
FY2018 Financial Results & FY2019 Forecast

May, 2019
Hitachi Zosen Corporation

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1. Overview of FY2018 Consolidated Financial Results

- **Order intake is more than 450.0 billion yen**
- **Operating income is lower than FY2018 forecast in November; however ordinary income and net income are more than the forecast**

FY2018 Results- Overview

(Unit: Billion Yen)

	FY2017		FY2018				Difference			
	Results (a)		Forecast as of Nov. (b)		Forecast as of March (c)		Results (c)		(c)-(b)	(c)-(a)
	(Ratio to net sales)		(Ratio to net sales)		(Ratio to net sales)		(Ratio to net sales)		(Ratio to net sales)	(Ratio to net sales)
Order intake	400.4	430.0	430.0	430.0	455.0	25.0	54.6			
Net sales	376.4	380.0	380.0	380.0	378.1	-1.9	1.7			
Operating income	(1.6%) 5.9	(2.4%) 9.0	(2.4%) 9.0	(2.4%) 9.0	(1.9%) 7.3	(- 0.5%) -1.7	(0.3%) 1.4			
Ordinary income	(0.9%) 3.3	(1.7%) 6.5	(1.7%) 6.5	(1.7%) 6.5	(1.8%) 6.7	(0.1%) 0.2	(0.9%) 3.4			
Net income	(0.6%) 2.1	(1.3%) 5.0	(1.3%) 5.0	(1.3%) 5.0	(1.4%) 5.4	(0.1%) 0.4	(0.8%) 3.3			

FY2018 Results- Order intake

(Unit: Billion Yen)

	FY2017	FY2018			Difference	
	Results (a)	Forecast as of Nov.	Forecast as of March (b)	Results (c)	(c)-(b)	(c)-(a)
Environmental Systems and Industrial Plants	257.2	280.0	290.0	314.7	24.7	57.5
Machinery	98.4	100.0	100.0	100.7	0.7	2.3
Infrastructure	34.3	40.0	30.0	27.6	-2.4	-6.7
Others	10.5	10.0	10.0	12.0	2.0	1.5
Total	400.4	430.0	430.0	455.0	25.0	54.6

FY2018 Results- Net sales

(Unit: Billion Yen)

	FY2017	FY2018			Difference	
	Results (a)	Forecast as of Nov.	Forecast as of March (b)	Results (c)	(c)-(b)	(c)-(a)
Environmental Systems and Industrial Plants	231.8	240.0	240.0	228.3	-11.7	-3.5
Machinery	100.6	100.0	100.0	106.6	6.6	6.0
Infrastructure	33.4	30.0	30.0	31.8	1.8	-1.6
Others	10.6	10.0	10.0	11.4	1.4	0.8
Total	376.4	380.0	380.0	378.1	-1.9	1.7

FY2018 Results- Operating income

(Unit: Billion Yen)

	FY2017	FY2018			Difference	
	Results (a)	Forecast as of Nov.	Forecast as of March (b)	Results (c)	(c)-(b)	(c)-(a)
Environmental Systems and Industrial Plants	1.3	5.5	6.5	5.6	-0.9	4.3
Machinery	2.5	2.0	1.0	-0.3	-1.3	-2.8
Infrastructure	1.1	1.0	1.0	1.3	0.3	0.2
Others	1.0	0.5	0.5	0.7	0.2	-0.3
Total	5.9	9.0	9.0	7.3	-1.7	1.4

(Unit: Billion Yen)

FY2017 Operating income		5.9
Breakdown of decrease in Operating income	• Deficit reduction at HZI	+2.2
	• Improvement of profitability in Environmental Systems in Japan, and others	+2.0
	• Profit deterioration of Machinery	-2.8
FY2018 Operating income		7.3

Non-operating income

(Unit: Billion Yen)

	FY2017 (A)	FY2018 (B)	Difference (B)-(A)
Net interest expense	-0.6	-0.6	0.0
Equity in net income of affiliates	0.5	0.7	0.2
Others	-2.5	-0.7	1.8
Total	-2.6	-0.6	2.0

Results- Cash flows and Interest-bearing debt

Cash flows

(Unit: Billion Yen)

	FY2017 (A)	FY2018 (B)	Difference (B)-(A)
Cash flows from operating activities	-3.4	-5.4	-2.0
Cash flows from investing activities	-10.7	-7.6	3.1
Cash flows from financing activities	-4.0	14.9	18.9
Increase in cash and cash equivalents	(* 1) -18.1	(* 1) 1.6	19.7
Cash and cash equivalents at beginning	50.8	32.7	-18.1
Cash and cash equivalents at end	32.7	34.3	1.6

Interest-bearing debt

(Unit: Billion Yen)

	FY2017 (A)	FY2018 (B)	Difference (B)-(A)
Borrowings	(* 2) 97.2	(* 2) 101.3	4.1
Bond	10.0	25.0	15.0
Total	107.2	126.3	19.1

(*1)Including translation gains and losses (FY2017:0.0, FY2018:-0.3) (*2)Including lease debt

2. Forecast of FY2019

(Unit: Billion Yen)

	FY2018		FY2019							
	Results		Forecast as of May 2017		Forecast as of May 2019		Difference			
	(a)	(b)	(c)-(b)	(c)-(a)	(Ratio to net sales)	(Ratio to net sales)	(Ratio to net sales)	(Ratio to net sales)		
	(Ratio to net sales)		(Ratio to net sales)		(Ratio to net sales)		(Ratio to net sales)			
Order intake		455.0		460.0		400.0		-60.0		-55.0
Net sales		378.1		430.0		380.0		-50.0		1.9
Operating income	(1.9%)	7.3	(4.8%)	20.5	(3.2%)	12.0	(- 1.6%)	-8.5	(1.3%)	4.7
Ordinary income	(1.8%)	6.7	(4.2%)	18.0	(2.1%)	8.0	(- 2.1%)	-10.0	(0.3%)	1.3
Net income	(1.4%)	5.4	(2.3%)	10.0	(1.3%)	5.0	(- 1.0%)	-5.0	(- 0.1%)	-0.4

(Unit: Billion Yen)

	FY2018 Results (a)	FY2019		Difference	
		Forecast as of May 2017 (b)	Forecast as of May 2019 (c)	(c)-(b)	(c)-(a)
Environmental Systems and Industrial Plants	314.7	290.0	240.0	-50.0	-74.7
Machinery	100.7	115.0	110.0	-5.0	9.3
Infrastructure	27.6	43.0	40.0	-3.0	12.4
Others	12.0	12.0	10.0	-2.0	-2.0
Total	455.0	460.0	400.0	-60.0	-55.0

(Unit: Billion Yen)

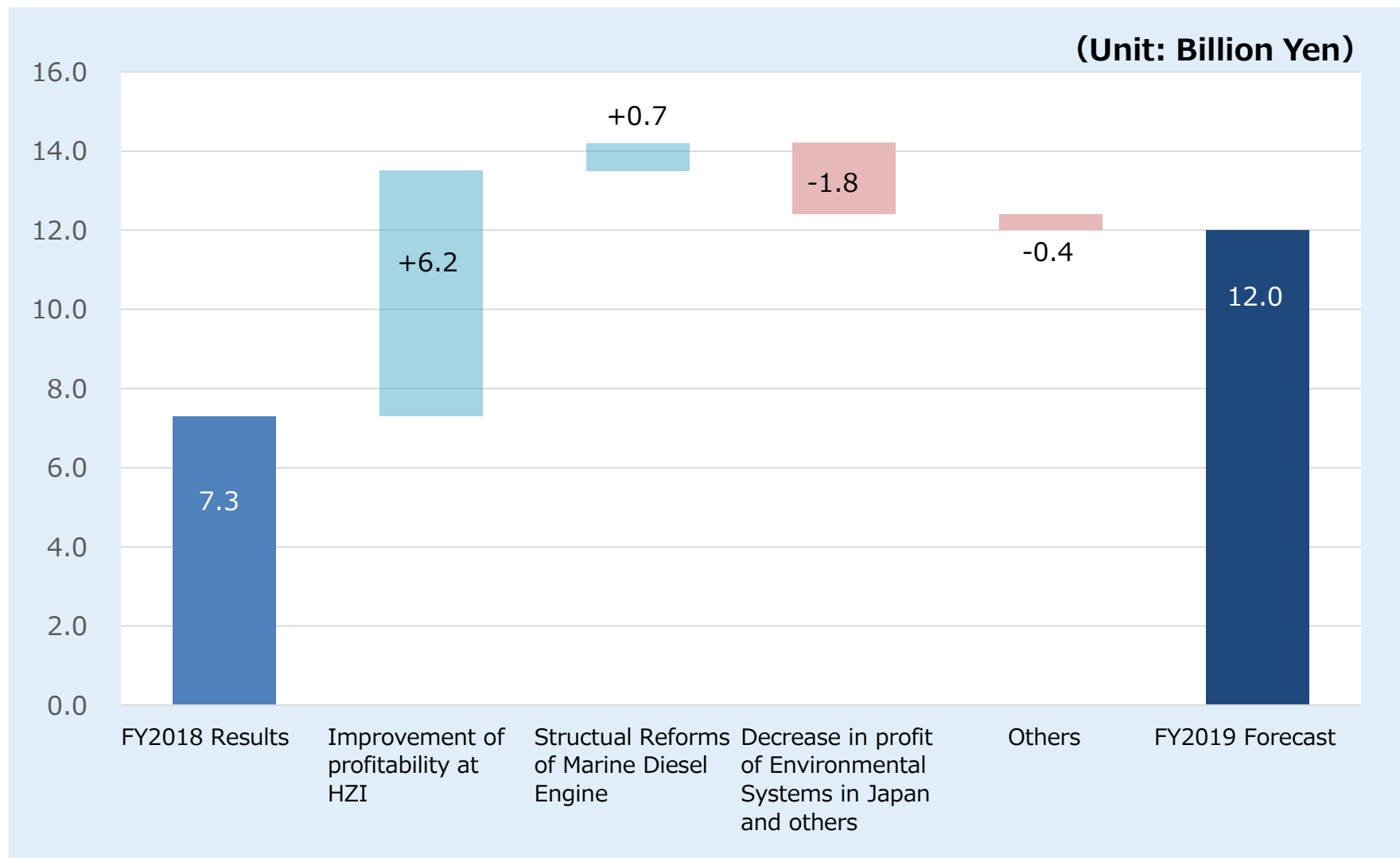
	FY2018	FY2019		Difference	
	Results (a)	Forecast as of May 2017 (b)	Forecast as of May 2019 (c)	(c)-(b)	(c)-(a)
Environmental Systems and Industrial Plants	228.3	273.0	240.0	-33.0	11.7
Machinery	106.6	110.0	100.0	-10.0	-6.6
Infrastructure	31.8	35.0	30.0	-5.0	-1.8
Others	11.4	12.0	10.0	-2.0	-1.4
Total	378.1	430.0	380.0	-50.0	1.9

FY2019 Forecast-Operating income

(Unit: Billion Yen)

	FY2018 Results (a)	FY2019		Difference	
		Forecast as of May 2017 (b)	Forecast as of May 2019 (c)	(c)-(b)	(c)-(a)
Environmental Systems and Industrial Plants	5.6	13.5	10.0	-3.5	4.4
Machinery	-0.3	4.5	1.0	-3.5	1.3
Infrastructure	1.3	2.0	0.5	-1.5	-0.8
Others	0.7	0.5	0.5	0.0	-0.2
Total	7.3	20.5	12.0	-8.5	4.7

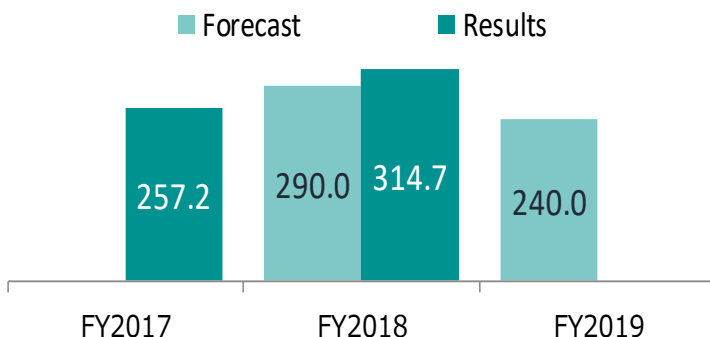
FY2019 Forecast-Breakdown of increase in Operating income



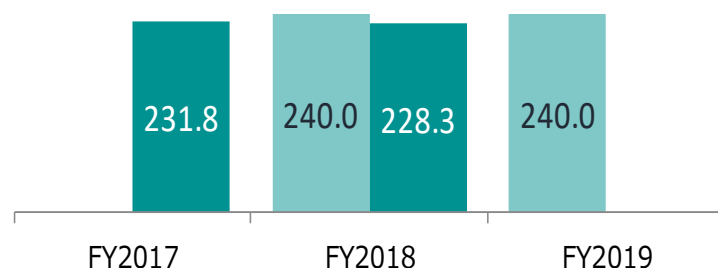
3. Details by Segments

(Unit: Billion Yen)

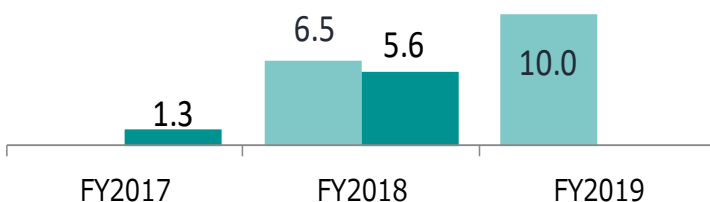
【Order intake】



【Net sales】



【Operating income】



Order intake

■ FY2018 Results (vs. FY2017)

314.7(+57.5)

- HZI received an order of EfW plant project in UK
- Received large orders (EPC+AOM) both of energy plant and sewage treatment facility in Japan

■ FY2019 Forecast (vs. FY2018)

240.0(-74.7)

- Decrease in EPC and AOM in Japan

Net sales

■ FY2018 Results (vs. FY2017)

228.3(-3.5)

- Increase in EfW plants in Japan didn't cover decrease in sales of desalination plant in Qatar

■ FY2019 Forecast (vs. FY2018)

240.0(+11.7)

- Increase in sales of EPC, service business and biogas business at HZI

Operating income

■ FY2018 Results (vs. FY2017)

5.6(+4.3)

- EPC deficit reduction at HZI
- Improvement of profitability in EfW plants in Japan

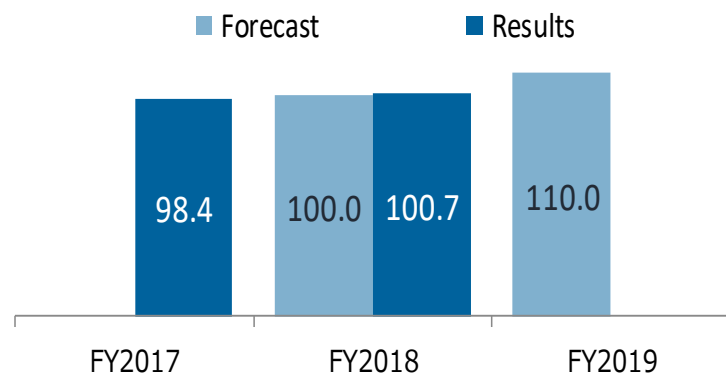
■ FY2019 Forecast (vs. FY2018)

10.0(+4.4)

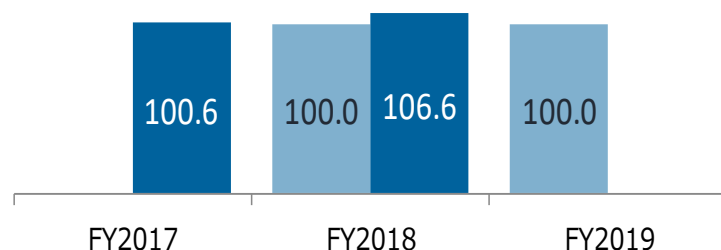
- Improvement of profitability at HZI

(Unit: Billion Yen)

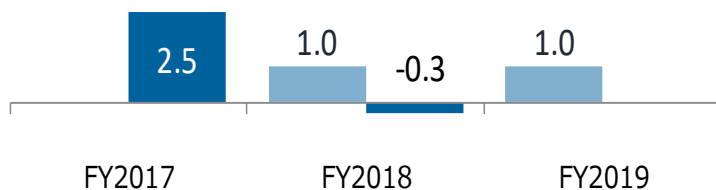
【Order intake】



【Net sales】



【Operating income】



Order intake

■ FY2018 Results (vs. FY2017)

100.7(+2.3)

- Increase in Marine Diesel Engine
- Decrease in Process Equipment and Systematic Machinery

■ FY2019 Forecast (vs. FY2018)

110.0(+9.3)

- Recovery of Process Equipment
- Increase in Marine Diesel Engine

Net sales

■ FY2018 Results (vs. FY2017)

106.6(+6.0)

- Increase in Process Equipment

■ FY2019 Forecast (vs. FY2018)

100.0(-6.6)

- Decrease in Process Equipment, Systematic Machinery and Press Machine

Operating income

■ FY2018 Results (vs. FY2017)

-0.3(-2.8)

- Decrease in profitability in Press Machine, Marine Diesel Engine and Process Equipment

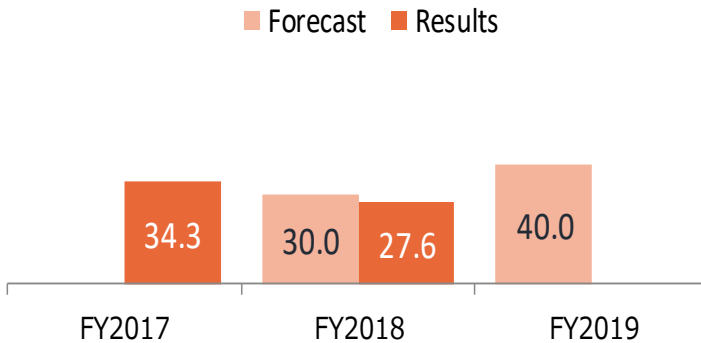
■ FY2019 Forecast (vs. FY2018)

1.0(+1.3)

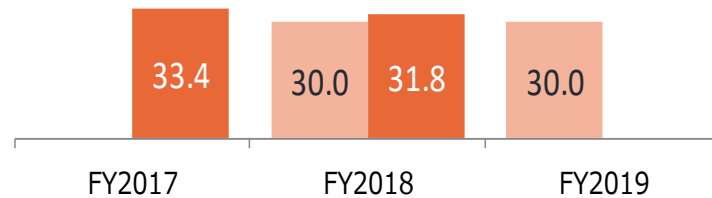
- Increase in profitability in Press Machine, Marine Diesel Engine and Process Equipment

(Unit: Billion Yen)

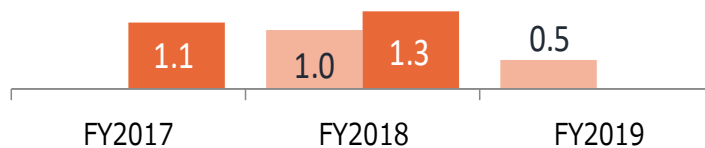
【Order intake】



【Net sales】



【Operating income】



Order intake

■ FY2018 Results (vs. FY2017)

27.6(-6.7)

- Decrease in large steel bridge projects

■ FY2019 Forecast (vs. FY2018)

40.0(+12.4)

- Recovery of steel bridge projects

Net sales

■ FY2018 Results (vs. FY2017)

31.8(-1.6)

- Increase in large steel projects didn't cover decrease in a marine civil engineering project

■ FY2019 Forecast (vs. FY2018)

30.0(-1.8)

- Decrease in order intake in FY2018

Operating income

■ FY2018 Results (vs. FY2017)

1.3(+0.2)

- Increase in profitability in steel bridge projects

■ FY2019 Forecast (vs. FY2018)

0.5(-0.8)

- Decrease in both sales and high-profitability projects

4. FY2018 Topics

I. HZI Reconstruction

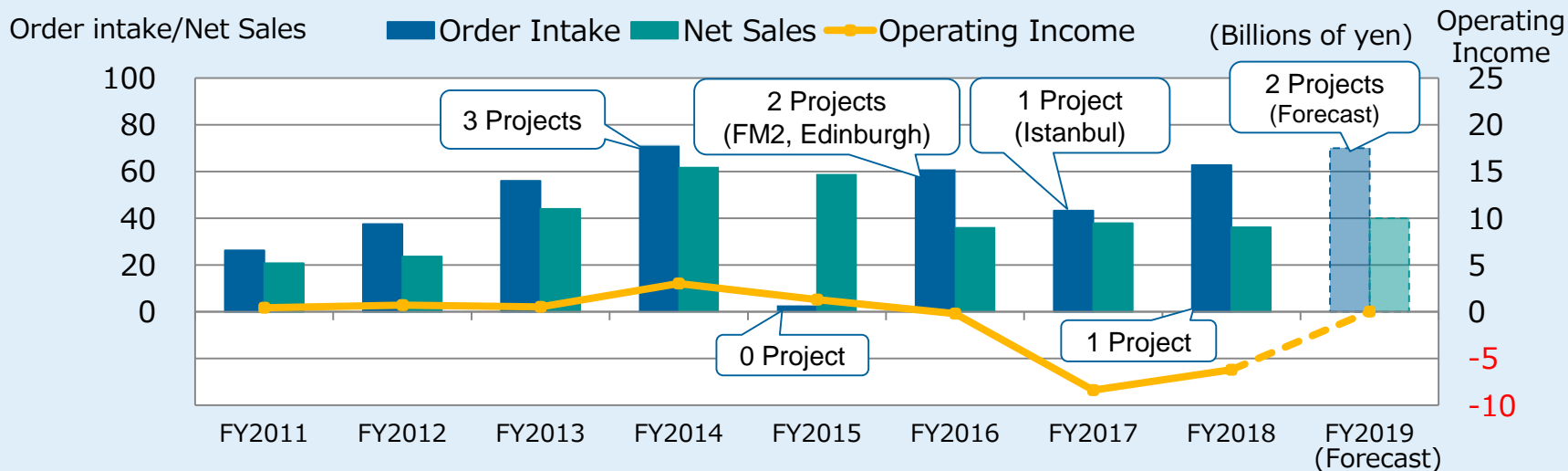
1. Business Overview and Financial Performance After Acquisition

① HZI Business Overview

EfW : Energy from Waste

Content	
Business Lines	EPC/AOM of EfW Plants(Thermal Process・Biological Process), Biogas Plants (Hitz's Licensor of Thermal EfW Process since 1960)
Target Market	Europe, Middle East, North America
Market Position	No.1 Share in Europe (2015-2017)
Main Customer	Waste management companies, Local municipalities
Organization/Location	HQ: Switzerland, Service: Switzerland, Germany, UK, France, Sales: USA, UAE, Australia, Procurement: Thailand, Engineering: Slovakia

② HZI Financial Performance After Acquisition



1. HZI Reconstruction

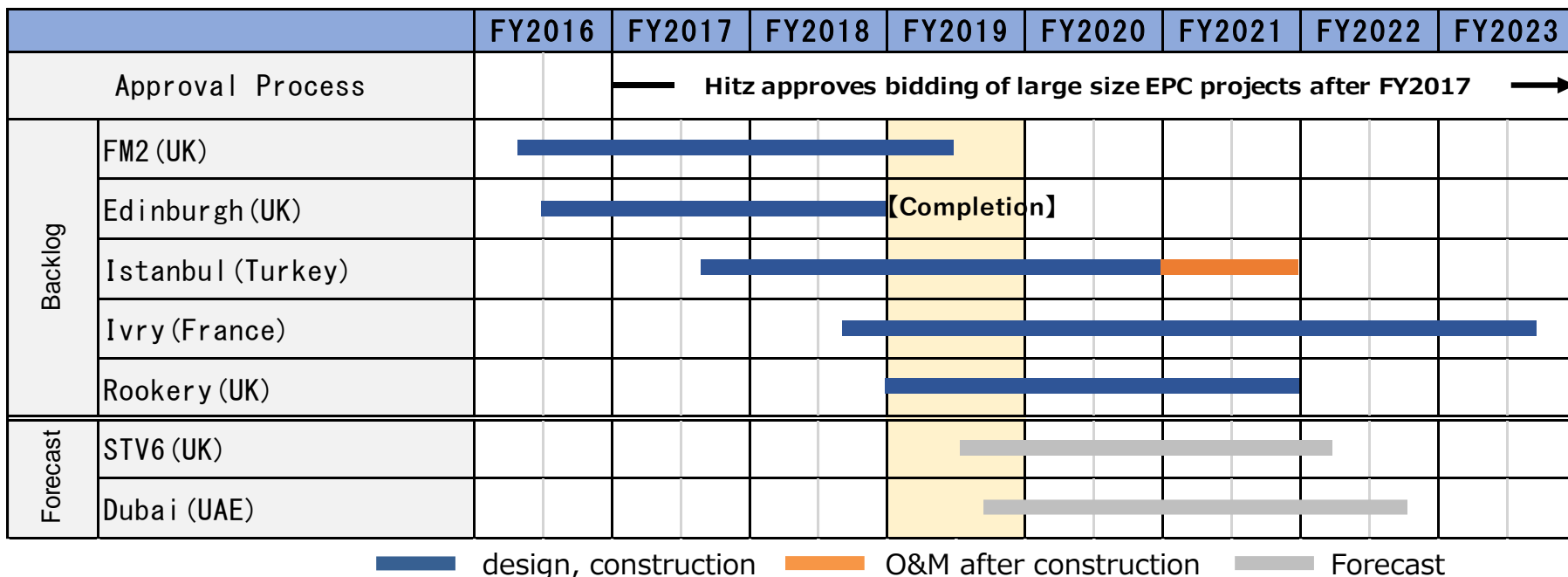
2. EPC Projects for FY2019

③ EPC Profitability recovery

FM2 delivery and progress of Istanbul lead turn around to be black.

FM2	Scheduled to be completed in Sept. 2019
Istanbul	Scheduled to start delivery and installment of equipment in 2Q FY2019
Ivry	Received order for designing and providing equipment including fire grate and boiler in Nov. 2018
Rookery	Received order in March 2019(531t/d × 3 pit)

④ Project Schedule



① Ferrybridge 2 Project

■ Project description

- Project : EfW EPC (Capacity : 2,030t/d(1,015t/d×2))
- Delivery target : September 2019

■ Cost overrun and mitigation measures

Cost overrun (6.4Billion yen) booked in FY2018

Overrun items	Impacts
<ul style="list-style-type: none"> • Termination of boiler installation contractor • Large size moduler construction • Detail split purchasing • Local workers productivity 	<ul style="list-style-type: none"> • Boiler installtion (¥3.7 billion) • Bill of quantities gap (¥0.9 billion) • Delay schedule (¥1.2 billion) • Strike in November (2weeks) (¥0.6 billion)

Mitigation measures : Reinforcement project team

- Change and increase of project controllers (June 2018)
- Change of project director(Aug. 2018)
- Increase of site managers, supervisors (Aug.~Sept. 2018)

Achievement : Improvement of cost to complete forecast and project progress monitoring/scheduling

Challenge : Improvement of local workers productivity and keep delivery target

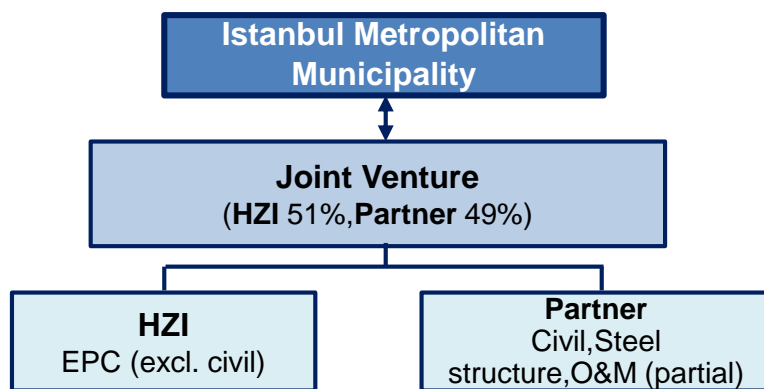


② Istanbul Project

■ Project description

- First project in Turkey
- Project : EfW EPC+1year O&M
- Capacity : 3,000t/d (1,000t/d×3)
- Delivery : March 2021(Original Oct.2020)

■ Contract diagram



■ Risk hedge

- Escalation clause
- FX risk beard by partner
- Trade insurance attached for credit risk (SERV(*))

(*) a Swiss public export credit institution equivalent to NEXI (Nippon Export and Investment Insurance)



■ Progress

- Civil work on going
- HZI is working for detail design and procurement work (March 2019 progress : 41%)
- Equipment delivery/ installation starts in FY2019 2Q

■ Service business progress

- Reinforcement of structure and staffs and expand service menus (ex. Retrofit)
- UK JV company established
- Received two retrofit projects in Germany

<EfW Service Market>

- UK EfW plants : 45 in operation(HZI 9), 16 under construction(HZI 2)
- Germany EfW Plants : 81 in operation (25+ years old is 50+)
- Swiss EfW plants : 30 in operation(HZI 25)
- Maintenance demand : Plants aging leads demand increase

■ Biogas business progress

- In April 2018 renewable gas business dept. established which oversee whole HZI group biogas related business and which enable HZI to make a total coordinated proposal or approach, including anaerobic digestion (methane gas fermentation) technologies, biogas refining technologies, and PtG technologies.
- Own invested plant in US (in operation) and in Sweden (under construction)



California, US Biogas plant (SLO)

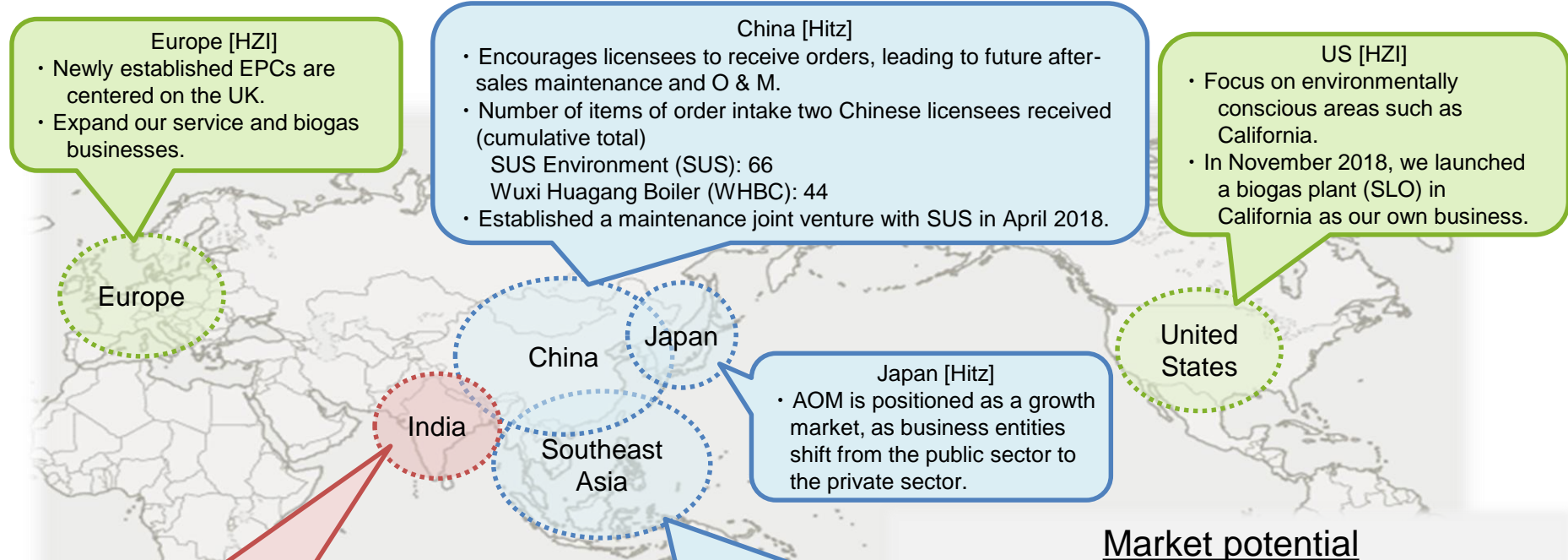
HZI group service business (Billions of yen)

	2017	2018	2019 (FC)
Order intake	6.0	10.2	15.0
Net sales	6.3	7.5	9.5

HZI group biogas business (Billions of yen)

	2017	2018	2019 (FC)
Order intake	4.5	7.3	10.1
Net sales	5.6	4.9	7.1

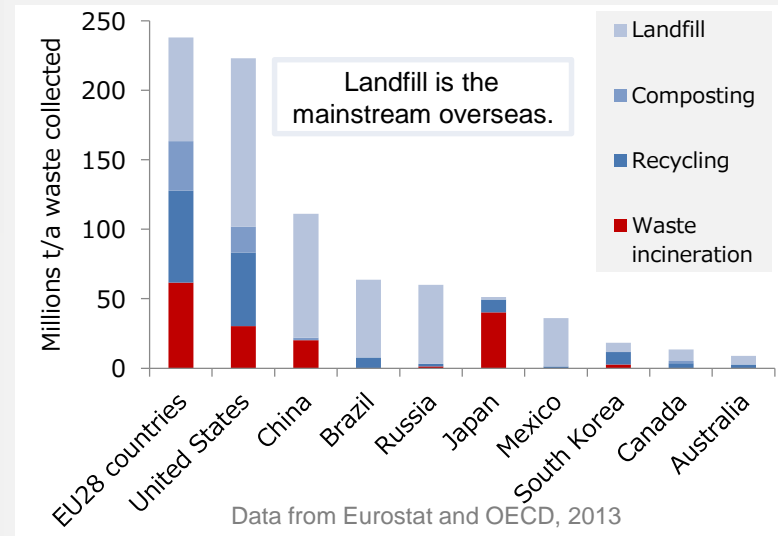
II.EfW Business Global Expansion 1. Business Strategy by Region



■ Characteristics of Our Group's EfW Business

- Our group offers two options: incineration method and biogas method to meet the needs and conditions of each region.
- Expand AOM(*) in developed countries for waste incineration power plants.

Market potential



II. Global Expansion of EfW Business 2. EfW Business in China

■ China's Market Size and Growth Potential

- China is the world's largest EfW market.
- Until 2020, annual orders are expected to be in the range of 60,000 to 70,000 t/d.
- Due to the rise of China manufacturers, the number of international bidding projects has been on a declining trend.

■ EfW Business Expansion in China

- Utilizing the HZI track record, the number of orders for international bidding large-scale projects increased.
- Since 2009, SUS Environment (SUS) and Wuxi Huagang Boiler (WHBC) have been licensed to deal with bids limited to China manufacturers.
- Established a joint venture with SUS in April 2018 to provide maintenance services.

Cumulative number of orders including licensees (as of March 2019)

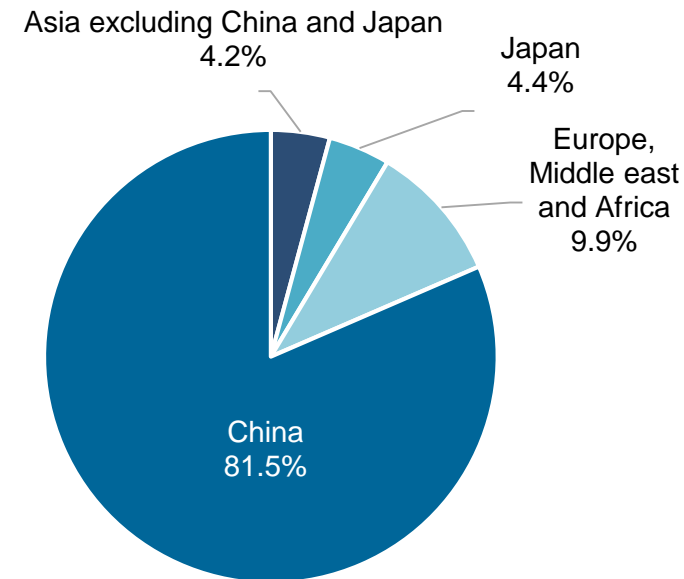
Hitz	23 (7)	Total 133 (21)
SUS	66 (8)	
WHBC	44 (6)	

※ Figures in parentheses are FY2018 results.

■ Outlook

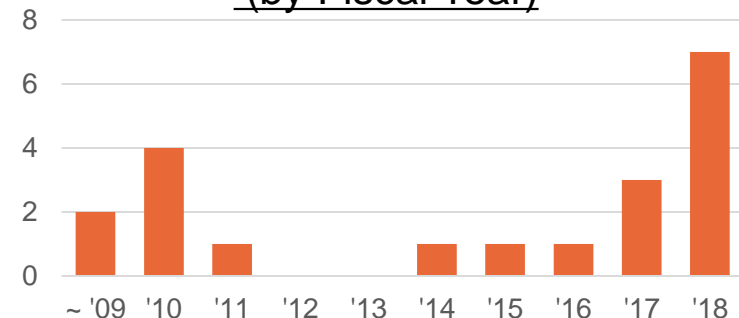
- Increase market share by promoting licensee orders, leading to expansion of the AOM business.

Global EfW Market (2015-2017)



Source: Vaccani Worldwide Market Share Analysis of Thermal Waste Treatment Plants, 2018 Edition

Number of order intake Hitz received (by Fiscal Year)



III. Research and Development

1. Development of Automatic Combustion Control Technology for Waste Using AI

Development Objective:

Automation Level from 3 to 4

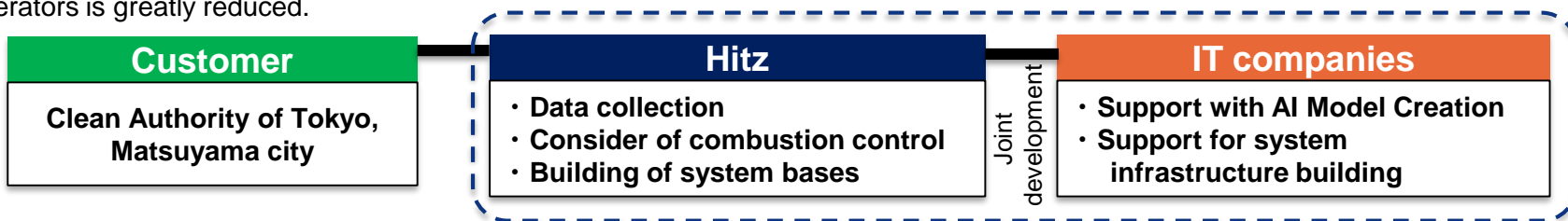
- Since the calorific value varies depending on the nature of the waste, sophisticated technologies are required for stable combustion and power generation in response to fluctuations in waste^(*), etc.
- Currently, many of them depend on the operator's skill level (Level 3)
- Aim to realize stable combustion, power generation, and reduced workload for operators (Level 4) by expanding the automatic operation area.

Automation Level	Automation content	Practical use
Levels 1 and 2	Support operator operation.	Completed
Level 3	Basically all operations are automated. It relies on the operator's skills when fluctuations in waste.	Completed
Level 4	All operations are automated during normal operation. Automatic response even in case of fluctuations in waste.	Under development
Level 5	Automation in all operations.	Future

(*) Fluctuations in waste: Significant changes in both the nature and the condition of waste.

Development Content and Progress

- Study is conducted at EfW facilities (Suginami Incineration Plant in Tokyo and Matsuyama City West Clean Center in Ehime Pref.) that we delivered.
- Promote development in collaboration with multiple major IT companies using the Hitz Advanced Information Technology Center (A.I/TEC)
- Introduction of combustion condition prediction model reduces combustion error time by half, and the frequency of manual operation by operators is greatly reduced.



Big Data



III. Research and Development

2. Progress toward commercialization of all-solid-state lithium-ion battery (AS-LiB®)

Characteristics of our AS-LiB®

- **High safety**
 - Solid electrolyte is flame-retardant and do not leak or generate flammable gases.
- **Wide range of operating temperatures**
 - Can be discharged at -40°C and can be charged and discharged at +120°C
- **Diversity of usable environments**
 - Stable operation is possible even in a vacuum of 1.0×10^{-2} Pa.

Appearance of our AS-LiB®

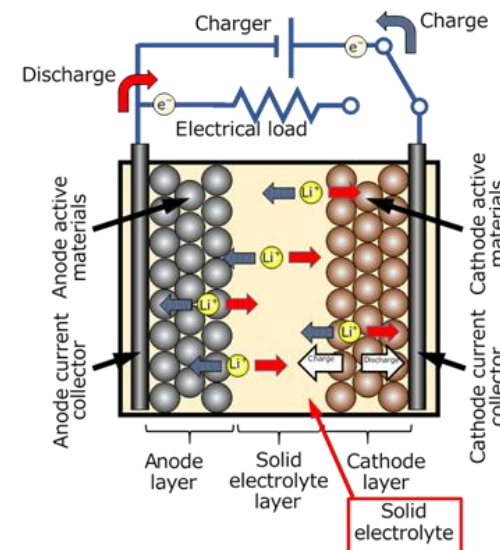


Progress toward commercialization

- In FY2019, our company plans to start commercial production at test plants in small quantities for special applications that leverage the characteristics of AS-LiB®
- Full-scale commercial production is positioned as a future initiative after resolving the following technical development issues

Issue	Status of Initiatives
① Standardization	Promoting standardization of battery design and manufacturing methods with the aim of establishing differentiated performance such as heat resistance
② Quality Stable and Productivity Improvement	Developing technologies required to improve productivity, such as quality stable and automation, for full-scale commercial production
③ Reduce of manufacturing costs	Reduce manufacturing costs while resolving issues ① and ② above in order to reduce selling prices

Schematic of our AS-LiB®



IV. Initiatives to Achieve Profitability of Marine Diesel Engine in the Machinery Division

The following structural reforms are being implemented to reduce the deficit in FY2019 and return to profitability in FY2021.

1. Growth in the after-sales service business

- Transition of parts sales to service proposal type (condition diagnosis of main engine, proposal of preventive maintenance)
- Implement of renovation work aimed at improving main engine performance
- Strengthen overseas service systems (Singapore, China and Taiwan)

2. Ensuring stable orders and raising the price of motors

- Targets for each customer are set, and price increases are realized.
(Order environment improved due to recovery trend in ship prices and relaxation of competitive conditions, etc.)
- Secured orders for 40 to 45 units per year

3. Reducing costs

- Materials and outsourcing: Achieve cost reductions by securing multiple suppliers of major parts
- Construction costs: Stabilization of processes and improvement of productivity through expected production of the same type of vessel

Business performance of marine diesel engines (Billions of yen)

	Result			Forecast
Fiscal Year	2016	2017	2018	2019
Orders intake	20.8	17.7	21.8	25.0
Net sales	25.5	20.4	20.3	22.0
Operating income	-0.4	-0.3	-1.2	-0.5

5. Support Documentation

(Unit: Billion Yen)

		FY2016	FY2017	FY2018			FY2019	Difference	
		Results	Results (a)	Forecast as of Nov.	Forecast as of March (b)	Results (c)	Forecast	(c)-(a)	(c)-(b)
Order intake	EPC	117.0	86.8	139.0	124.0	132.3	124.0	45.5	8.3
	Stable Business*	123.6	170.4	141.0	166.0	182.4	116.0	12.0	16.4
	Total	240.6	257.2	280.0	290.0	314.7	240.0	57.5	24.7
Net sales	EPC	130.0	97.4	106.0	106.0	93.3	103.0	-4.1	-12.7
	Stable Business*	124.6	134.4	134.0	134.0	135.0	137.0	0.6	1.0
	Total	254.6	231.8	240.0	240.0	228.3	240.0	-3.5	-11.7
Operating income	EPC	-4.9	-12.6	-9.0	-8.5	-8.4	-2.5	4.2	0.1
	Stable Business*	16.2	13.9	14.5	15.0	14.0	12.5	0.1	-1.0
	Total	11.3	1.3	5.5	6.5	5.6	10.0	4.3	-0.9

*Stable Business: After-sales services, Operation, and Maintenance (AOM) and other post-completion services.

Results and Forecast (By Small Segment of Machinery)

(Unit: Billion Yen)

		FY2016	FY2017	FY2018			FY2019	Difference	
		Results	Results (a)	Forecast as of Nov.	Forecast as of March (b)	Results (c)	Forecast	(c)-(a)	(c)-(b)
Order intake	Marine Diesel Engine	20.8	17.7	19.5	19.5	21.8	25.0	4.1	2.3
	Press Machine	23.6	22.9	21.5	21.5	23.6	22.0	0.7	2.1
	Process Equipment	18.3	15.1	16.0	16.0	12.5	20.0	-2.6	-3.5
	Systematic Machinery	28.7	27.0	25.5	25.5	24.9	25.0	-2.1	-0.6
	Others	15.5	15.7	17.5	17.5	17.9	18.0	2.2	0.4
	Total	106.9	98.4	100.0	100.0	100.7	110.0	2.3	0.7
Net sales	Marine Diesel Engine	25.5	20.4	21.0	21.0	20.3	22.0	-0.1	-0.7
	Press Machine	24.1	24.4	21.0	21.0	25.3	22.0	0.9	4.3
	Process Equipment	16.4	13.7	16.5	16.5	18.9	15.0	5.2	2.4
	Systematic Machinery	21.8	27.0	25.0	25.0	25.3	22.0	-1.7	0.3
	Others	15.9	15.1	16.5	16.5	16.8	19.0	1.7	0.3
	Total	103.7	100.6	100.0	100.0	106.6	100.0	6.0	6.6
Operating income	Marine Diesel Engine	-0.4	-0.3	-0.8	-0.8	-1.2	-0.5	-0.9	-0.4
	Press Machine	2.3	1.0	0.8	0.3	-0.1	0.5	-1.1	-0.4
	Process Equipment	0.0	0.3	0.7	0.2	-0.5	0.5	-0.8	-0.7
	Systematic Machinery	0.2	1.5	1.2	1.2	1.0	0.5	-0.5	-0.2
	Others	0.1	0.0	0.1	0.1	0.5	0.0	0.5	0.4
	Total	2.2	2.5	2.0	1.0	-0.3	1.0	-2.8	-1.3



Technology for People, the Earth, and the Future

Hitachi Zosen creates links between mother nature and our future

Cautionary Statement

Forward-looking statements are based on information currently available to Hitachi Zosen Corporation. Therefore those forward-looking statements include unknown risks and uncertainties. Accordingly, you should note that the actual results could differ materially from those forward-looking statements. Risks and uncertainties that could influence the ultimate outcome include, but are not limited to, the economic conditions surrounding Hitachi Zosen Corporation and/or exchange rate fluctuation.



Hitachi Zosen Corporation

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