Shipbuilding & Ocean Development Business Operation

June 9, 2010

Hisashi Hara
Director, Executive Vice President,
General Manager,
Shipbuilding & Ocean Development Headquarters

MITSUBISHI HEAVY INDUSTRIES, LTD.

Contents

MITSUBISHI HEAVY INDUSTRIES, LTD.
Our Technologies, Your Tomorrow

1. Review of FY 2009

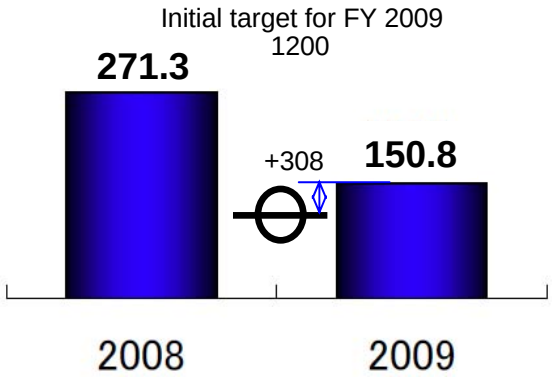
Order receipt

120.4 billion yen year-on-year drop
(30.8 billion yen increase compared with initial target of FY 2009)

- Ships ordered: 13
  (-5 year on year)

(Breakdown of ships ordered)
First half: 6
Second half: 7

(JPY billion)

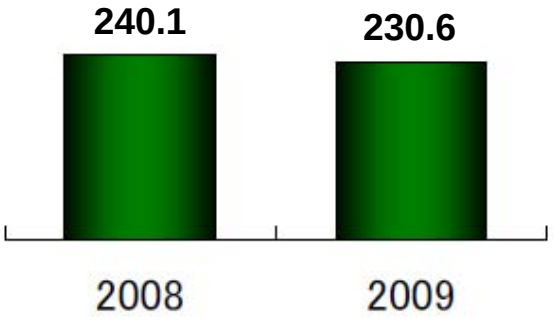


Net sales

- Ship deliveries: 20
  (-3 year on year)

(Breakdown of deliveries)
Car carrier 11
LPG carrier 5
LNG carrier 2
Patrol boat 2

(JPY billion)

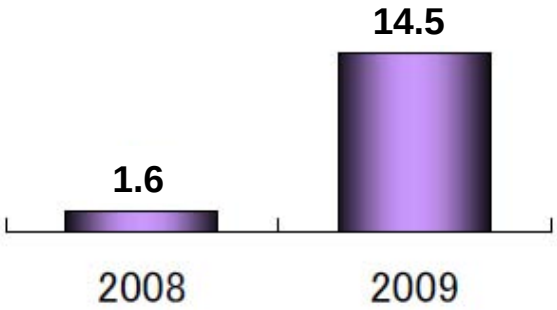


Operating profits

Profit rose 12.9 billion yen from the previous fiscal year

The bottom line was affected by the negative impact of the appreciation of the Japanese currency, etc., but given the improvement in the profit margin and a review in the allowances in the previous fiscal year, operating profits increased on a year-on-year basis.

(JPY billion)



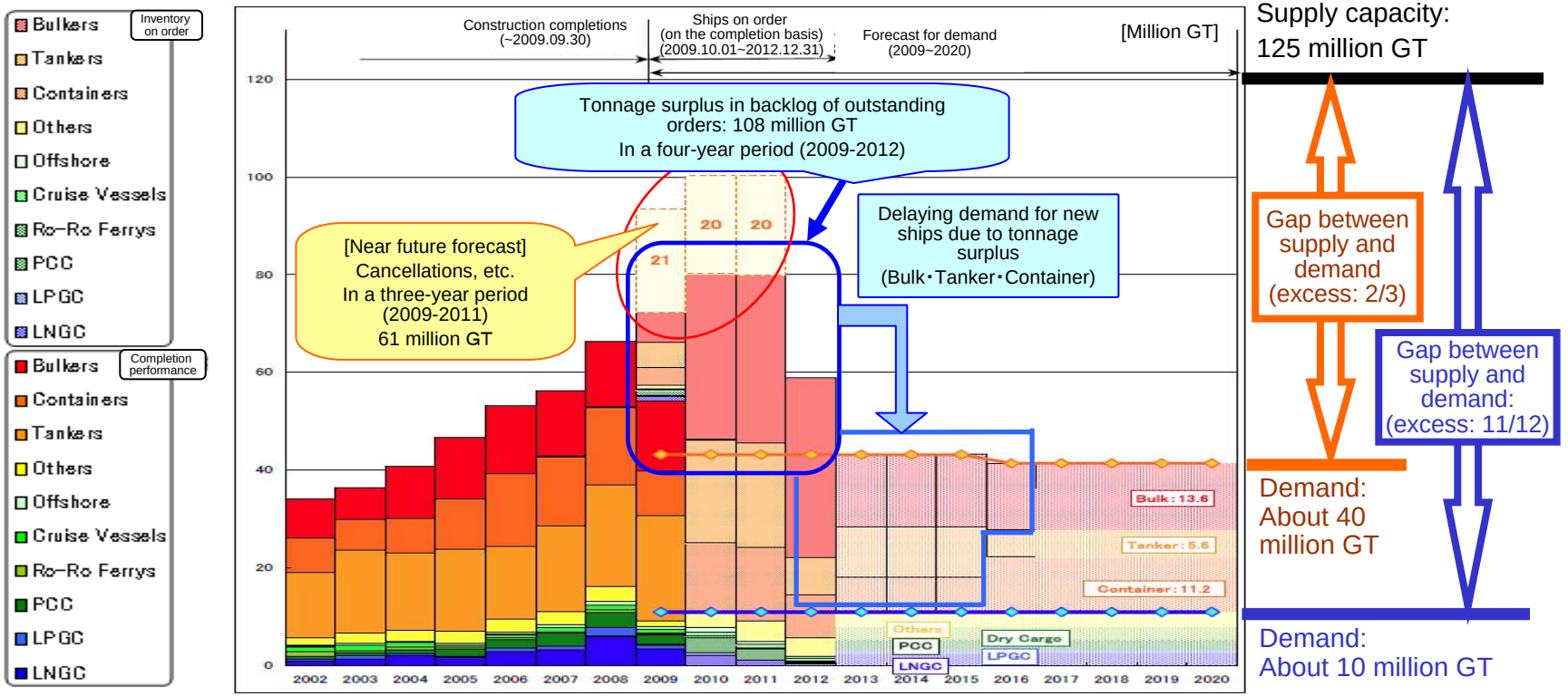
2. Shipbuilding and Ocean Development Business Environment

MITSUBISHI HEAVY INDUSTRIES, LTD.
Our Technologies, Your Tomorrow

1) Market environment (order backlog for new buildings and forecast demand)

The gap between supply and demand widened significantly after the Lehman collapse of 2008

- A large volume of orders that exceed actual demand had been placed to meet the solid increase in seaborne cargo before the Lehman collapse.
- Demand dropped drastically after Lehman Brothers failed, tripling the gap between supply and demand.
- Demand for the immediate future (to 2012) is about 10-20 million GT, and medium-term demand is expected to be around 40 million GT.



Source: Order backlog for new ships, World Shipyard Monitor (October 2009)
CLARKSON RESEARCH SERVICES LTD.

2. Shipbuilding and Ocean Development Business Environment

MITSUBISHI HEAVY INDUSTRIES, LTD.
Our Technologies, Your Tomorrow

2) Current tonnage (by ship age) by major ship type and order backlog

A knife-edge situation to continue for all ship types

◆ **Ship types where action on tonnage surplus is difficult because future demand has already been met**

(Container ships and large bulkers)

- **The order backlog is as large as currently available tonnage.**
- **Ship age is relatively young.**

⇨ **Recovery in shipbuilding demand to be slow?**

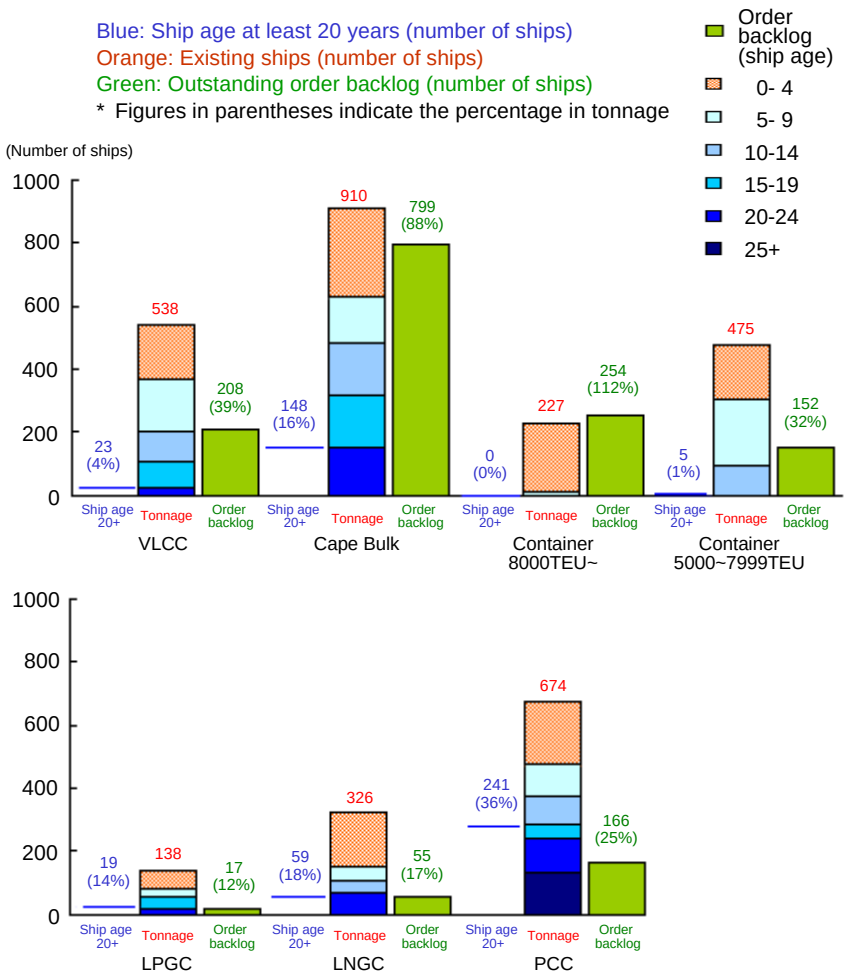
◆ **Ship types with a smaller order backlog due to project delays.**

(LPG carriers and LNG carriers)

◆ **Ships types with many aged ships for which demand can be expected, depending on the market situations**

(Car carriers (PCC))

⇨ **Recovery in shipbuilding demand at a relatively early stage?**



Source: Ship Type Orderbook Monitor (Oct. 2009)
CLARKSON RESERCH SERVICES LTD.

2. Shipbuilding and Ocean Development Business Environment

MITSUBISHI HEAVY INDUSTRIES, LTD.
Our Technologies, Your Tomorrow

3) Trends in ship prices, exchange rates, and steel material prices

Upward pressure on steel material prices due to active demand in China

◆ **Changes in ship prices**

➢ **Demand for new ships drops**

- About 5% of container ships are still idle; voyage speed has slowed to reduce operation costs.

➢ **Fall in ship prices**

- **Ship prices fell on worsening demand.**
  (A 45% drop in large bulkers)
- Price declines appear to have ceased since the beginning of FY2010; **however, this is not a full-scale recovery.**
  (Among certain ship types, there are signs of price increases.)

◆ **Changes in exchange rates**

- Ship prices of Japanese and South Korean shipbuilders differ about 25% in U.S. dollar-denominated terms.

◆ **Steel material prices: Negotiations have begun for lower prices.**

➢ **Trends in steel raw material prices**

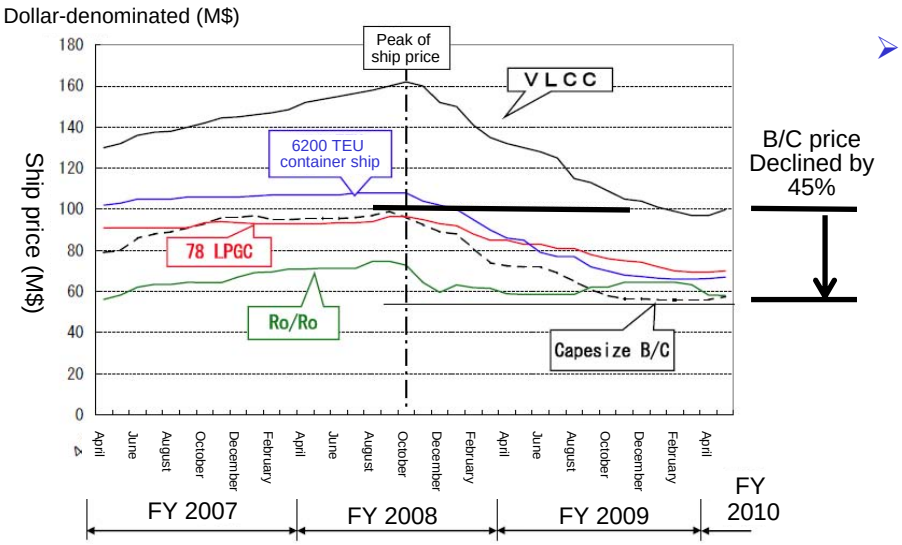
- Iron ore: up 90% from a year earlier; coking coal up 55% from the previous year

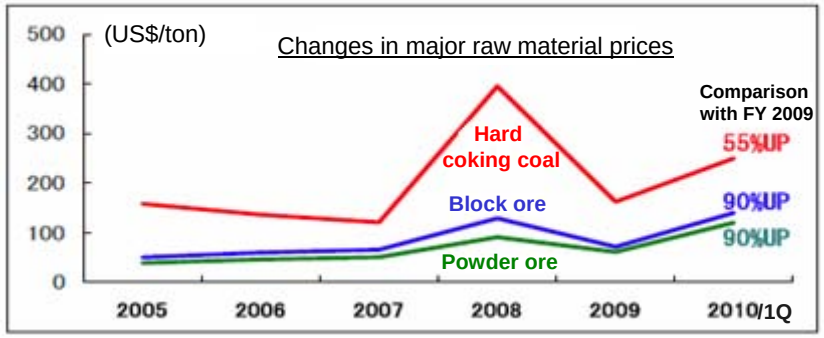
➢ **Declining demand for steel materials**

- The volume of ocean shipping in the near future is uncertain; demand for steel shipbuilding materials is expected to remain low.
- Steel material accounts for a large part of shipbuilding costs;
  An increase in ship prices due to rising steel material prices is feared; there is a possibility of a vicious cycle of decreasing demand for both new ships and steel materials due to a drop in enquiries for new ships.

➢ **Expansion of steel material supply capacity**

- Tight supply is expected to be further loosened as a new South Korean mill starts shipping thick plates for shipbuilding





2. Shipbuilding and Ocean Development Business Environment

MITSUBISHI HEAVY INDUSTRIES, LTD.
Our Technologies, Your Tomorrow

4) Summary

- The supply for commercial ships has outgrown demand; a fierce battle is expected for small business opportunities.
- By ship type, the backlog of outstanding orders for bulkers and large container ships is large. In contrast, a recovery in demand for gas carriers and car carriers is expected soon, although the outlook remains uncertain.
- Along with pressures to lower ship prices associated with sluggish demand, there are demands for higher raw material prices from raw material suppliers; this has become a major impediment to reducing the costs of steel materials and other materials and equipment, but we must further cut costs between these two pressures.

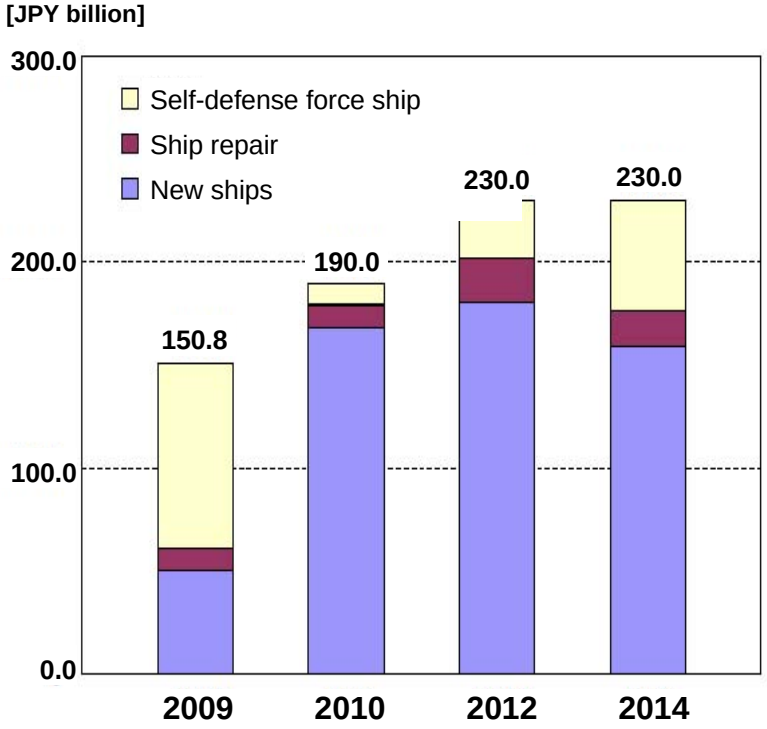
3. 2010 Business Plan (Numeric Targets)

MITSUBISHI HEAVY INDUSTRIES, LTD.
Our Technologies, Your Tomorrow

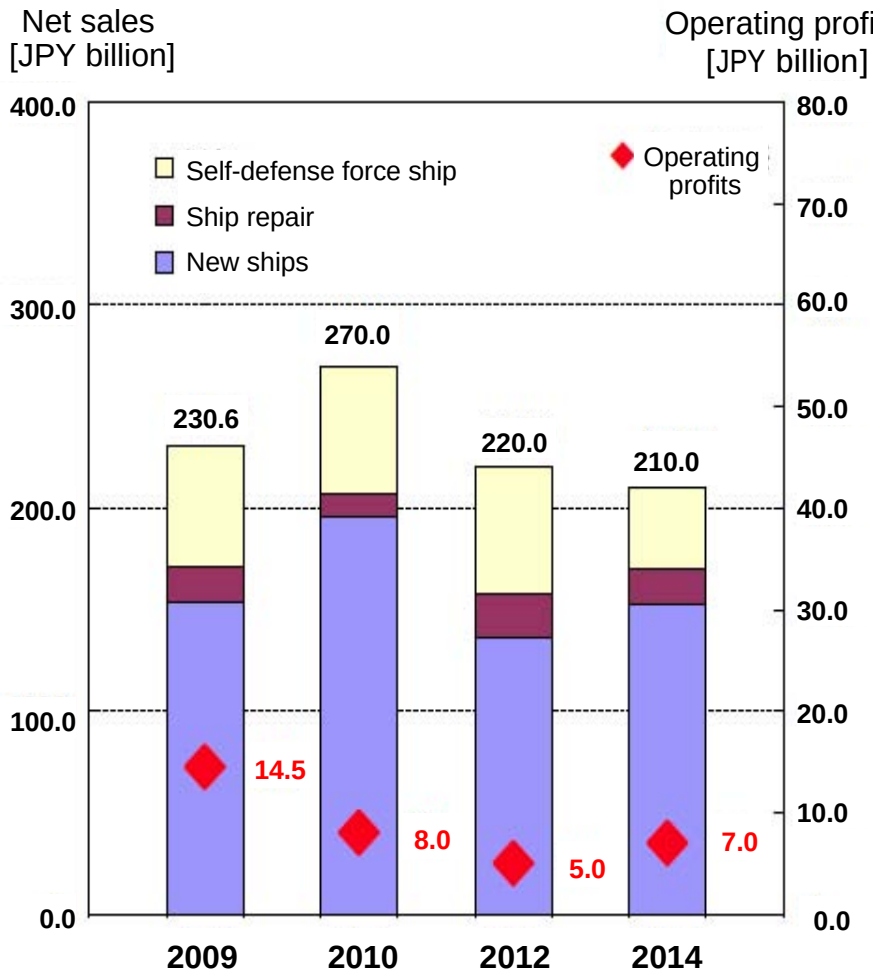
Planned orders and net sales

[Plans for order receipt]

Targeting to receive over 200 billion yen orders by securing public-sector orders and on the domestic yen-denominated ships, as well as the expansion of large project (gas carriers, etc.) and new fields (cruise ships and off shore structure).



[Sales and profit plan]



4. Strategies for Achieving the 2010 Business Plan

MITSUBISHI HEAVY INDUSTRIES, LTD.
Our Technologies, Your Tomorrow

1) Reforming the business structure

Turning the large project and new fields into core business to accelerate reforms in income and cost structures

2010	2011	2012	2013	2014
FY 2010 business plan				Goal
Reform process			Growth process	

[Product lineup]

V Large PJ, products in new fields (cruise ships, ocean development, LNG/LPG carriers)

To be core business of MHI
- Integration with other MHI products and collaboration with specialized manufacturers to be accelerated
  - Cruise ships: Establish one-ship-a-year shipbuilding
  - LNG-FPSO: Win orders for one ship every two to three years
  - Offshore wind turbine: Win orders for two ships a year

IV Regular commercial ships (ocean ships)

C/S, large bulker

(Ship types expected to have tonnage surplus for the near future)
- Step up cost-cutting activities and construct a sustainable system
  → Selective order taking

PCC, etc.

(Ship types expected to have less tonnage surplus)
- Accelerate the development of eco-friendly and better-mileage technologies.

III Yen-denominated domestic ships

- Secure orders based on our technological edge and expand share.

- Enhancing brand power (Developing eco-ships and expedited materialization of customer needs)

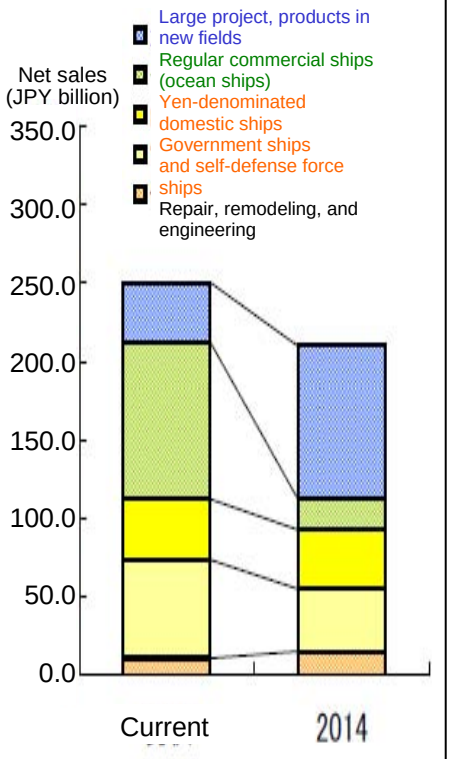
II Government ships and self-defense force ships

- Receive orders for special-purpose ships, viewing the introduction of the Basic Act on Ocean Policy as a business opportunity.
- Strive to continuously enhance naval technologies.

I Repair, remodeling, and engineering

- Responding to tighter environmental regulations, expand orders for repair and remodeling.

[Net sales]



4. Strategies for Achieving the 2010 Business Plan

MITSUBISHI HEAVY INDUSTRIES, LTD.
Our Technologies, Your Tomorrow

2) Reform and growth initiatives

Securing a foothold by constructing a sustainable system, to prepare for entry into large project and new fields in the near future

2009	2010	2011	2012	2013	2014
FY 2008 business plan	FY 2010 business plan				Goal
	Reform process			Growth process	

Reform process

- For the foreseeable future, building a system that can accommodate lower orders
  - Bolstering the ability to win orders (continued from fall 2009)
    ··· enhancing collaboration between the sales and design divisions
  - Construction of a sustainable system
    ··· strengthening a review of the plant operation system and upgrading overhead cost reduction activities

Growth process

- In expectation of a market recovery, constructing a new business system
  - Expanding orders by upgrading the development of energy-saving and eco-friendly technologies
  - Reconstructing the product and business lineup (shifting the focus to new fields)
    - Focusing resources on cruise ships and ocean development ships that are in high demand to secure orders and turn these areas into full-fledged businesses
  - Promoting the engineering business

5. Reform Initiatives

1) Bolstering the ability to win orders

Bolstering the ability to win orders by accelerating the collaboration between Sales Dept. and Engineering Dept.

2009	2010	2011	2012	2013	2014
FY 2008 business plan	FY 2010 business plan				Goal
	Reform process			Growth process	

◆**Bolstering the ability to win orders**

- ➢ **Launch of the Shipbuilding and Ocean Development Sales Department (April 1, 2010)**
- ➢ **Acquiring new competitiveness by upgrading collaboration with the Shipbuilding and Ocean Development Technology Department**

Reorganization of the Sales Department at Head Office

Former system (to March 2010)

Sales by shipyard location

- First Sales Department (in charge of Nagasaki and Kobe Shipyards and Machinery Works)
- Second Sales Department (in charge of Shimonoseki Shipyard and Machinery Works)

→ New Sales Department

New system (effective April 2010)

Sales by ship type

- Cruise ship group (cruise ships and ferry)
- Ocean development, repair, and remodeling group (Ocean development, special-purpose, government (new and repair), general repair and remodeling, submarine models, new products)
- Energy group (tankers, gas carriers, LNG-FPSO, etc.)
- Logistics group (container ships, PCC, RORO, BC, etc.)

5. Reform Initiatives

2) Construction of a sustainable system

Reviewing business systems to enhance cost cutting and production efficiency

2009	2010	2011	2012	2013	2014
FY 2008 business plan	FY 2010 business plan				Goal
	Reform process			Growth process	

◆Construction of a sustainable system

- Construction of effective plant operation and reform to achieve waste-free business processes

⇨ **System reform within Headquarters** (establishment of flexible and mobile business operation systems)

◆Cost-cutting and improved production efficiency

- Continuation and acceleration of cost-cutting activities
- Through material cost-cutting activities via global procurement,

A 40% reduction in material prices
(in comparison with the second half of FY 2008) + α

6. Growth Initiatives

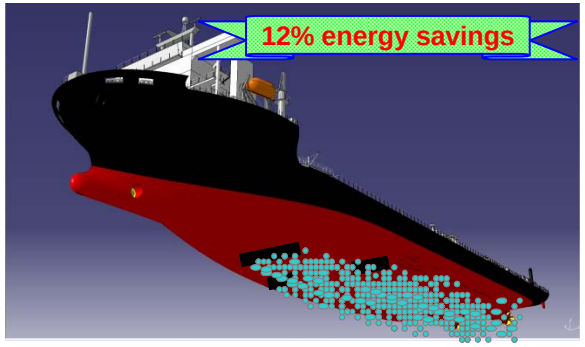
1) Upgrading technical development capability

Developing eco ships by combining advanced energy-saving and eco-friendly technologies

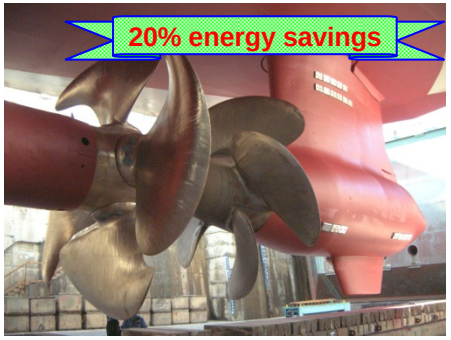
◆Development of key technologies

- **Energy-saving technology:** **Peapod-shaped LNG carriers, air lubrication system, hybrid CRP-POD thrust system, solar panels, secondary battery system, UST (reheating turbine plant), direct gas-injection-type, low-speed main diesel engine plant**
- **Environmental technology:** **Ballast water treatment system, SCR (denitrification plant for exhaust gas)**

Peapod-shaped LNG carrier



Air lubrication system



Hybrid CRP-POD thrust system

◆Eco-ship products and energy saving ratio

- **Super-energy-saving car carrier (-30 to -50%)**
- **Domestic LNG ferry (-20%)**
- **Harbor zero-emission ship (zero CO_2 emissions within harbors)**
- **Ice-bound LNG carriers (-25 to -35%)**

UST: Ultra Steam Turbine Plant, SCR: Selective Catalytic Reduction
CRP-POD: Contra-Rotating Propeller-Pod

6. Growth Initiatives

2) Upgrading environmental technology and propeller plant efficiency

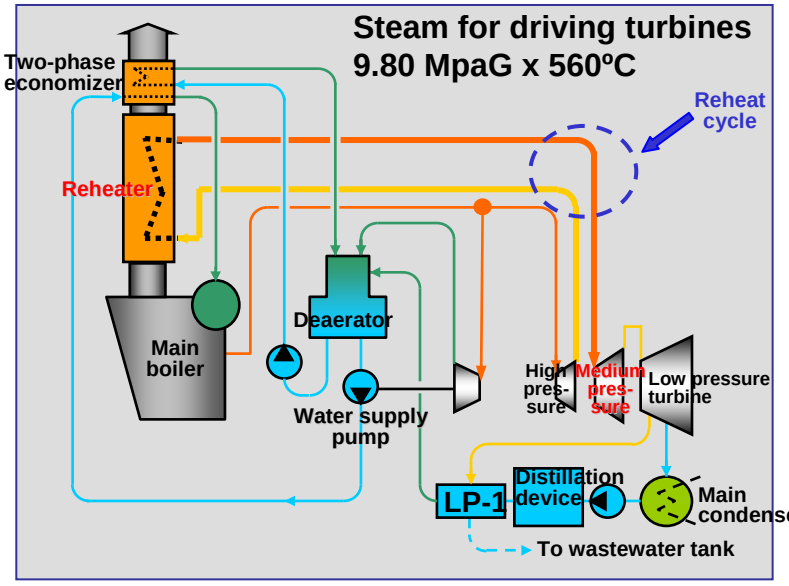
Developing a highly efficient plant in collaboration with the Power Systems Headquarters; improved mileage, reduced air emissions

◆**Responding to environmental regulations and the ship fuel revolution (shift to non-petroleum fuels)**

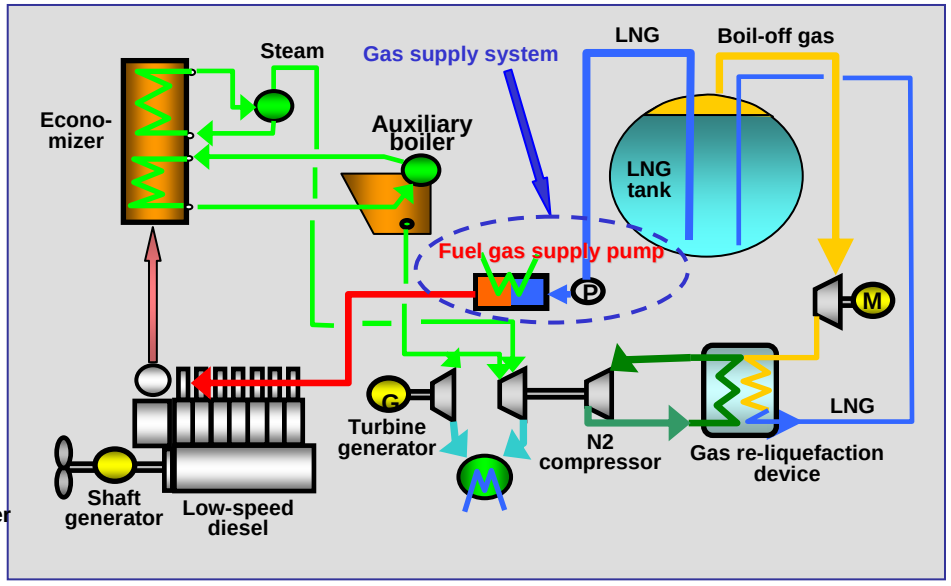
☆ Ultra Steam Turbine Plant (reheating turbine plant)
➔ Collecting waste heat energy with the waste heat cycle

☆ Slow Speed Diesel – Gas injection (direct gas-injection-type, low-speed main diesel engine plant)
➔ Directly burning natural gas in a low-speed diesel engine with excellent heat efficiency

☆Overall mileage efficiency up 15%



☆ Overall mileage efficiency up 25-35%



6. Growth Initiatives

3-1) Cruise ships

To be a core business with strategic products through continued success in winning orders

[Market environment] Cruise business is an industry that will enjoy stable expansion in the near future with average annual growth of 3.3%
➔ five to eight large new cruise ships representing more than 100,000 tons

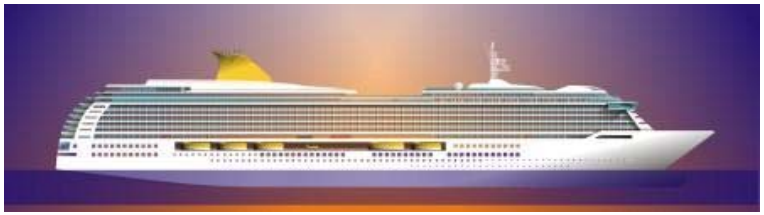
◆**Entering a market monopolized by European yards with the only track record in cruise ship construction in the Far East and extensive energy-saving and eco-friendly technologies**

☆ **Cruising enters era of eco awareness**

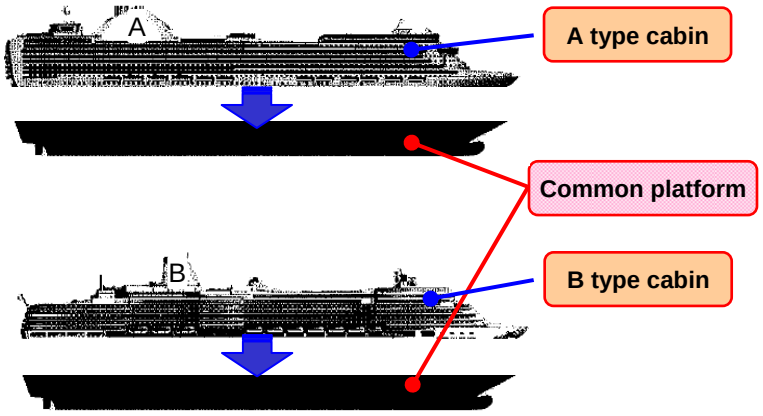
- **Propelling energy is cut 20% compared to conventional ships by reducing weight, shifting the barycenter lower, and using state-of-the-art CFD technology**
- **Power consumption in ship is reduced 20% by energy saving air conditioning and heating system and LED lights**

☆ **Common platform for high-performance and high-quality eco-friendly ship body**

- **Flexible cabin design that can encompass a wide range of cruise brand needs, from casual to luxury**



Example of concept design: focus on eco-friendliness and environmental performance



Covering a wide range of customer needs with a single platform

CFD: Computational Fluid Dynamics

6. Growth Initiatives

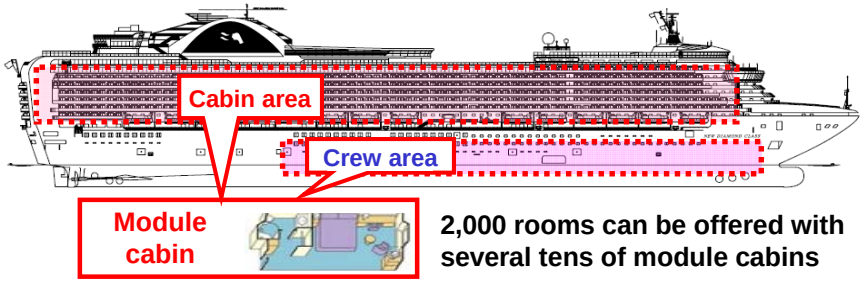
3-2) Cruise ships

To be a key business with strategic products through continued success in winning orders

◆ **Success requires simultaneously achieving quality assurance and cost competitiveness.**

☆ Cost competitiveness: Improvements in procurement and shipbuilding schemes

- Development of cruise ship equipment in collaboration with domestic suppliers
- Improved cost effectiveness and stable procurement with the establishment of SCM in Asia
- Centralized management of interior and fixture work in collaboration with general contractors



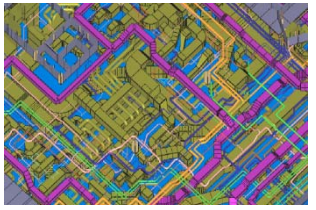
2,000 rooms can be offered with several tens of module cabins

indicates collaboration with general contractors

☆ Efficient shipbuilding: improvements in design and shipbuilding technologies

- Taking full advantage of the 3-D design information system MATES to generate precision design and logistics data
- Adopting innovative shipbuilding methods and fixtures with unit cabins, laser welding, among other developments

Unit cabin (suspended)



Ceiling piping by 3D MATES

6. Growth Initiatives

4) LNG-FPSO

◆ **In addition to the MOSS tank method, MHI is developing its own square-shaped independent tank**
To become a core product by securing orders with the LNG-FPSO development (Demand for 25-30 projects expected in the next ten years)

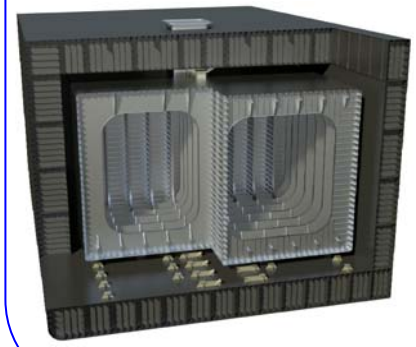
☆ **Harnessing extensive LNG carrier construction and ocean development technologies**

☆ **Offering both MOSS-type and independent square-shaped-type tanks (only at MHI)**

☆ **Expanding the customer base in collaboration with BW Offshore**

Large (over 3 million tons/year)

Suitable for MHI's own independent square-shaped tank Type B



AIP obtained from classification societies (LRS, ABS, NK)

Small and medium (less than 2 million tons/year)

Suitable for MOSS-type ball-shaped tank

AIP obtained from classification society (LRS)

FPSO: Floating Production, Storage and Offloading
AIP: Approval In Principle

6. Growth Initiatives

5) Offshore wind power generation and surrounding fields

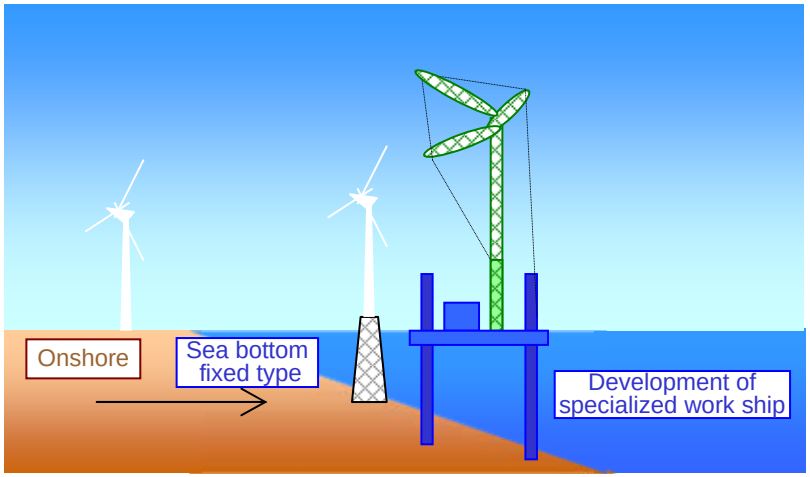
◆**Collaboration with the Energy and environment business strategy office; pioneering new projects with the achievements in integration of technologies in different MHI departments**

☆ **Use of renewed energy in Europe is rising; plans for large-scale offshore wind power generation are progressing.**

☆ **UK Round 3 Project of the United Kingdom (32.2GW, installation date: 2015-2020)**

Wind turbine: Becoming larger
Installation area: Deeper, farther
} **Needs for optimal installation work ship**
(Demand for 10-20 such ships is expected to arise)

☆ **In a collaboration between MHI's power systems as a wind turbine maker and MHI's shipbuilding and ocean development, seeking to enter the UK Round 3 Project by contacting developers at an early stage**



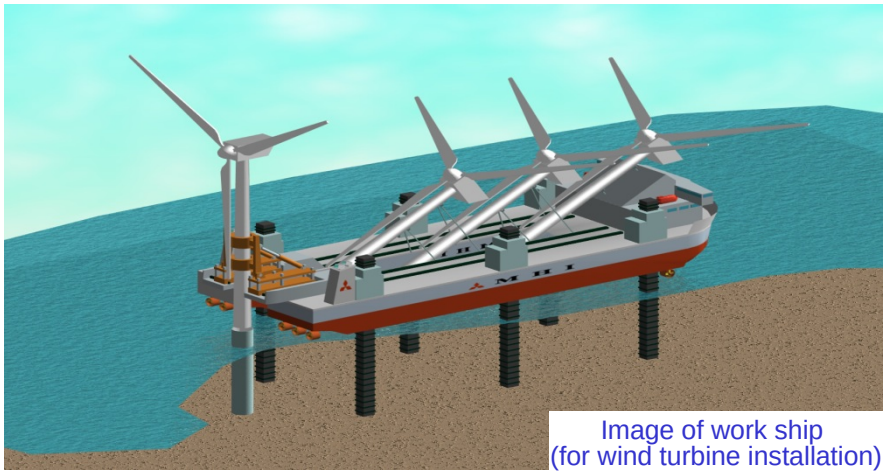


Image of work ship
(for wind turbine installation)

6. Growth Initiatives

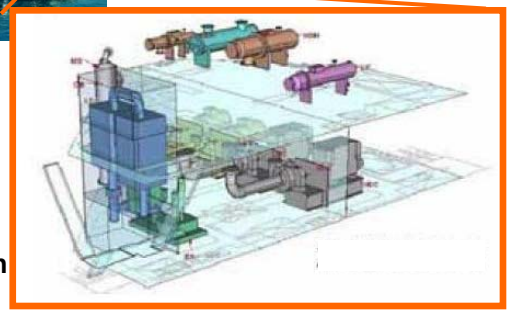
6) Expansion of the environmental and remodeling engineering businesses

Expanding in response to tougher environmental regulations

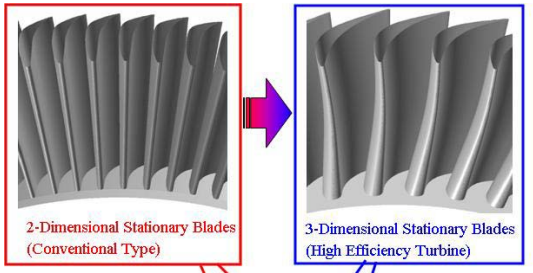
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Ballast water treatment device Mandatory installation	↑ Ships built between 2009 and 2011 (Ballast tank: less than 5,000m³)			↑ All ships built in and from 2012			↑ Ships built in 2008 or earlier (ballast tank 1,500 - 5,000m³)		↑ All ships	
Nox regulation			↑ NOx Tier 2					↑ NOx Tier 3		
Sox regulation		↑ SOx regulation (Designated ocean area 1.0%)		↑ SOx regulation (3.5% of general ocean area)			↑ SOx regulation (designated ocean area 0.1%)			

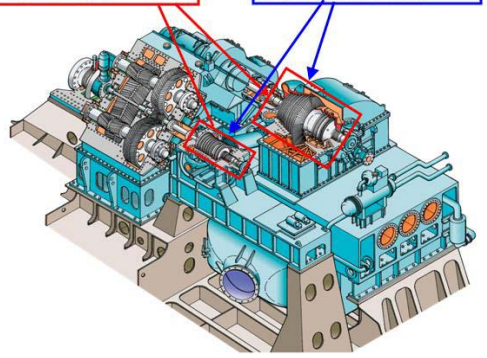
- ☆ Type approval was obtained for the ballast water treatment system co-developed by MHI and Hitachi Plant Technologies, Ltd. on March 5, 2010.
- ☆ Transportation efficiency is boosted with the installation of an LNG re-liquefaction device, with no excess gas at low-speed operation.
- ☆ CO_2 emissions are cut by improving the efficiency of LNG carriers turbine plant.

Ballast water treatment system



LNG re-liquefaction device





Improving the turbine plant efficiency

6. Growth Initiatives

7) Expansion of engineering business

Creating a design and work engineering business by actively expanding MATES users

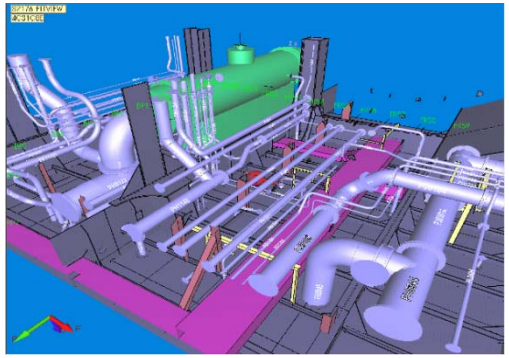
◆ An overview of MATES

Mitsubishi Advanced Total Engineering system of Ships

- A 3D shipbuilding system developed by the Nagasaki Shipyard & Machinery Works over about 30 years
- Significantly enhancing design and engineering support functions through "manufacturing innovation activities"
  - [Design] Higher level of checks on hull/piping interference: MHI's design know-how
  - [Engineering] Operating checks by 3D viewer, operating instructions by steel sheet printing

⇨**Growing into production process innovation tool for shipbuilding**

(Reduction in design change rate, reduction in wasteful processes, speedy transformation of unskilled workers into skilled ones)

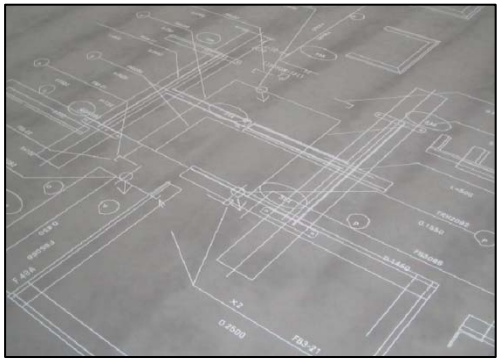


Checking operation with 3D viewer

◆ Expansion of external sales of MATES

- External sales to date: 20 companies, a little more than 400 units (small and midsize shipbuilders, design companies) ⇨ No. 1 share in Japan for shipbuilding systems
- Practical systems developed by a shipbuilder

⇨**Further sales expansion to shipbuilders in Japan and Asia region**



Design data printed on steel sheet

◆ Expansion of MATES engineering business

- Providing 3D model operation staff to small and midsize shipbuilders
- Providing 3D viewer, sale of printed steel sheets
- A design and engineering consultant business that takes advantage of MATES

⇨**Construction of a win-win relationship among the MATES users**

MITSUBISHI
HEAVY INDUSTRIES, LTD.

Our Technologies, Your Tomorrow