy Value Chain

Others

Eiichi Takahashi

Director, Senior Managing Corporate Officer
Chief Financial Officer
Chief Executive of Management Planning Headquarters

Profile

Joined the Company in 1982. After experiencing sales and trade planning in the Liner Division for six years, moved to the Accounting Division, where he was involved in accounting and finance at the head office, a subsidiary in the United States, and Nippon Cargo Airlines Co. Ltd. Although it is natural for accounting and finance functions to be implemented properly, it is only when unforeseen circumstances arise that their true value comes into play. He stresses, "Rather than conducting work as if it is a routine, it is important to always think about the background, objective, and flow that lies before and after".

Real Estate Business

Strategies/Measures

- Promoting more effective utilization of real property assets as a business that can expect a stable income in Japanese yen
- Considering also renovating, rebuilding, and redeveloping existing facilities in the medium- to long-term

The NYK Group effectively utilizes the real estate owned/managed by NYK and group companies to develop a business that can expect a stable income in Japanese yen, such as by renting out office buildings.

We are also reviewing the real estate we own. Pressing issues to consider include how to effectively utilize the real estate around the Yokohama Yusen Building, which is being used as the NYK Maritime Museum, and how to create corporate value via measures for improving the potential profitability of the 40-year-old Marunouchi Yusen Building, which is thought to be the most promising in the future.

Marunouchi Yusen Building

Other Business Services

Strategies/Measures

- Utilizing the excellent brand power of the *Asuka II* cruise ship to provide high-quality services
- In addition to the core work at NYK Trading Corporation, focusing on developing products that will help solve environmental issues

The NYK Group includes various types of group companies born from the shipping business, which utilize their unique technical ability to expand dealings with companies outside the Group. We will continue to aim to improve the corporate value of the entire NYK Group while also pursuing cooperation and fostering a sense of unity among group companies.

The *Asuka II* cruise ship operated by NYK Cruises Co. Ltd. is the largest cruise ship in Japan and its high-quality service is widely lauded by its customers. In the 2017 Cruise Ship of the Year survey conducted by the Japanese magazine CRUISE, readers voted *Asuka II* tops overall and in the Japanese vessel category, marking the 26th straight year that *Asuka II* or its predecessor had received this honor. We aim to utilize the outstanding brand power of *Asuka II* while focusing on providing more comfortable and appealing cruises for further expansion and penetration of the cruise culture in Japan.

Furthermore, NYK Trading Corporation, which mostly sells products and fuel for vessels, will be offering various services for the energy business (mainly petroleum related) and the mechatronics business (such as marine equipment). In recent years, the company has promoted businesses that contribute to reducing our environmental impact, such as solar power generation and the development and sales of the ULTY boiler combustion optimizing system.

Asuka II cruise ship

Green Business Initiatives

Toshi Nakamura

General Manager, Tramp Co-ordination Group

In its new medium-term management plan, the NYK Group identified the creation of new value in the environmental field to be an important management theme. We asked the leader of the new Green Business Team established in April 2018 about the status of current progress and future outlook.

— What Was the Background Behind Establishing the Green Business Team?

Above all, **the team was established along with global upward trend of CO_2 reduction and decarbonization.** According to the International Energy Agency (IEA), investment in renewable energy has doubled in the past six years, and it is forecast that renewable energy will account for 40% of global electricity generation in 2040. Various types of renewable energy sources are appearing, such as solar, wind, geothermal, tidal, and biomass, as well as technologies that complement them and combine with existing power sources. Furthermore, the situation is rapidly changing due to environmental regulations and international affairs.

I believe that this current situation corresponds to the **"Cambrian era of energy".** The Cambrian era saw an explosion in biodiversity and natural selection. This is also occurring in the world of energy right now, and there are great possibilities despite the uncertainties.

For example, it may become possible to conduct international distribution of liquefied hydrogen created via electrolysis using the electricity generated by windmills in South America. Or if small-scale distributed renewable energy becomes possible, then surely regional distribution will also follow.

We have various strengths, such as marine knowledge, a global distribution network, a wide-ranging customer base and business portfolio, and human resources that are well-versed in on-site operations, and these strengths enable us to support global energy transportation. The background behind and aim of our team is to calmly determine the future of this Cambrian era, and **collaborate with partners that have these resources and expertise to create new value.**

— What Are the Roles of the Green Business Team?

First, functions as a think tank. Currently, the team is starting to implement the PDCA cycle on the knowledge accumulated from the various departments involved in research, sales, technology, corporate planning, and technical engineering, as well as from our group company MTI. Our team plays a central role and reads the changes in society and the market. In the future, I believe we can enhance this function by implementing concrete projects.

Second, our team functions as a sales & marketing team for new business development. By integrating our strengths with the knowledge and assessment ability of our partners, we will be able to develop new businesses based on flexible ideas that are not restricted by existing business models.

Our third and final function is to pursue synergy. When going after renewable energy projects, we will offer one-stop solutions to sell our existing businesses such as shipping and harbor consulting. I also hope that we will be able to accumulate information regarding renewable energy within the Group and bestow it with a wider point of view.

— What Fields Would You Like to Focus on in the Future?

First of all, **I would say offshore wind power generation.** There are no rules regarding exclusive use when developing normal coastal areas in Japan, and much effort is being put into establishing laws for expanding the adoption of offshore wind power generation. This is an opportunity to utilize our marine knowledge, and we are proceeding with preparations to participate.

Next is biomass. Since biomass enables us to utilize existing power generation and harbor facilities, **we believe that business opportunities exist for complementing fossil fuels with biomass**, as well as CCR (CO_2 capture and reuse).

Finally, we have hydrogen. **We aim to contribute to the supply chain from the production to the sales of hydrogen**, and have established the Advanced Hydrogen Energy Chain Association for Technology Development (AHEAD) together with other companies.

As a company based in Japan, **it is our mission to think about the future of Japan and provide energy solutions that take the characteristics of the region into account.** I believe that many of our young employees are concerned about sustainability and are interested in developing new businesses. I hope that we can work together with such young and motivated employees to create new business models that are sustainable not only for us but also for Japan and the earth itself.