

# Shipbuilding & Ocean Development Business Operation

June 4, 2009



**MITSUBISHI HEAVY INDUSTRIES, LTD.**

**Shiro Iijima**

**Director, Executive Vice President,**

**General Manager,**

**Shipbuilding & Ocean Development Headquarters**

- 1. FY2008 Overview - 3**
- 2. Shipbuilding & Ocean Development Business Environment - 4**
- 3. FY2009 Earnings Outlook - 7**
- 4. Outline of FY2009 Measures - 8**
- 5. Company-wide Special Measure "Challenge 09" - 9**
- 6. Restructuring of Business Strategies (Headquarters Business Plan) - 10**

# 1. FY2008 Overview

## Order Receipt

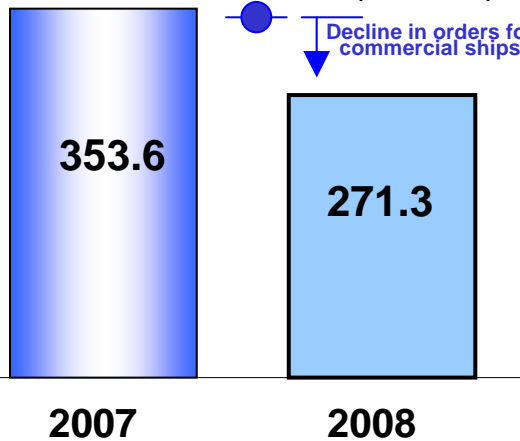
- After Lehman shock, no new orders for commercial-use ships
- Public-sector orders held at normal level
- Ships ordered: 18 (-14 YoY)
  - 1H: 16
  - 2H: 2 (public sector)

Initial FY2008 target

320.4

(JPY billion)

Decline in orders for commercial ships



## Net sales

- Ship deliveries: 23 (+1 YoY)

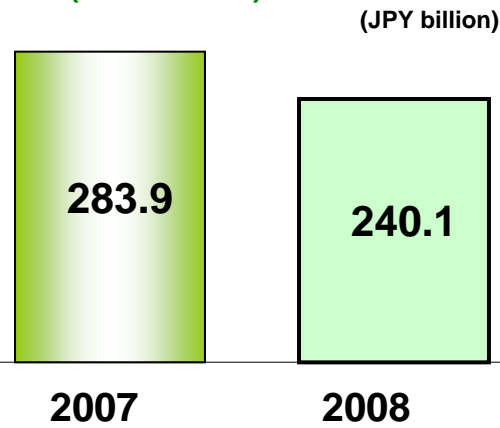
Car carrier:	10
LNG carrier:	5
LPG carrier:	1
Container carrier:	2
Patrol boat:	2
Ferry:	1
Others:	2

- Sales on par with previous 5-yr average

Previous 5-yr average:

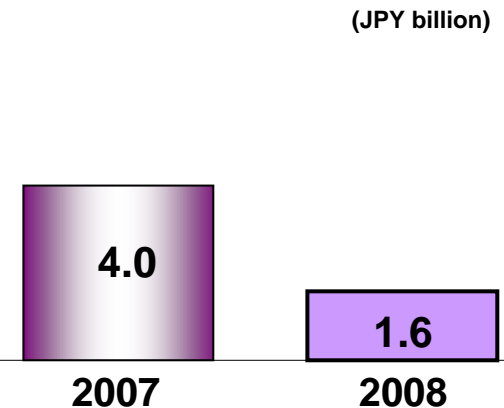
JPY240.7 billion

(2003~2007)



## Operating Profits

- Bottom line improved, but profits were eroded by provision for losses in ordered work arising from yen appreciation and higher prices for steel, and other materials.



# 2. Shipbuilding & Ocean Development Business Environment

Lehman shock has caused major changes in marine transport and shipbuilding industries.

## 1) Marine transport industry

### <Before Lehman shock>

- Increased seaborne cargoes ⇒ Tonnage shortages ⇒ Soaring transport fees ⇒ Rush for expansion of ship ownerships

• Concern over "2010 problem"

### <After Lehman shock>

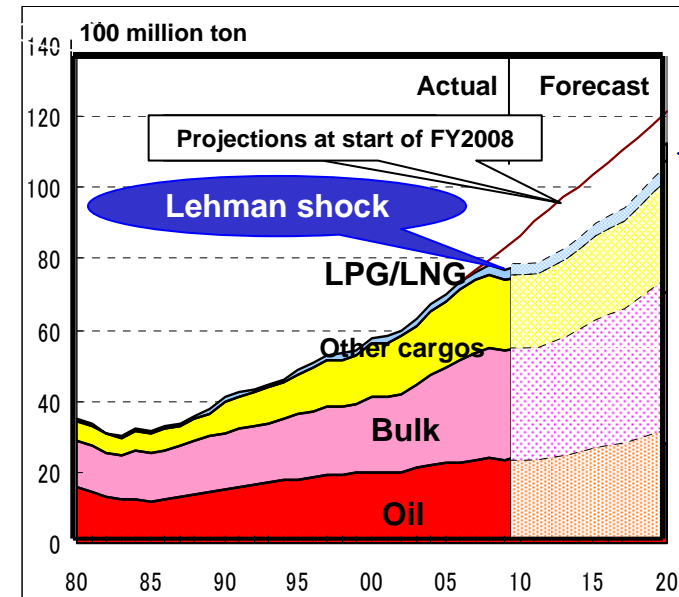
- Seaborne cargoes decreasing ⇒ Tonnage surplus ⇒ Falling transport fees ⇒ Deterioration in earnings
- Large backlogs of outstanding ship orders ⇒ Financial difficulties ⇒ Cancellations/Delivery deferrals/Bankruptcies ⇒ Increased scrapping ⇒ **Through near term, adjustment of tonnage surpluses**

### Bankruptcies of shipowner, etc.

- Although few corporate shipowners have gone bankrupt, cancellations and delivery deferrals are increasing.

Country	# of Company bankrupted
Europe	6
Korea	3
China	1
Singapore	1
<b>Worldwide</b>	<b>11</b>

<Seaborne cargo volume (actual and forecast)>



### <Tonnage, Idle vessels, Scrapped ships, Backlog of outstanding orders>

Worldwide (commercial ships) Ship type	Current tonnage		Outstanding order backlog '09.04	Cancellations '08.10~'09.05	Scrapped ships '08.10~'09.04	Tonnage Ships targeted for scrapping (over 20 yrs old)
	Tonnage '09.04	Idle '09.04				
Tankers	5,192	208	1,667	143	49	881
Bulk carriers	6,795	126	2,947	459	225	2,492
Container carriers	4,773	506	1,084	105	100	754
LNG carriers	338	33	73	2	1	56
LPG carriers	1,137	84	146	11	13	438
Car carriers	778	34	226	13	17	312
Cargo ships	4,028	124	528	74	63	2,242
RoRo Reefer	1,352	71	66	0	9	387
<b>Total</b>	<b>24,393</b>	<b>1,186</b>	<b>6,737</b>	<b>807</b>	<b>477</b>	<b>7,562</b>
Ratio to current tonnage	100%	(5%)	28%	3%	2%	(31%)

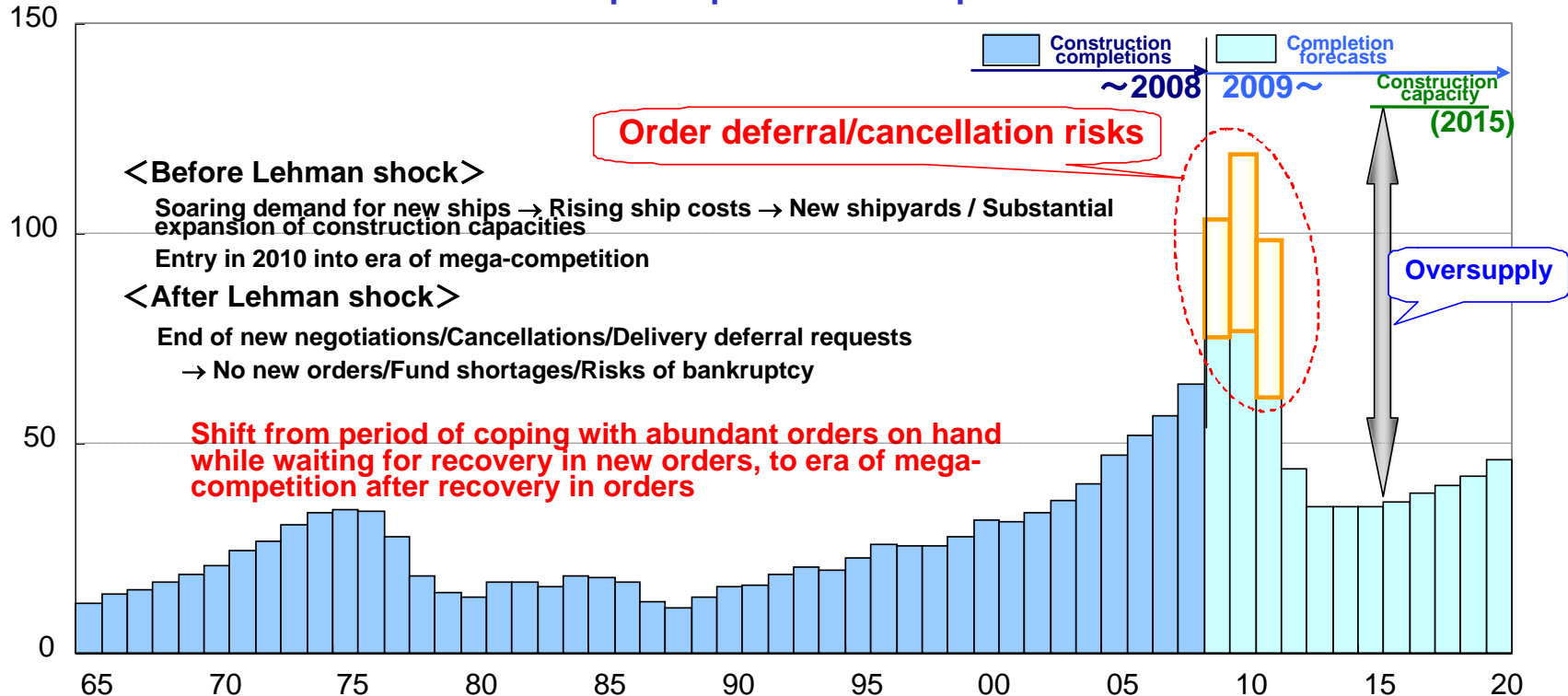
( ) = percentage of total

(Sources: "Lloyd's Shipping Economist" and Clarkson Research Services; cancellations estimated by MHI based on information in domestic/overseas trade journals)

# 2. Shipbuilding & Ocean Development Business Environment

## 2) Shipping industry

### <New ship completions & completion forecasts>



### Situation of Korean shipbuilders

- 2 bankruptcies, 2 confirmed withdrawals, 4 in rehabilitation
- **Paying attention to surplus capacity adjustments at industry leaders that had undertaken significant expansion of construction capacity**

### Negotiations after Lehman shock

- **Korea: No new negotiations on commercial ships at Big 3 (Hyundai Heavy, Samsung Heavy, Daewoo Shipbuilding & Marine Engineering)**
- **China: Thanks to policy of shipping and building ships domestically, orders have been placed by domestic shipowners. The Chinese government is also giving financial support to attract export ship orders.**
- **Japan: Overall, no new negotiations in commercial ship area**

### Situation of Chinese shipbuilders

- **Thanks to support from local governments, no shipbuilder bankruptcies**
- **Paying attention to trends at large-scale shipbuilding bases of state-owned shipyards and state-owned shipping firms**

## 2. Shipbuilding & Ocean Development Business Environment

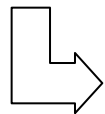
### 3) In wake of cancellations of new ship constructions and ship charters, buyers are turning to redundant ships

- Having adverse impact on prices of newly constructed non-high value-added specialized ships , such as tankers and bulkers

### 4) Steel and other material cost trends

#### • Shipping steel plates

In 2008, price increase by approx. JPY 30,000/ton YoY (approx. JPY 100,000/ton-level)



- Japan ⇒ Korea: Original settlement on \$700/ton; further price-lowering negotiations under way
- China ⇒ Korea: Reported to be \$500-550/ton
- Korea domestic (POSCO·Dogkuk Steel): 820,000 won/ton (ca JPY62,000/ton : reported on 5/21)
- Japan: **Concrete negotiations not yet under way; 2010 prices also stalemated**

#### • Prices of materials other than steel

Aluminum: LME \$3,000/ton in July 2008 ⇒ down 50% at start of 2009, currently \$1,500/ton

Copper: JPY 900,000/ton in 1H 2008 ⇒ down to JPY 400,000/ton at start of 2009, currently JPY 500,000/ton

Oil products (crude price) : \$130/BBL in July 2008 ⇒ down to \$40/BBL in early 2009, currently \$60/BBL

**Others : In 2009, holding at year-earlier levels, showing signs of leveling off**

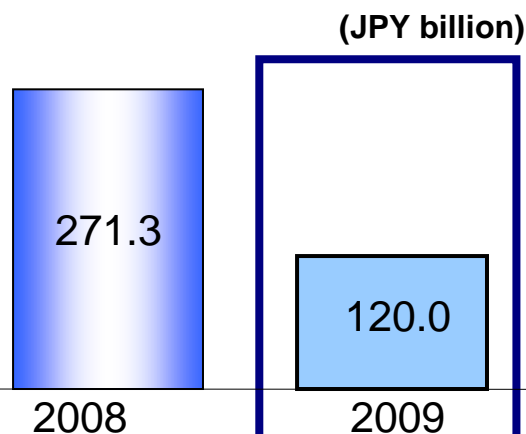
- The few projected negotiations on commercial ships are expected to generate fierce competition.
- In new negotiations, little chance of winning unless price is quite low or company has quite outstanding technologies in energy conservation, environmental friendliness, etc.

# 3. FY2009 Earnings Outlook

- Extremely severe environment surrounding commercial ship orders -

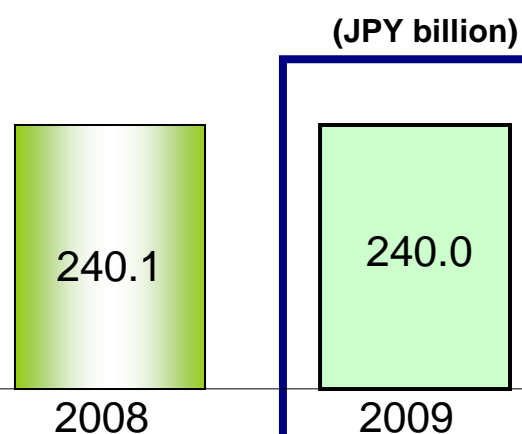
## Order Receipt

- Ship order planned: 8  
(-10 YoY)

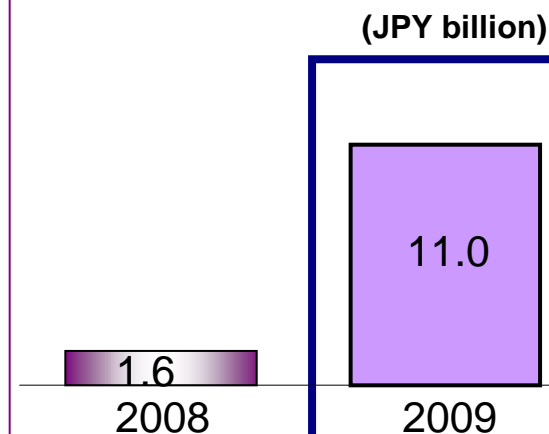


## Net sales

- Ship delivery planned: 25  
(+2 YoY)



## Operating Profits



- Continuation of demand decrease amid global recession
- Continuation of strong yen trend

- Launch of “Challenge 09” – company-wide special measures – toward securing profits in 2009 and 2010
- Secure volume of work for 2012 and beyond

# 4. Outline of FY2009 Measures

Promotion of “combined management” of special measures to secure profits in the short term, and measures for strengthening operations toward future negotiations

**“Challenge 09”:** Weather the crisis through company-wide determination in the face of challenging times

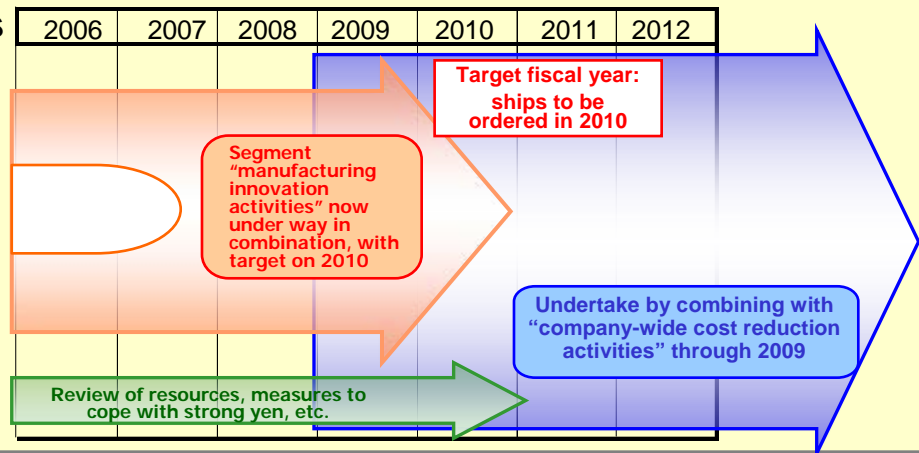
Special measures

**(1) Production process reform activities**

Elimination of waste and improvement of productivity in all processes by end of 2010: from Commencement of inquiries/negotiations → Contracts → Design → Construction → Delivery

**(2) Strengthening and acceleration of manufacturing innovation promotion activities**

Promotion of standardization/sharing through modular design (MD)  
Improvement and strengthening of SCM under way



Strengthening measures

**- Restructuring of business strategies -**

- ① Securing orders for specified projects leveraging differentiation in fuel-cost and environmental measures
- ② Initiatives to attract orders for special ships and maritime products leveraging the company’s total capabilities
- ③ Strengthening of order receipt/development response capability and cost competitiveness



# 5. Company-wide Special Measure “Challenge 09”

## Cost reduction activities

- **Accelerate productivity enhancement through production process reforms**
  - (1) Promotion of high-precision manufacturing (high-precision production planning, high-precision work instructions, high-precision construction technology)
  - (2) Thorough elimination of waste and promotion of improvements through 3D-MATES
- **Accelerate manufacturing innovation activities**
  - (1) Innovations in standardization/sharing (MD Project)
    - Development of "root ship" (drawings content fixed rate: 80%)
    - Best practice activities (in common at 3 locations)
  - (2) Supply chain innovations
    - Promotion of VE collaboration activities through formation of SCM promotion teams
    - Concentration of painting work for steel outittings (higher painting quality and lineup)
  - (3) Product reliability innovations
    - Strengthening of quality control system through supplier quality caravans
    - Continued implementation of better finished product activities (evaluation meetings, patrols, review sessions)
- **Review of resources**
  - (1) Approx. JPY 8 billion in capital investment – centered on upgrading of superannuated facilities – originally included in the 2008 Business Plan will be postponed until next year.
  - (2) Hiring plans and R&D investments will go forward in line with the 2008 Business Plan.
- **Promotion of purchasing availing of strong-yen merits**
  - (1) Expansion of overseas procurement
  - (2) Renegotiation reflecting most recent business period's exchange rates and steel prices



**Ootao Paint Center (Nagasaki)**  
Start of operations: April 20, 2009

# 6. Restructuring of Business Strategies (Headquarters Business Plan)

## 1) Market outlook and order strategies

### 1-1) Regular commercial ships

**Except for specified projects\*, demand for new ship constructions will be sluggish through the near term.**

- Focus on eco-ships (fuel, environment) and safety
- Focus on good, inexpensive ships while monitoring material cost trends

\* Focus on ownership by customers and cargo owners of their own corporate and state-owned ships  
(domestic utility company, overseas customers, etc.)

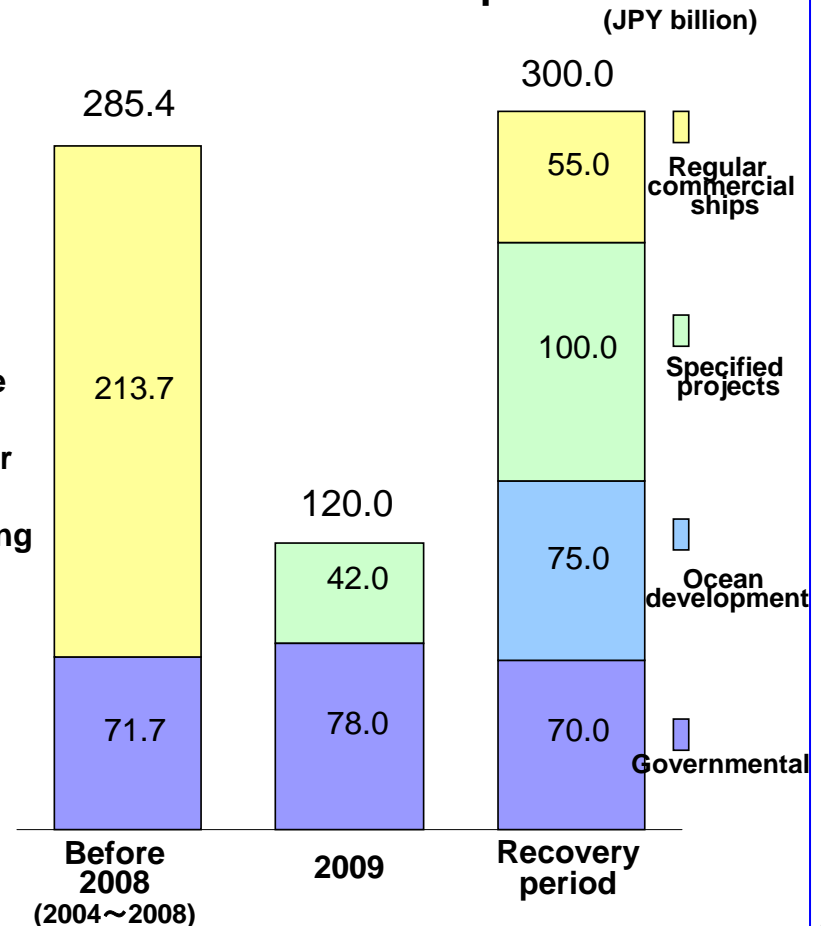
### 1-2) Ocean development

- Seabed resource development projects are firm; in particular, projects to develop sea-floor hydrothermal ore deposits are going forward.  
(research vessels, drill ships, resource exploration mother ships, resource exploration facilities)
- New demand is expanding for FLNG\*\* for use in developing medium-scale natural gas fields.  
\*\* floating LNG liquefaction and storage facilities

### 1-3) Defense and coast guard vessels

- No major changes
- Under supplementary budget, temporary increase in coast guard vessels

### <Order Receipt>



# 6. Restructuring of Business Strategies (Headquarters Business Plan)

## 2) MHI's future business plans

2-1) Over the next several years, significant demand for container ships or PCTCs can be anticipated.

The company will shift focus to specified projects (including special ships) and, further on, ocean development business.

### 2-1-1) Regular commercial ships

① Regular commercial ships (LNG / LPG carriers, VLCC, large-size ferries)

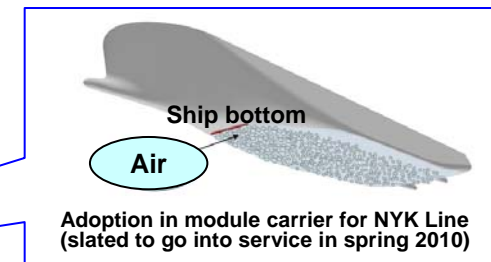
<Targeting 20% fuel economy differential>

		Bench mark (2007-2008)	Targeted in 2008 Business Plan (fuel efficiency advantage over ompetitors)	Current status	New target (Mid-2010)
PCTC	Large-size	5%	Over 15%	About 15%	Over 20%
	Medium-size			About 15%	
Container carriers		10 – 15%	Over 15%	10 – 15%	
LPG carriers		0%	Over 10%	About 6%	
LNG carriers		-5 – 0%	Over 10%	About 8%	

#### 【Specific initiatives】

- Hull form development and improvement of screw propellers
- Efficient pump operation by use of inverter
- Reduction in frictional resistance by air lubrication
- Comprehensive performance improvement program (Eco-ship) jointly with shipowners

(outfitting of photovoltaic panels, etc.)

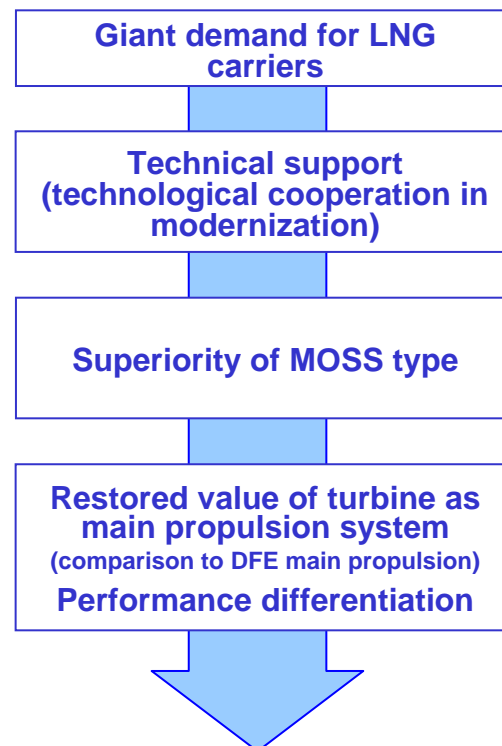
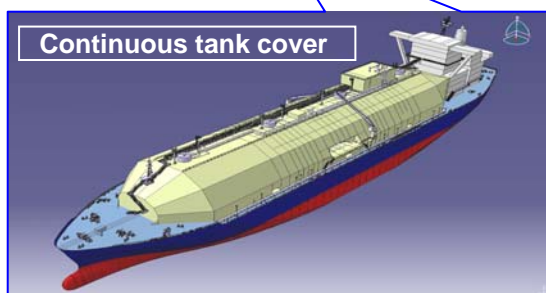


# 6. Restructuring of Business Strategies (Headquarters Business Plan)

## 2-1-1) Regular commercial ships

### ② Participation in big projects in Russia

- One of world's largest gas fields
- Targeting ownership of large volume of state-owned ships, including domestic construction of LNG ships
- Focus on safety in icy ocean waters
- Propulsion: 2 axes/UST
- Continuous tank cover



**Aiming for large volume of LNG carrier orders**

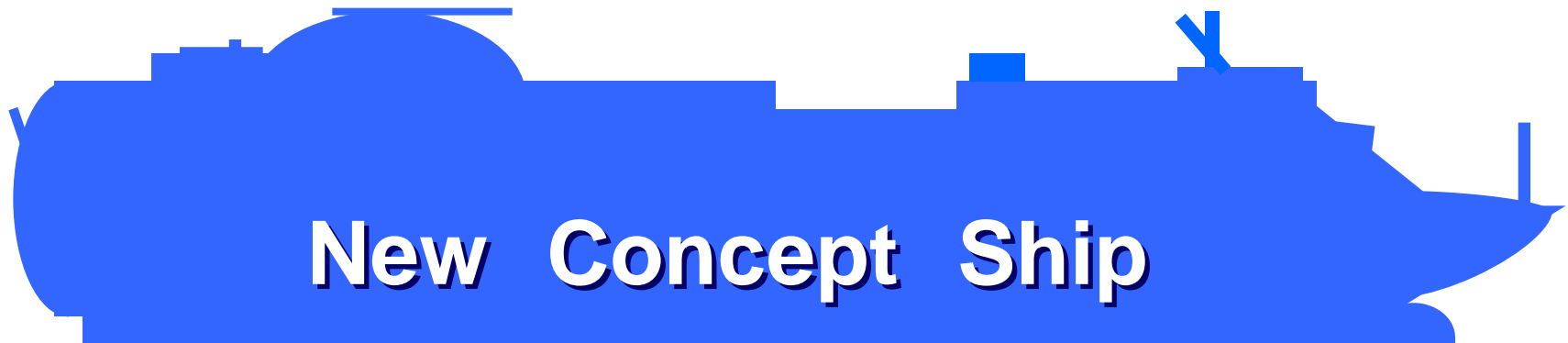
# 6. Restructuring of Business Strategies (Headquarters Business Plan)

## 2-1-2) Cruise ships

### ○ Project to develop new type of cruise ship

- After Lehman shock, negotiations on passenger ships came to a halt; negotiations on new ship constructions are also on hold for the time being

⇒ In preparation for recovery in the cruise market, development is under way of a new type of next-generation passenger ship

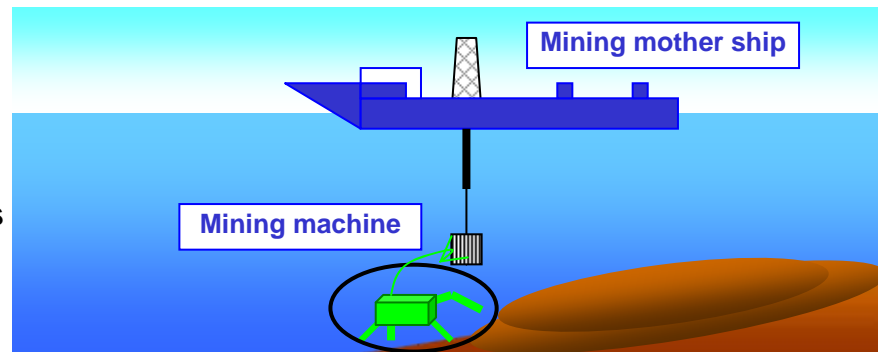


# 6. Restructuring of Business Strategies (Headquarters Business Plan)

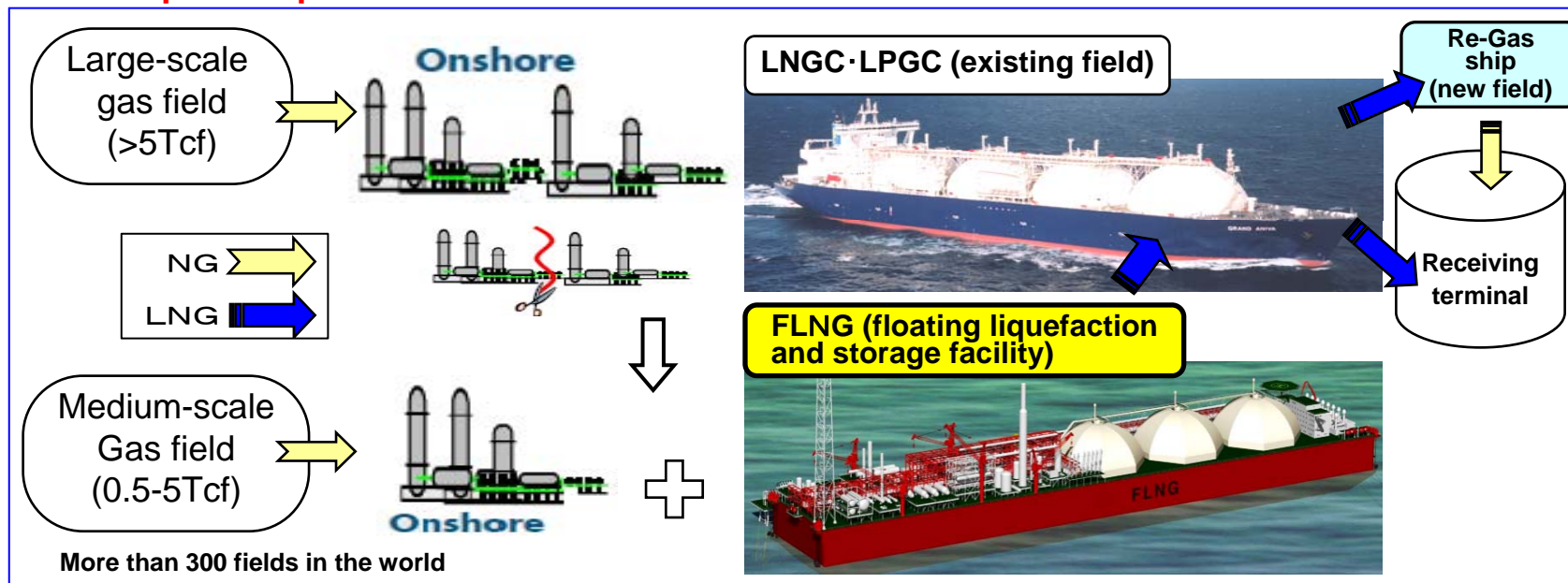
## 2-1-3 Ocean development

### ① Initiative to develop hydrothermal ore deposit-related facilities (mining mother ship, mining machine)

- Testing phase (through 2013) ⇒ Preparations toward commercialization



### ② Making FLNG a mainstay of ocean development operations



More than 300 fields in the world

Tcf: Trillion cubic feet (1 Tcf is equivalent to 2 million ton/year x 10 times)

**Challenging the market with the superiority of MOSS-type ships (in terms of safety and low cost) and total integration capability**

# 6. Restructuring of Business Strategies (Headquarters Business Plan)

## 2-1-3) Ocean development

### ③ Offshore wind turbine

- Development of new business through comprehensive capabilities, in collaboration with power systems

(onshore wind turbines + ship/marine technology)

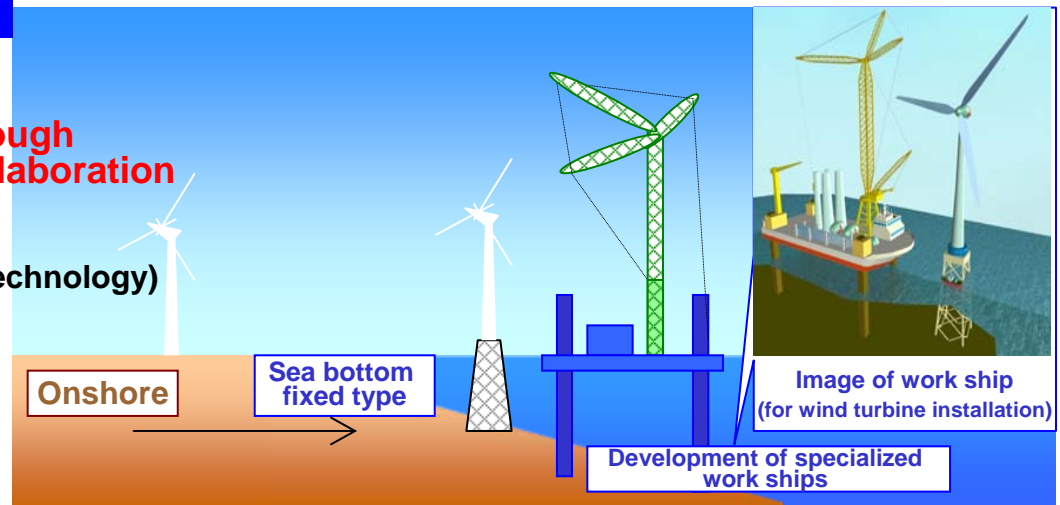


Image of work ship (for wind turbine installation)

Development of specialized work ships

## 2-1-4) Repair and remodeling ships

### ○ Initiatives into high value-added ship business

- Repair operations at Yokohama were shifted in December 2008 to direct oversight by business headquarters. Centered on the headquarters, business operations encompassing sales and technology together are now under way.

- 1) Swift response to business opportunities of all kinds in general ship repairing
- 2) Developing high value-added ship areas such as repair of passenger ships and conversion of special ships.



Refurbishing of MOPAS "Nippon-maru"  
(Slated to begin in November 2009)

## 2-1-5) Defense/coast guard ships

- Steady receipt of orders thanks to overwhelming technological strengths

# 6. Restructuring of Business Strategies (Headquarters Business Plan)

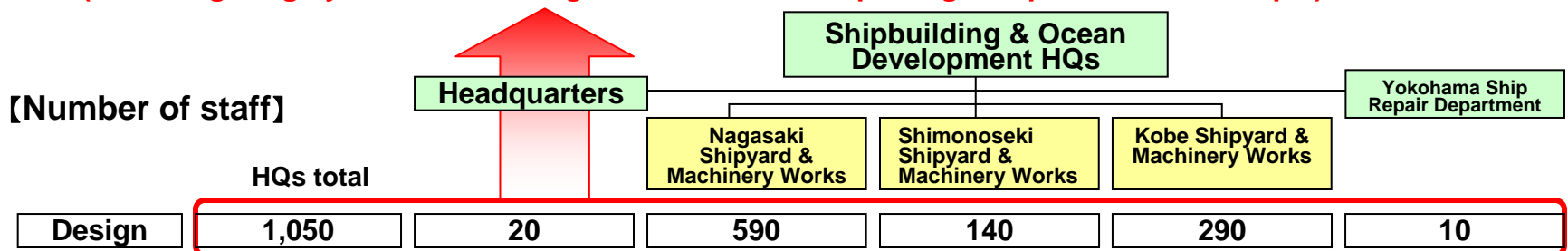
## 2) MHI's future business plans

2-2) Strengthening of response capability to orders and development, and strengthening of cost competitiveness

### Strengthening of organization and operation of Shipbuilding & Ocean Development Business HQs

#### Strengthening of organization and operation of design functions

- Amid the severe environment caused by dramatic changes in the new ship market environment, the company will seek strategically stronger organization and operation in
- **Headquarters directly overseeing engineering groups encompassing some 700 engineers (excluding roughly 350 involved in general merchant ship design response and warships)**



#### Strengthening of other organizations and operations

- Strengthening of horizontal consolidated works of sales, construction, materials, quality assurance and organization and operations

Full use of technological capabilities and resources

**Strengthening of both order receipt/development response capabilities and cost competitiveness**





Our Technologies, Your Tomorrow

A red swoosh underline that starts under the text and extends to the right, ending in a pointed arrowhead.