

Status of 2018 Medium-Term Business Plan (FY2018-FY2020)

May 9, 2019 Mitsubishi Heavy Industries, Ltd.

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Contents



I. Business Plan Progress Status	
1. Business Plan Progress Summary	- 4
2. FY2018 Results	- 5
3. FY2019 Numerical Targets	- 6
II. Progress Status of Core Measures	
1. Summary for Progress Status of Core Measures	- 8
2. MHPS Business	- 9
3. MRJ Business Measures	- 11
4. Growth Strategies	-12
5. Global Group Management Structures	-21
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-25 **Reference** Numerical Targets by Domain etc.

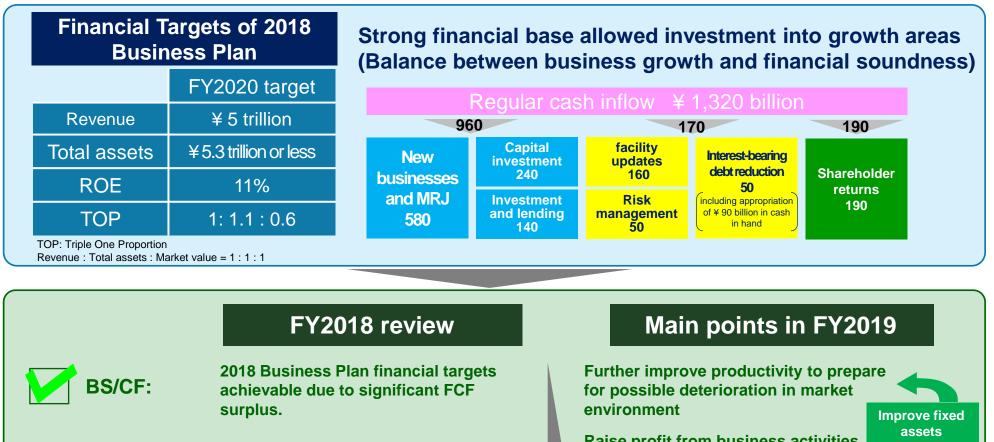
MHPS : Mitsubishi Hitachi Power Systems

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I. Business Plan Progress Status





Medium-lot manufacturing was solid, but orders were down on shrinking of coalfired power plant market.

FCF: Free cash flow



Short-term measures and medium/longterm MHI FUTURE STREAM progressing. Raise profit from business activities in all segments, and secure orders through strengthening of servicing **business**



Accelerate both short-term and medium/long-term strategies, to achieve growth

BS: Balance sheet CF: Cash flow ROE: Return on equity

Orders/PL:

I-2. FY2018 Results



					(Billion yen)
	FY2017 results 111.1yen/\$ \129.9yen/€	FY2018 initial forecast 110yen/\$ 130yen/€	FY2018 revised forecast (as of Feb.26) 110yen/\$ 130yen/€	FY2018 result 110.7yen/\$ 128.5yen/€	Major reasons for variances with initial targets
Orders received	3,868.7	4,100.0	3,800.0	3,853.4	Cancellation or delay of large-scale projects (steam power generation, chemical plants)
Revenue	4,085.6	4,200.0	4,200.0	4,078.3	Targets unachieved in Power Systems and Aircraft, Defense & Space segments
Profit from business activities (Profit rate)	58.1 (1.4%)	16.0 (3.8%)	190.0 (4.5%)	186.7 (4.6%)	Proceeded smoothly as planned ¥ 30 billion in profit from business activities and ¥ 20 billion in net income booked on sales of
Profit attributable to owners of parent	-7.3	80.0	100.0	101.3	fixed assets
ROE	-0.5%	6%		7.2%	
FCF	167.5	50.0	130.0	243.0	Surplus achieved on progress in reducing working capital
D/E ratio	0.48	0.4		0.38	
Equity ratio	26.6%	28%		27.8%	
Interest-bearing debt	813.1	770.0		665.1	
Total assets	5,248.7	5,100.0		5,142.7	
Dividend(yen/share)	120yen	130yen		130yen	

I-3. FY2019 Numerical Targets



					(Billion yen)
	FY2018	2018→2019	FY2019	2019→2020	FY2020
	results	Core measures	targets	Core measures	targets
	110.7yen/\$ 128.5yen/€		110yen/\$ 125yen/€		110yen/\$ 130yen/€
Orders received	3,853.4		4,300.0		5,000.0
Revenue	4,078.3	2	4,300.0	2	5,000.0
Profit from business activities	186.7	3	220.0	3	340.0
(Profit rate)	(4.6%)	① Orders assured for	(5.1%)	${f 1}$ Expand business	(6.8%)
Profit attributable to owners of parent	101.3	projects held over from previous year (Power Systems, I&I)	110.0	scale, including non- organic growth	170.0
ROE	7.2%		8%	(+¥ 400 bn)	11%
FCF	243.0	Systems and I&I	50.0	Increase non-organic growth (+¥ 400 bn) and revenue (connectably)	* 50.0
D/E ratio	0.38		0.3	revenue (especially Power Systems)	× 0.3
Equity ratio	27.8%		29%	③ Increase profit,	∗ 30%
Interest-bearing debt	665.1	③ Improve profitability of build-to-order	600.0	especially in Power	× 600.0
Total assets	5,142.7	product operations (I&I)	5,200.0	Systems and I&I	* 5,500.0
Dividend(yen/share)	130yen		150yen		180yen

* FY2020 original targets have been revised to reflect achievement of surplus FCF and new IFRS lease accounting standards.

FCF 200.0→50.0 D/E ratio 0.4→0.3 Equity ratio 31%→30% Interest-bearing debt 760.0→600.0 Total assets 5,300.0→5,500.0

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II. Progress Status of Core Measures

II-1. Summary for Progress Status of Core Measures



	FY2018	FY2019 and beyond
MHPS Business	 Increased Orders: #1 Market Share Heavy Duty Gas Turbines and Expanding Service Orders Increased Profit: Achieve Fixed Cost Reduction plan 	 Enhance gas turbine competitiveness Grow service faster with A.I. introduction Accelerate fixed cost reduction Introduce factory digitalization
MRJ Business Measures	 Capital increase at Mitsubishi Aircraft Corp. Received TIA from MLIT Began TC flight testing 	 Continue TC flight testing Strengthen synergies with Tier 1 business Pursue full-scale development of MRJ70
Growth Strategies	 Continued to expand medium lot manufacturing Expanded orders for offshore wind turbines Launched MHI FUTURE STREAM 	 Short term: Expand portfolio of environmentally conscious products Medium/long term: Shift to new business areas and business models
Global Group Management Structure	 Determined direction after deliberations by task force Began implementing measures to improve diversity and management development 	 Strengthen portfolio management functions Promote transfer of authority to SBUs Pursue group synergies Reform workstyle and improve employee engagement
MHPS: Mitsubishi Hitachi Power Systems	GT: Gas turbine TIA : Type Inspection Authorization TC : Type Certi	ficate MLIT: Ministry of Land, Infrastructure, Transport and Tourism

II-2. MHPS- Natural Gas Power Generation Growth

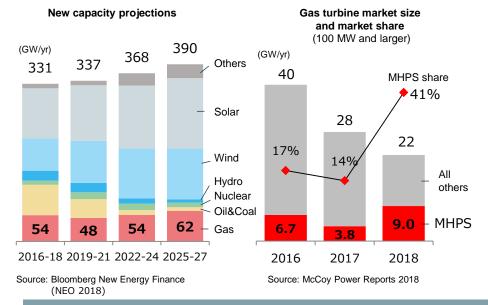


How did we increase orders in a competitive market?

MHPS moved from #3 to #1 global market share in the 100 MW+ <u>Heavy Duty Gas Turbine</u> market segment as customers embraced the J-series gas turbine

We project a flat natural gas power generation market in the near term, with growth in the longer term.

We will continue to grow revenues and profits through enhanced product competitiveness, and new service products.



Natural gas & renewable growth

Improve product competitiveness

1) World's highest efficiency large gas turbine

J-Series Evolution

25 orders received or expected.

First delivery scheduled for Nov. 2019.

- Up to 3.2% higher efficiency than earlier models
- Contributes to CO₂ reduction

JAC Today



GT recipient of 2018 METI Minister's Award for excellence in energy conservation

② Small/medium scale GTs: for flexible operations and mechanical drive applications

- Orders increased significantly in FY2018

FY2017: 2 units \rightarrow FY2018: 18 units

- H-100 product certification

Major oil companies: Shell, Total, ExxonMobil (6 units for Mozambique) Major engineering firm: Bechtel (U.S.)

- Back-up support to renewable energies
- **3** Development of new technologies
- Next-generation (67%+) and 100% hydrogen-fired GT, toward carbon-free society
- Autonomous operation

Next-generation power plants capable of power demand forecasting, maintenance detection, etc. JAC: J-Series Air-Cooled



H-100 GT

H-25 GT





Enhanced JAC installation underway at MHI demonstration power plant with 2020 commercial operation.



II-2. MHPS- Steam Power Generation Reduction



New build project backlog is strong through FY2020

From FY2021 we see a decline in new projects

Profitable service fleets will continue to operate.

We will accelerate ongoing fixed cost reduction and base restructuring plans for new build projects

We will expand our profitable service business

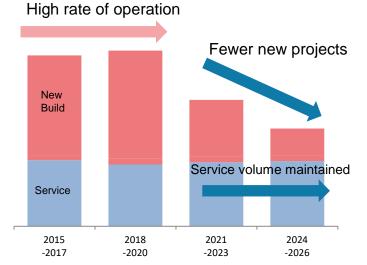
Expanding service business

- Support optimized operation and create customer value
 - Utilize AI technologies (MHPS-TOMONI)
 - Remote monitoring services
- Expand application of Air Quality Control Systems (No.1 market share in global FGD market)
- Support improving availability of Steam Power assets.
 - Shorter inspection durations
 - Active use of drones / digital solutions
 - Support other-OEM Fleets



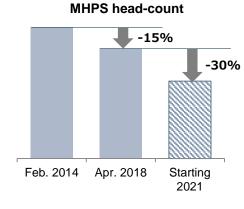
Fixed cost reduction acceleration

Steam power market



Fixed cost reductions and base restructuring are progressing on schedule.

 \rightarrow To be accelerated further



RMC: Remote Monitoring Center

From merger to Apr. 2019

- Domestic: Consolidation to 1 factory per product Steam turbines → Hitachi Plant
 - Boilers → Nagasaki/Kure joint operation
- Overseas: Reduction of redundant resources and restructuring to match business scale (downsized in China, Americas, Europe, Australia.)

Starting from 2021

- Align headcount with business forecast
- · Improve productivity through digitalized factories

FGD: Flue gas desulfurization



Drone

II-3. MRJ Business Measures



- Proceeding TC flight tests toward first delivery in mid-2020
- Enhancing the business structure through synergy with Tier1 business

	July 2018 Demonstration flight at Farnborough Airshow
	Dec 2018 TIA received from MLIT
	Dec 2018 Capital increase at Mitsubishi Aircraft Corp.
	March 2019 Start of Type Certification (TC) flight testing
	March 2019 LOA received from U.S. Federal Aviation
	Administration (FAA) June 2019 Paris Air Show
0	Strengthen synergy with Tier1 business
	(build optimal structure)
	MRJ90 Type Certificate Acquisition
	Mid-2020 Delivery of first MRJ90
	Pursue full-scale development of MRJ70





March 3, 2019: Start of TC flight testing



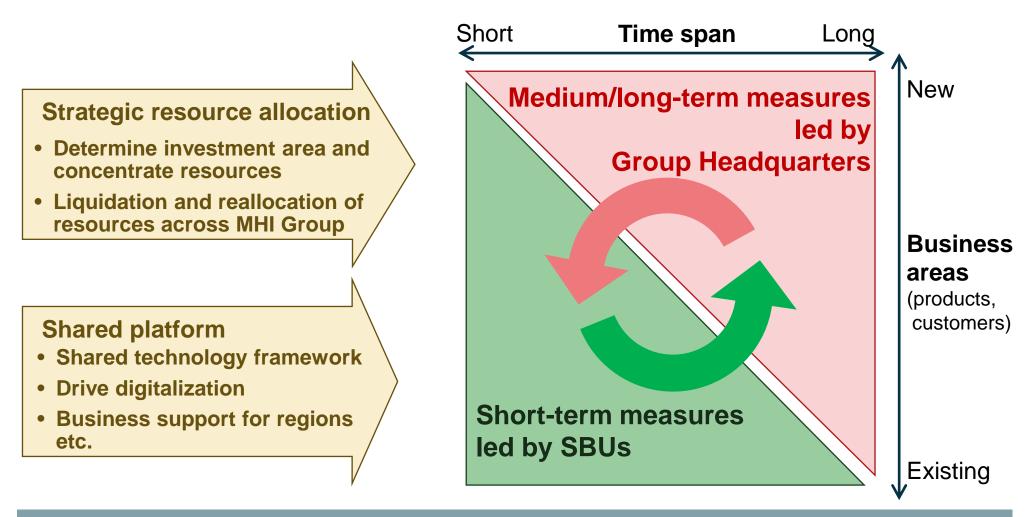
March 24, 2019: Start of extreme weather testing (McKinley Climatic Laboratory)

TIA: Type Inspection Authorization MLIT: Ministry of Land, Infrastructure, Transport and Tourism

II-4. Growth Strategies

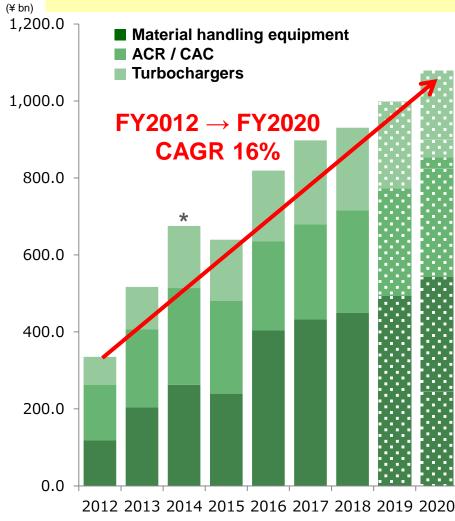


- Drive growth measures both in short and medium/long term
- Devote resources and utilize shared platform





- Focused growth investments, including M&A
- Expand business through product development using technology synergies



^{* 15-}month accounting period, due to change of account closing at some consolidated subsidiaries

Results to date

Turbochargers

- Optimized production system (Japan, Europe, China, Thailand, North America) set in place, and productivity improved
- Chinese market developed

ACR / CAC

- Overseas production system strengthened, and productivity improved
- Toyo Engineering Works converted to group company (2014)
- Management speed improved (spinoff in 2016)

Material Handling Equipment

- JV with Nichiyu (2012)
- Acquisition of UniCarriers (2015)
- PMI advanced and business scale expanded on solid market growth

CAGR: compound average growth rate ACR: Air-Conditioning & Refrigeration PMH: Pon Material Handling NA, Inc. (major U.S. material handling equipment vendor) AGF: Automated Guided Forklift

Future initiatives

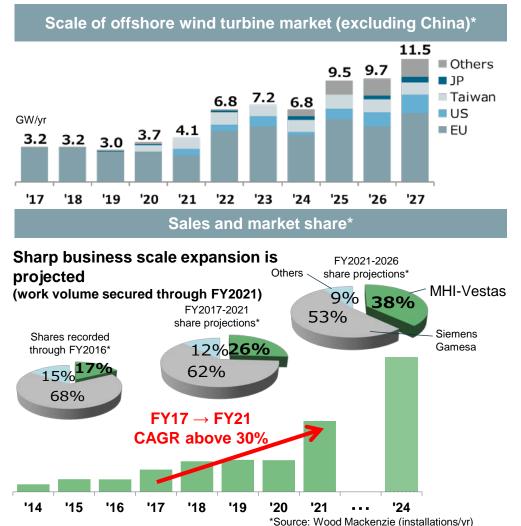
- Cease reliance on China (expand European market share)
- Focus on profitability improvement
- Simultaneously develop products for Electric/Hybrid vehicles
- Market to remain solid
- Strengthen sales and servicing, especially in China and Europe
- Develop products with lower environmental impact
- Expand electric compressors
 business
- Expand response to logistics revolution (AGF autonomous driving, etc.)
- Expand earning sources through shift to direct sales (PMH acquisition)
- Further expand collaborative business operations

CAC: Car Air Conditioners PMI: Post Merger Integration

II-4. Growth Strategies Short-term (2) Offshore Wind Turbines



- Offshore wind turbine market is growing faster than anticipated
- MHI established JV with Vestas, world's leading supplier of onshore wind turbines



MHI established a 50:50 JV with Vestas, world's leading supplier of onshore wind turbines, in April 2014.

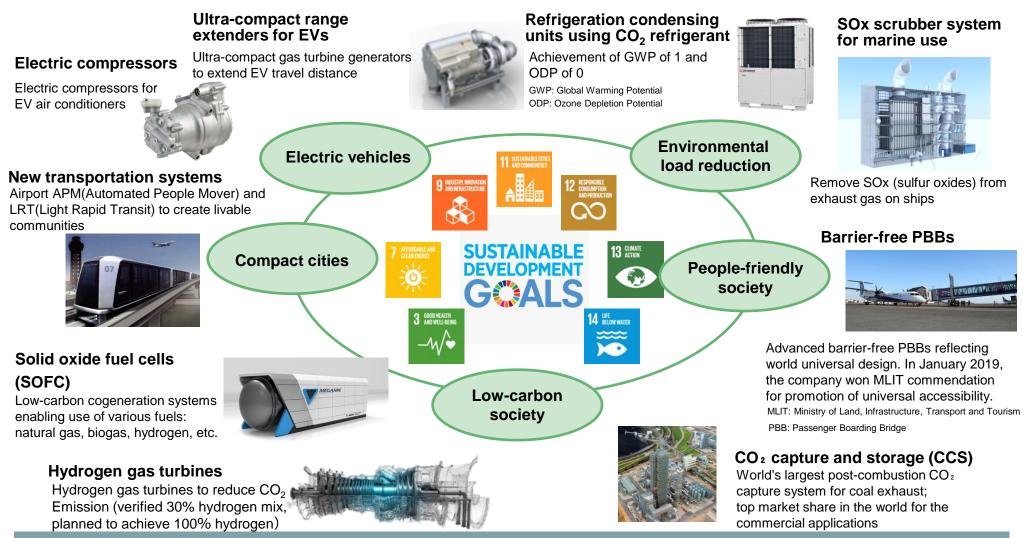




- Offshore wind turbine market is growing faster than anticipated.
- After the core European market, auction has begun in U.S. and Taiwan. In Japan, projects are taking shape amid development of legal framework to allow use in "general common sea areas."
- Developing local markets by establishing bases in Boston, Taiwan and Japan.
- Market share steadily increasing (order backlog and preferred supplier as of FY2018-end totaled 8.7 GW).
- Support provided by MHI:
 - 1. Production technology/control, Quality Management System, development support
 - \rightarrow Organizational adjustment in preparation for scale expansion
 - 2. Support of expansion in Asia

II-4. Growth Strategies Short-term (3) Further Expansion of SDGs-Oriented Business

Contribute to SDGs through MHI's broad range of technologies and products Provide solutions through systemization of products and application of AI/IoT



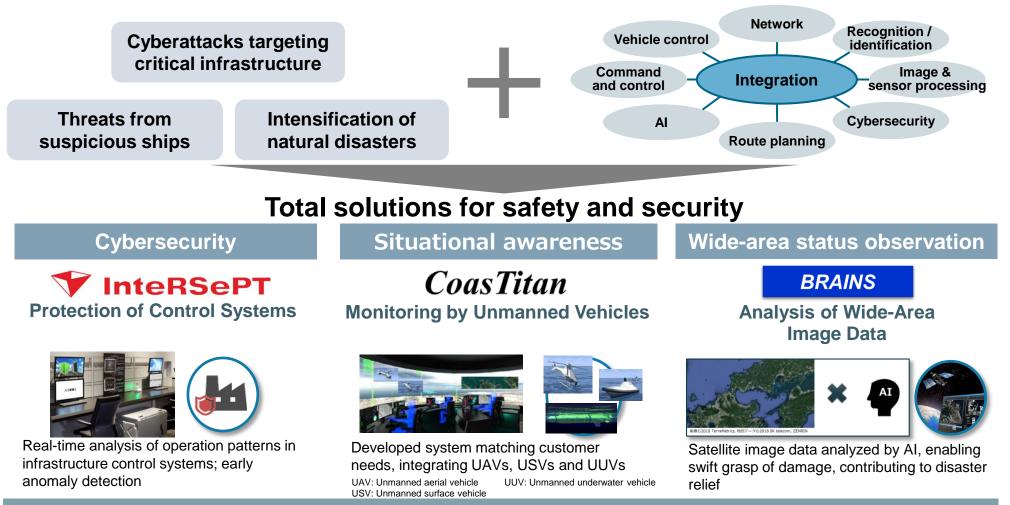
II-4. Growth Strategies Short-term (4) Safety and Security Initiatives



- Provide total solutions enabling safety and security
- Meet private sector demand for dual use cutting edge technologies developed in Defense & Space Systems business

Expanding needs for safety and security measures

MHI technologies cultivated in defense and space areas



II-4. Growth Strategies - Medium/Long-Term MHI FUTURE STREAM (1/4)

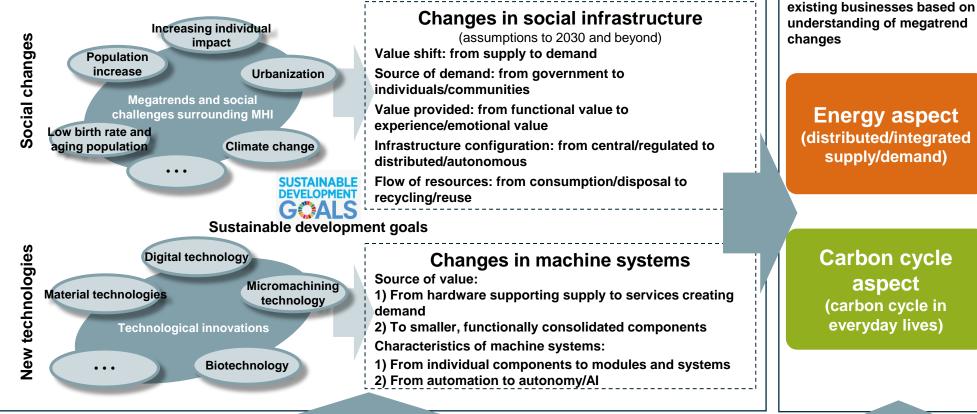


Shift the Path

Medium/long-term shifts in

Mega Scan

Finding business opportunities in the uncertainty of the future



Technology Scouting

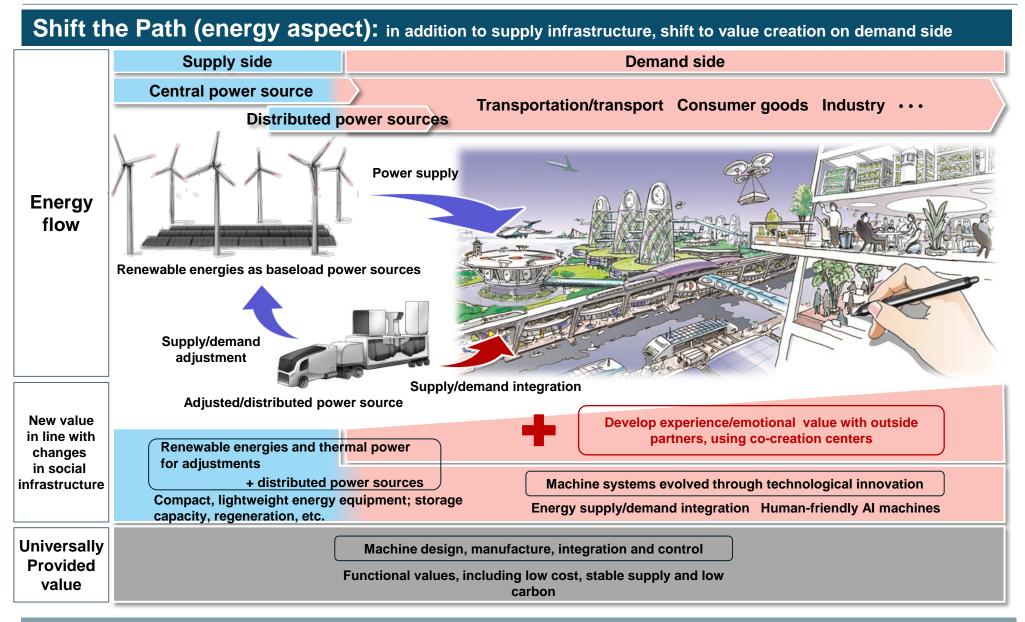
Exploring as yet under-developed technologies that may have significant impact

Exploring technologies necessary for Shift the Path businesses

Establishment of co-creation bases with outside partners Quick-cycle testbedding of ideas for new technologies and business models

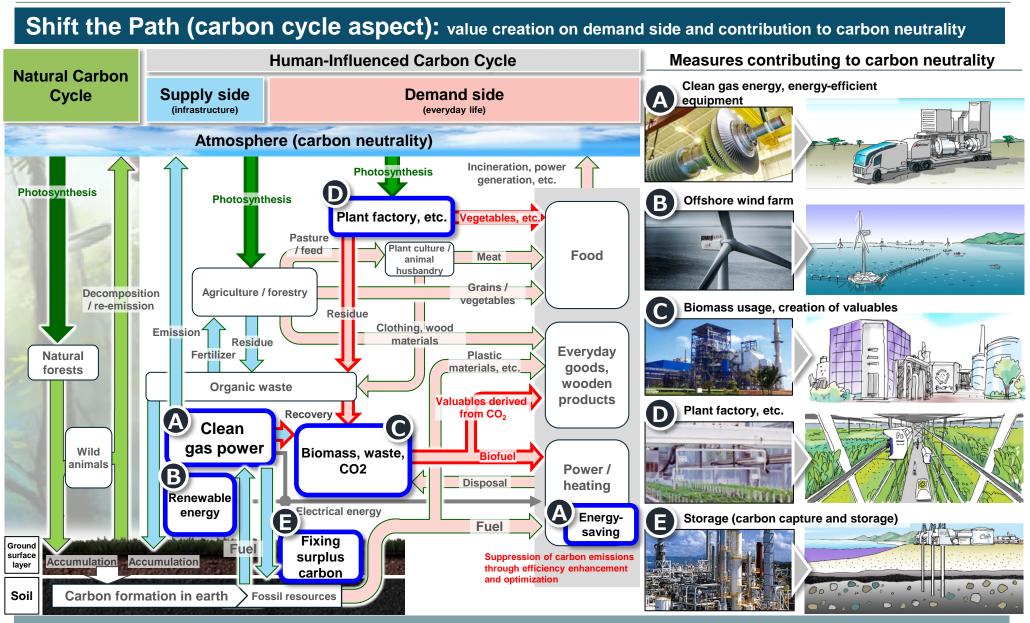
II-4. Growth Strategies - Medium/Long-Term MHI FUTURE STREAM (2/4)





II-4. Growth Strategies - Medium/Long-Term MHI FUTURE STREAM (3/4)







Game-changing

technologies

Free, unconventional

New

Ideas

Establishment of co-creation centers with partner organizations

- Social contribution through venture business incubation and regional revitalization 1.
- **Development of employee entrepreneurship** 2.
- Creation of new group businesses 3.

Prototype verification

Design

"MHI Testbed Hub

(tentative name)

Provision of infrastructure to bring venture businesses' ideas to life

- Shared creative spaces (offices)
- Prototype creation and testing facilities - Utilities



-

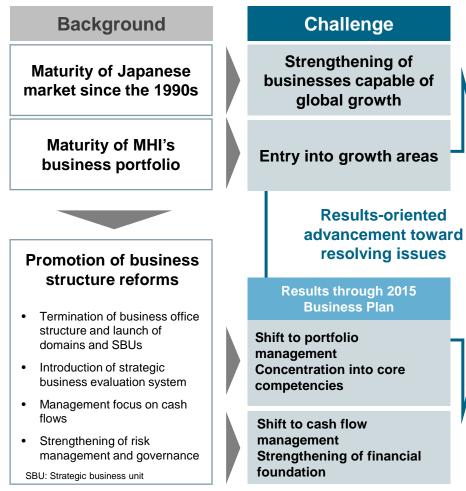
SUXCOU

Solving social issues Entrepreneurial spirit

MHI Group



Requirements and challenges of growth-oriented global / group management



Reorganization in 2010 Midterm Business Plan \rightarrow embedding and driving forward the results

Basic policies

Stability AND Growth

- Portfolio management enabling stable growth
- MHI FUTURE STREAM
- Strategic resource allocation (HR, technologies, capital)
- Promotion of growth strategies and incubation

Independent SBU Management AND Group Synergy

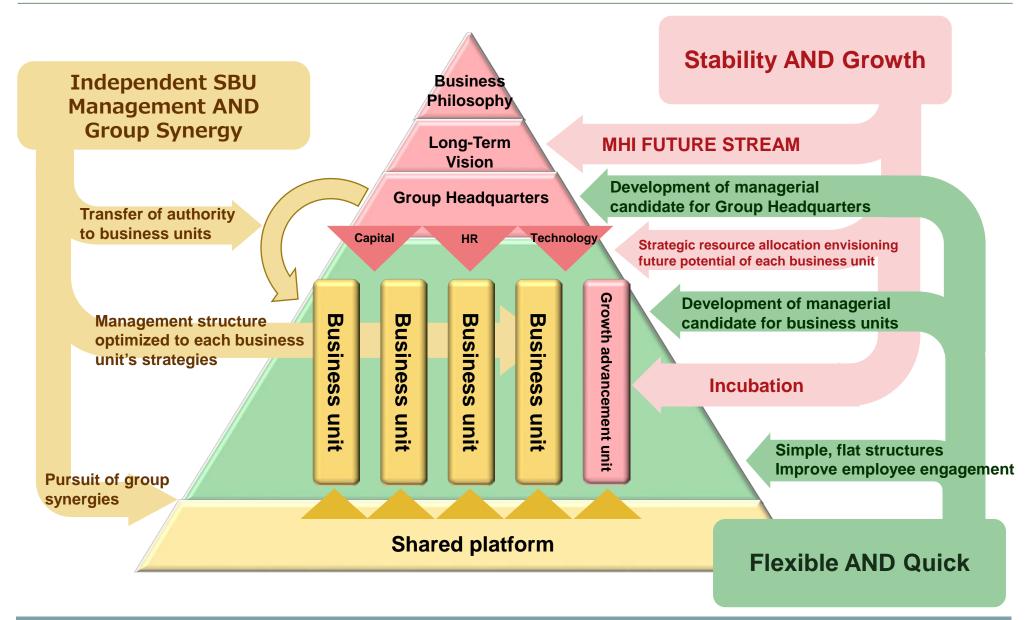
- Transfer of authority to business units
- Management structure optimized to each business unit's strategy
- Pursuit of group synergies

Flexible AND Quick

- Simple, flat structures and clarification of authority
- Development of managerial candidate for Group Headquarters and business units

II-5. Global Group Management Structure (2/3)





II-5. Global Group Management Structure (3/3)



Major initiatives 🔯 : Underway 🔄 : To be implemented

Stability AND Growth





V

Strengthening of portfolio management functions of Group Headquarters

MHI FUTURE STREAM

Strengthening of resources (HR, technology, capital) reallocation functions

Establishment of budgeted growth advancement unit, dynamic pursuit of business opportunities

Transfer of authority to business units

Management structure optimized for business strategies, appropriate support by Group Headquarters

Pursuit of synergies (exploration of projects in overseas regions, enhancement of corporate efficiency, etc.)

Coordinated development of global policies

Efficiency enhancement through consolidation of Japan-based support functions

Flexible AND Quick



Simple, flat management structures and clarification of responsibilities and authority

Greater diversity in management

Planned development of management human resources

Diverse, flexible working style and greater employee engagement

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Reference Materials

Reference 1: Numerical Targets by Domain	26
Reference 2: From Structure Reforms to	
Global Group Management	27
Reference 3: ENERGY CLOUD [™] and MHPS-TOMONI [™]	28
Reference 4: Map of Provided Service about ENERGY CLOUD [™]	29
Reference 5: Service Growth: Path to Autonomous Power (MHPS-TOMONI [™])	30
Reference 6: Energy Business Directions	31
Reference 7: Development of Projects with Focus on	
Overseas Regions	32
Reference 8: ESG Initiatives	33
Reference 9: Actions for SDGs through business activities	34

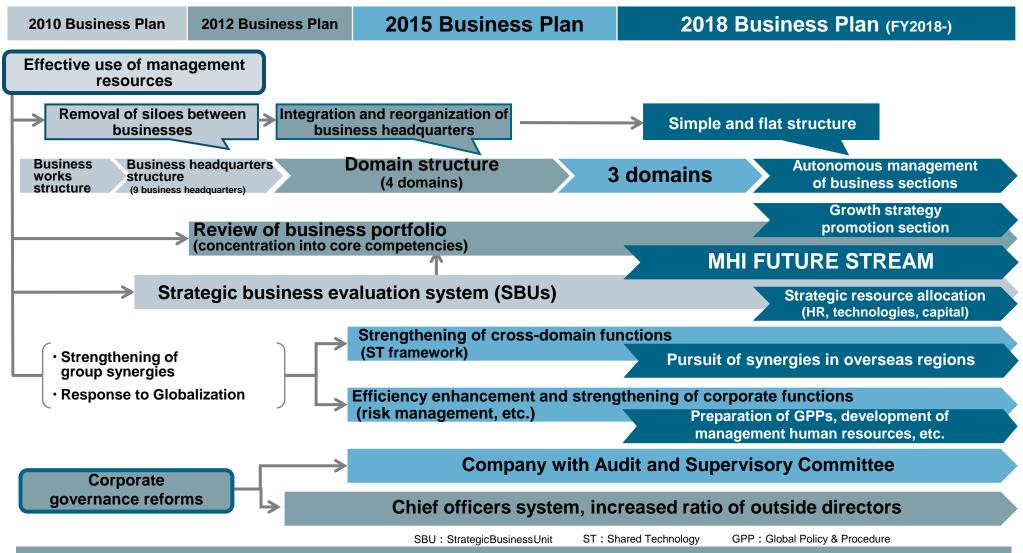


(Billion yen)

Domain	Orders Received		Revenue			Profit from business activities			
	FY2018 Actual	FY2019 Forecast	FY2020 Target	FY2018 Actual	FY2019 Forecast	FY2020 Target	FY2018 Actual	FY2019 Forecast	FY2020 Target
Powar Systems	1,426.5	1,600.0	1,800.0	1,525.1	1,650.0	1,900.0	132.8	140.0	190.0
Industry & Infrastructure	1,852.0	2,000.0	2,100.0	1,907.8	1,950.0	2,000.0	70.1	110.0	160.0
Aircraft, Defense & Space	610.6	700.0	700.0	677.5	700.0	720.0	-37.4	-20.0	0.0
Other (Including non- organic	73.3	100.0	500.0	71.6	70.0	500.0	35.9	5.0	15.0
Eliminations or Corporate	-109.1	-100.0	-100.0	-103.8	-70.0	-120.0	-14.8	-15.0	-25.0
Total	3,853.4	4,300.0	5,000.0	4,078.3	4,300.0	5,000.0	186.7	220.0	340.0

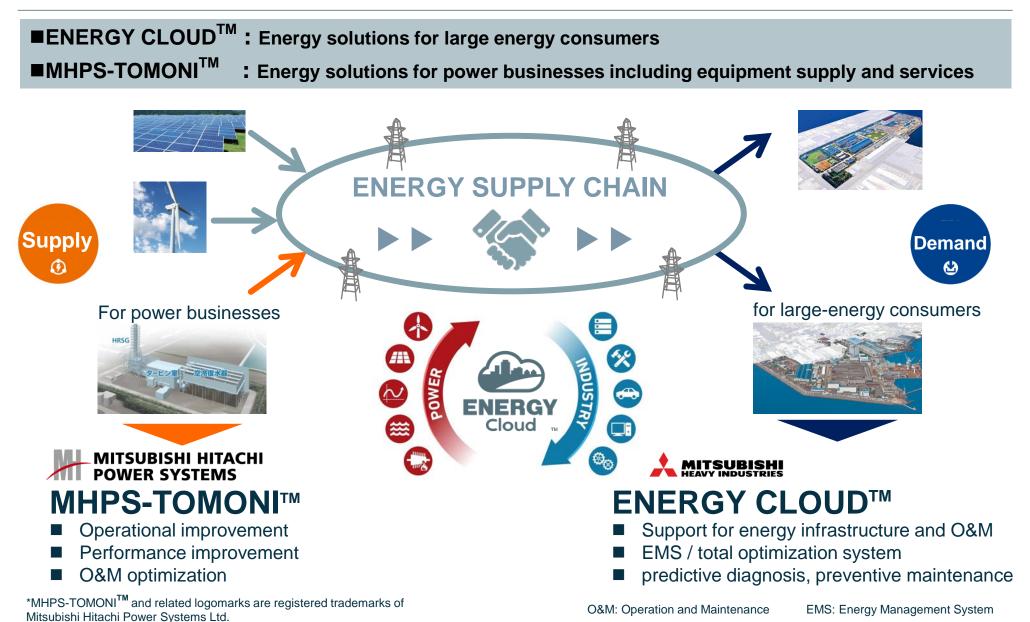
Reference 2: From Structure Reforms to Global Group Management 🚣 MUTRUES

Entrench and evolve the achievements of business structure reforms implemented in 2015 Medium-Term Business Plan and before, and aim to build structure to realize global growth



Reference 3: ENERGY CLOUD[™] and MHPS-TOMONI[™]



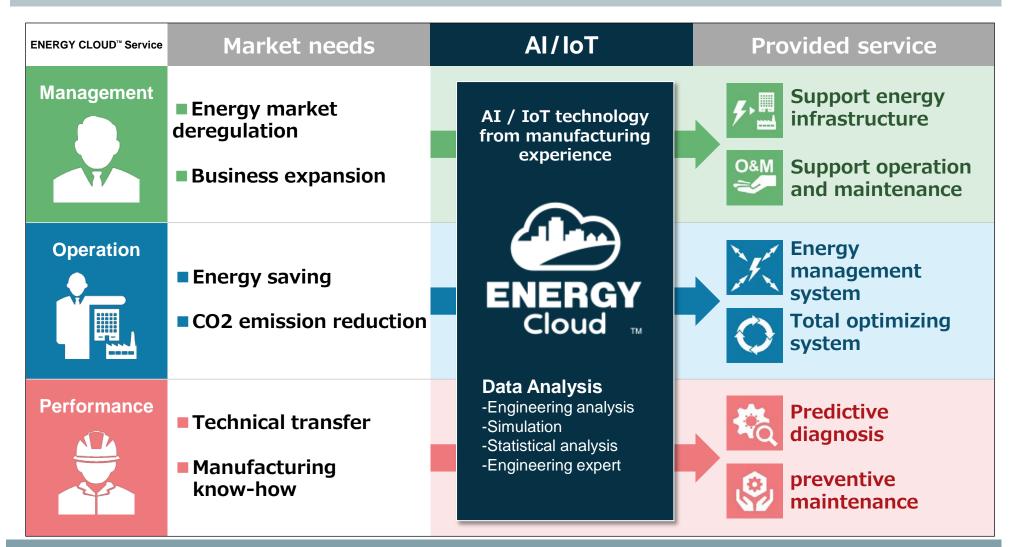


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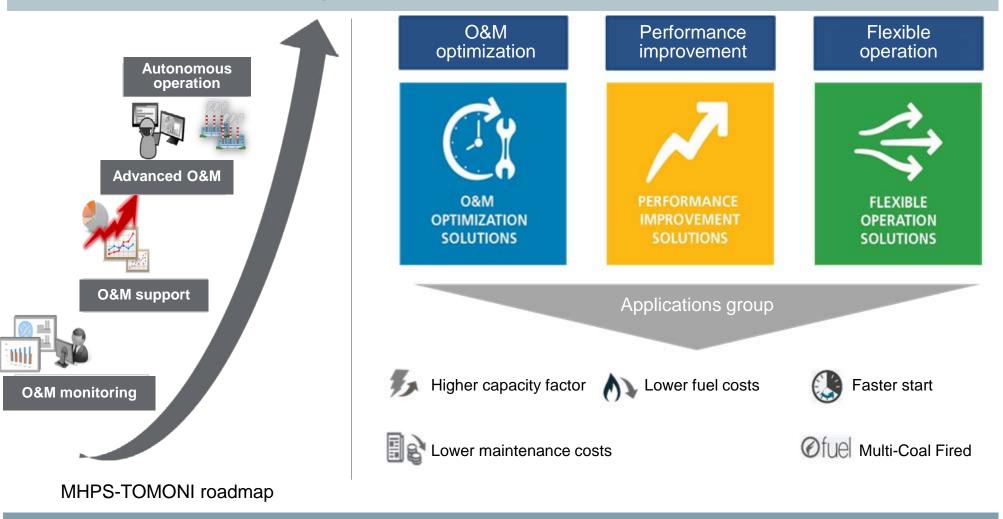
Reference 4: Map of Provided Service about ENERGY CLOUD[™]



Take advantage of Al/IoT technology from manufacturing experience
 Provide solutions for energy consumers' issues in production and energy



- ■Apply latest ICT and AI Technology to Expand MHPS-TOMONI capabilities
- Create customer value through: efficiency improvement, CO2 reduction, flexibility to partner with intermittent renewable generation



Reference 6: Energy Business Directions



Social changes Demands to reduce CO₂ emissions

- ✓ Supply side: make renewables a core power source
- ✓ Demand side: increasing demand for electrification, accompanied by rising power demand

1) Electricity market (kWh)

✓ Steam power:

development of services menu contributing to emissions reduction

✓ GTCC:

market share increase through efficiency enhancement, operability improvement, hydrogen-powered systems, etc.

✓ Thermal digitalization services

- Operability/performance enhance
- Strengthen O&M business etc.



✓ Nuclear:

contribution to low-carbon society and supply stability through continuous efforts to improve safety

✓ Renewable:

Strengthening of offshore wind power, etc.



2) Regulated market (ΔkW)

- ✓ Quick-start gas turbines
- Large-scale energy storage systems (storage batteries, hydrogen systems)

3) Carbon cycle

 Analysis of economic viability, promotion of CCS & CCU business
 CCS: Carbon dioxide Capture and Storage
 CCU: Carbon dioxide Capture and Utilization

4) Demand market

- ✓ Electrification: strengthen key components
- AI, digitalization: strengthen solutions toward maximizing customers' asset values through energy management, etc.





- Pursue projects outside conventional business framework, with focus on overseas regions
- Making use of broad business areas, raise level of large-scale project discussions from the early stage, taking a comprehensive approach
- Proactively undertake business investments, O&M, etc.

Example 1: Western Sydney urban development

- To distribute urban functions, the Government of New South Wales is planning to create multiple Central Business Districts in the Greater Sydney Area.

- On October 15, 2018 an MOU with the New South Wales Government focused on MHI Group providing its highquality infrastructure solutions.



- Exploratory work is underway to attract similar development projects throughout the Indo-Pacific region.

Example 2: U.S. renewable energy business development venture

- MHPS launched the Oriden venture to develop renewable energy business in Pittsburgh, PA (U.S.).

- Oriden will undertake business development of renewable energy distributed power source projects mainly using solar power and storage systems.

Example 3: Expansion of servicing operations in the AP region

- In April 2019 a Service Strategy Group was established at MHI-AP to support servicing operations in all SBUs in the AP region.

- Unification of local information, IT promotion, sharing of resources and best practices, etc. are underway.



Promotion of ESG management with focus on environment, social and governance aspects

Selected for inclusion in the DJSI Asia-Pacific Index and four ESG investment indices adopting GPIF

MEMBER OF **Dow Jones** Sustainability Indices

In Collaboration with RobecoSAM (

2018 Constituent MSCI MSCI Japan Empowering Women Index (WIN)

2018 Constituent MSCI 💮 MSCI Japan ESG Select Leaders Index



Japan

S&P/JPX Carbon Efficient Index

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Examples of recent ESG initiatives

Environment (E)

Contributions through products

- Refrigeration condensing units using CO₂, a natural refrigerant
- Enhanced fuel efficiency and reduced CO₂ emissions through development of energy efficient hull form
- Worlds' first application of rectangular shaped SOx
- scrubber tower on ship for maximum space utilization

Products selected to receive Best Innovation 2018 "Best Environmental Product Awards"

Environmental load reduced through business process reform

- Established MHI Group Long-Term Environmental Target (2030) and Fourth MHI Group Environmental Targets (2020)

- Reduced environmental load through introduction of one of ASEAN region's largest solar power generation facilities

Biodiversity protection activities

- Tanegashima Loggerhead Sea Turtle Survey

Social (S)

Social contribution activities

- Tanegashima Aerospace Classroom"; science classes nationwide
- Sports classes by Urawa Reds, Sagamihara DynaBoars, etc.
- Support of recovery from Great East Japan Earthquake

Promotion of women's empowerment

- Expanded work/life balance support systems (child rearing / family care)
- Maintained high level of workers taking child-rearing leave returning to their jobs
- Operation of in-house nursery schools
- (Nagasaki/Yokohama)
- Raised percentage of females in management positions
- Appointment of female executive officers

Working style reforms / corporate culture reforms

- Conducted employee awareness survey
- Initiatives to improve productivity (teleworking, etc.)

Securing / developing global human resources

- Developed national staff overseas
- System for assigning young employees abroad

Carrying on "monozukuri" skills

- Passing on skills ensured through educational programs

Governance (G)

Corporate governance 2015

- Transition to company with an Audit and Supervisory Committee

2016

- -increased ratio of outside directors (up to 45%)
- Established officers' Nomination and Remuneration Meetings
- Evaluated effectiveness of Board of Directors meetings

Business risk management

- Establishment, implementation and observance of **Business Risk Management Charter**
- Conducting CEO-headed Business Risk Management Committee

■ Compliance

- Establishment of MHI Group Global Code of Conduct, and implementation of penetration measures
- Establishment of Compliance Promotion Global Policy

Reference 9: Actions for SDGs through Business Activities









- 7 AFFORDABLE AND CLEAN ENERGY
- High-efficiency gas engine power plants
- Hydrogen gas turbines
- Aero-derivative gas turbines
- Nuclear power plants
- Solid oxide fuel cells
- Centrifugal chiller
- Heat pump
- Residential & commercial use air-conditioners
- Refrigeration condensing units using CO₂ refrigerant
- Commercial aircraft
- New transportation systems

- Offshore wind turbines
- Organic Rankine cycle
- Geothermal power systems
- Waste to energy plants
- Flue gas desulfurization and denitrification systems
- "Dokodemo Door®" railway platform system accommodating multiple door configurations
- Intelligent transport system
- Turbochargers for gas engines
- Electric compressors
- Ultra-compact range extenders for EVs
- Barrier-free passenger boarding bridgesPaper converting machinery
 - (Box making machines)





- Refrigeration units for trucks and trailers
- Agricultural machinery
- Food and packaging machinery
- Seawater desalination plants
- Sludge treatment systems
- Electrochlorination system



- Gear grinding machine
- Electric forklift trucks
- Automated guided forklift trucks
- Launch services





- CO₂ capture plants/ Enhanced oil recovery (CCS/EOR)
- ENERGY CLOUD™
- MHPS TOMONI[™]
- SOx scrubber system for marine use
- Oil recovery ships
- Ocean research vessels
- Manned deep submergence research vehicle

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