

# Business Results and Progress of Key Measures

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First Half of FY2019 (FY Ending March 2020)

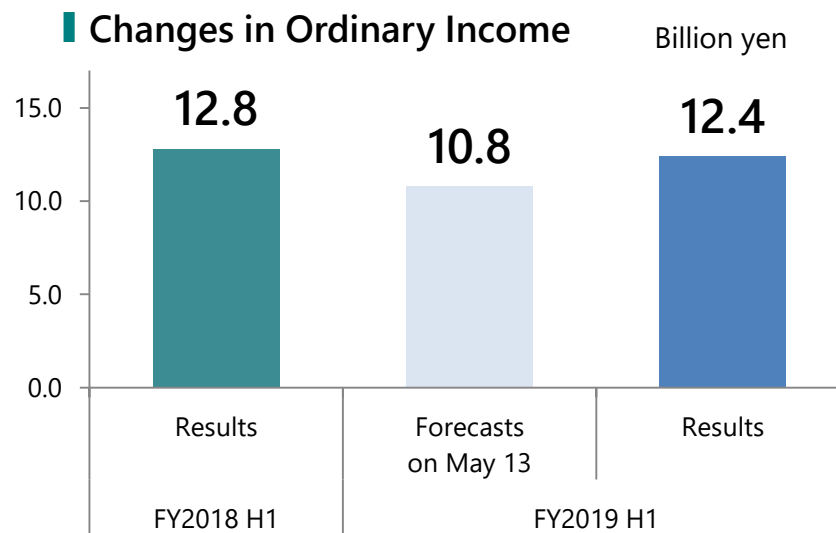
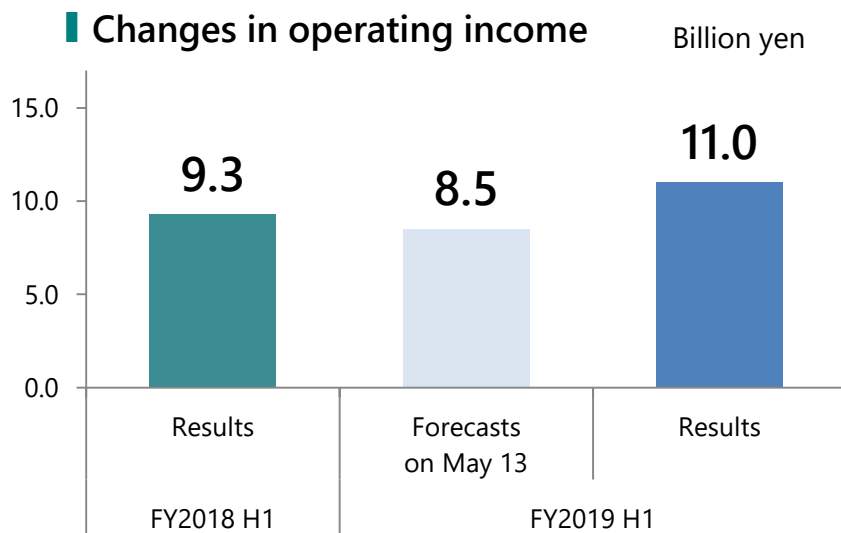
**DOWA HOLDINGS CO.,LTD.**

November 15, 2019

# Overview of Results for the First Half of FY2019

	FY2018 H1		FY2019 H1		Change			
	Results ①	Previous Forecasts ②	Results ③	Year-on-Year (③ - ①)	From Previous Forecasts (③ - ②)			
Net Sales	221.8	217.0	<b>230.7</b>	8.9	4%	13.7	6%	
Operating Income	9.3	8.5	<b>11.0</b>	1.7	18%	2.5	30%	
Ordinary Income	12.8	10.8	<b>12.4</b>	(0.3)	(3%)	1.6	15%	
Profit attributable to owners of parent	8.8	7.5	<b>7.9</b>	(0.9)	(11%)	0.4	6%	

✓ Sales and profit exceeded the previous forecasts announced on May 13.



# Main Factor Analysis of Ordinary Income for the First Half of FY2019 (comparison with previous forecasts)

## Impact of market fluctuation

**+0.04** billion yen

- Revenue in foreign currency **decreased** because the yen continued to appreciate during the period.
- Prices of base metals **dropped**, while prices of precious metals including platinum-group metals **rose**.

## Changes in the demand side, etc.

**+1.62** billion yen

- Demand for automotive products and smartphone-related products is **sluggish**.
- The environment for waste treatment and recycling-related collection are **strong**.
- Demand for new energy-related products **recovered** in China.

## Impact of year-end valuation

**+0.91** billion yen

- The loss generated by the depreciation of the carrying value of inventory assets of zinc **declined**.








## Non-operating income and expenditure

**(0.92)** billion yen

- Profit of equity method affiliates **decreased**, especially in Nonferrous Metals segment.

While demand for automotive products and smartphone-related products was weak, smelting and waste treatment improved, exceeding the previous forecasts.

# Business Environment in the Second Half of FY2019 (Summary)

Items	Related Business Segments	Business Environments	Changes from Initial Forecasts
Foreign Exchange Rate	Nonferrous Metals, Electronics Materials	The exchange rate is expected to remain mostly the same as the average in the first half of the fiscal year. (108 yen/dollar)	
Metal Prices	Nonferrous Metals	Base metals will be weak, but precious metal prices are expected to increase.	
Automobile	Nonferrous Metals, Metal Processing, Heat Treatment	While demand for the Company's products is in the recovery phase, it will fall below the previous forecasts.	
Electronic Components	Electronics Materials, Metal Processing	Demand for products related to electronic components will remain low due to the impact of the global trade friction.	
Waste Treatment	Environmental Management & Recycling	The volume of waste generated in Japan will remain unchanged. Competition for waste collection in Southeast Asia will intensify.	
Recycling	Environmental Management & Recycling	The environment for materials collection will remain robust thanks to the environmental regulations having been tightened in Japan and abroad.	
New Forms of Energy	Electronics Materials	While new energies for the Chinese market are strong, the outlook for the 4th quarter and thereafter is uncertain.	

**While the result of Nonferrous Metals segment is likely to improve thanks to an increase in precious metal prices, the performance of other segments is expected to fall below the previous forecasts.**

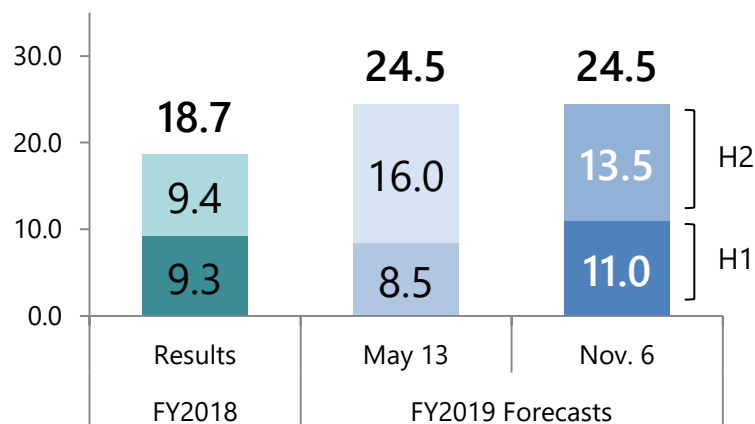
# FY2019 Full-year Forecasts

Billion yen

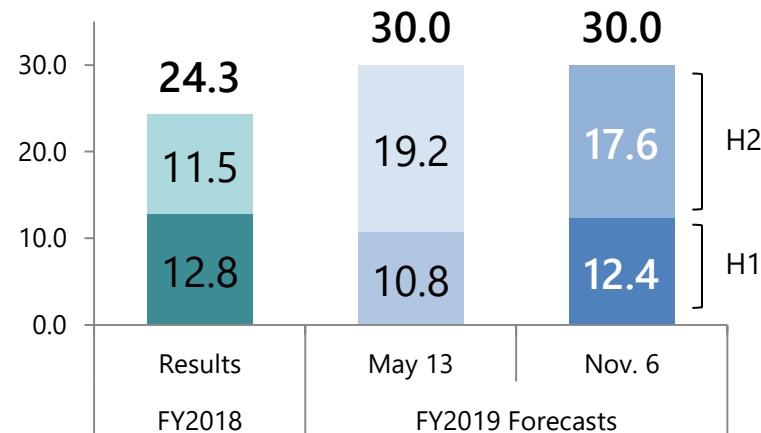
	FY2018	FY2019 Forecasts		Change			
	Results ①	Previous ②	Revised on Nov. 6 ③	Year-on-Year (③ - ①)		From Previous Forecasts (③ - ②)	
Net Sales	452.9	455.0	<b>480.0</b>	27.0	6%	25.0	5%
Operating Income	18.6	24.5	<b>24.5</b>	5.8	31%	-	0%
Ordinary Income	24.3	30.0	<b>30.0</b>	5.6	23%	-	0%
Profit attributable to owners of parent	14.9	20.0	<b>20.0</b>	5.0	33%	-	0%

✓ The full-year forecasts were revised on November 6, taking the recent business environments into account.

■ Changes in Operating Income Billion yen



■ Changes in Ordinary Income Billion yen



# FY2019 Full-year Forecasts Comparison by Segment

Billion yen

	FY2019 Forecasts on May 13			FY2019 Forecasts on Nov. 6			Changes		
	Net Sales	Operating Income	Ordinary Income	Net Sales	Operating Income	Ordinary Income	Net Sales	Operating Income	Ordinary Income
Environmental Management & Recycling	106.7	6.6	6.7	112.3	6.0	6.2	5.6	( 0.6)	( 0.5)
Nonferrous Metals	209.3	5.9	9.5	218.9	8.6	12.4	9.6	2.7	2.9
Electronics Materials	65.6	0.7	2.6	90.8	1.0	2.3	25.2	0.3	( 0.3)
Metal Processing	91.7	6.6	6.8	87.2	5.1	5.3	( 4.5)	( 1.5)	( 1.5)
Heat Treatment	32.4	3.3	3.2	29.8	2.5	2.5	( 2.6)	( 0.8)	( 0.7)
Other/ Elimination	( 50.7)	1.4	1.2	( 59.0)	1.3	1.3	( 8.3)	( 0.1)	0.1
Total	455.0	24.5	30.0	480.0	24.5	30.0	25.0	0.0	0.0

# Ref.: FY2019 Full-year Forecasts (Assumptions and Sensitivities)

Sensitivity (Operating Income / H2)			Million yen
	Assumptions	Fluctuation	Sensitivity
Exchange rate	108.0 ¥/\$	±1 ¥/\$	230
Copper	5,700 \$ / t	±100 \$ / t	30
Zinc	2,500 \$ / t	±100 \$ / t	210
Indium	150 \$ / kg	±10 \$ / kg	30

\* Exchange rate sensitivity; Nonferrous Metals 200 million yen and Electronics Materials 30 million yen.

## Foreign-exchange rate and Metal Prices

	FY2018			FY2019 Assumptions				(Ref.)
	H1 Average	H2 Average	Full year average	H1 Assumptions	H1 Average	H2 Assumptions	Full year Assumptions	Oct. 2019 Average
Exchange rate: (¥/\$)	110.3	111.6	110.9	110.0	108.6	108.0	108.3	108.1
Copper: (\$/t)	6,487	6,194	6,341	6,400	5,956	5,700	5,828	5,743
Zinc: (\$/t)	2,824	2,667	2,746	2,800	2,554	2,500	2,527	2,446
Indium: (\$/kg)	286	222	254	180	164	150	157	150

Sensitivity is based on assumptions that the Company assumes to be reasonable at the time of publication. Actual effects may differ materially due to a variety of factors.

# Progress of Key Measures in Each Segment

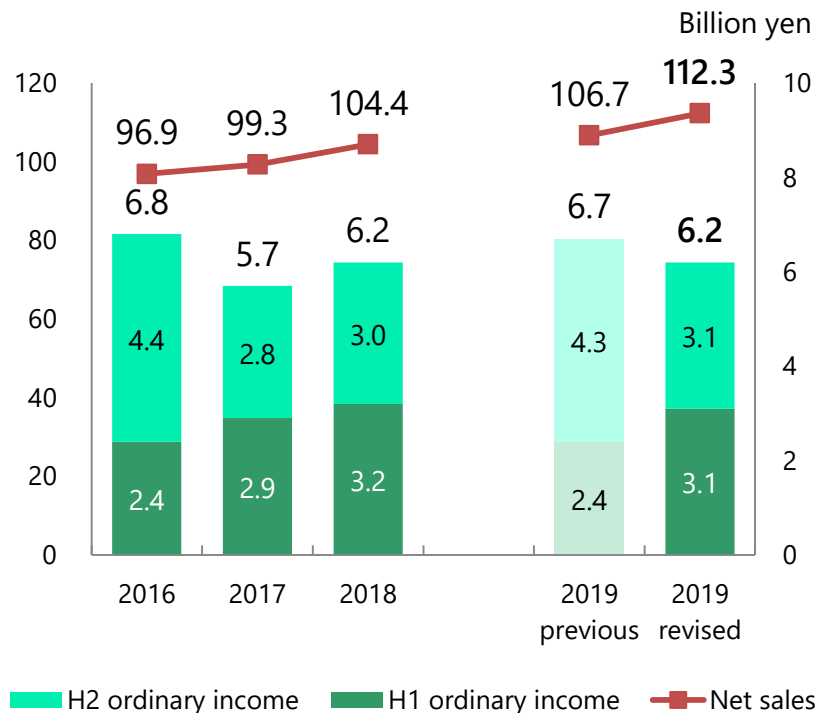
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## Business Environment

- **Waste:** The volume of waste generated in Japan remains unchanged. In Southeast Asia, competition for waste collection is intensifying in Thailand and Singapore.
- **Recycling:** The environment for collecting materials continues to be steady.

## Net Sales & Ordinary Income



### 《Major Product Trends》

(FY2018 H1 = 100)

	FY2018		FY2019	
	H1	H2	H1	H2
Intermediated Waste Treatment Volume in Japan	100	97	104	<b>106</b>
Treatment Volume in Melting and Recycling business	100	105	115	<b>120</b>
Waste Treatment Amount in Southeast Asia	100	96	94	<b>107</b>
Treatment Volume in Electric Equipment Recycling business	100	103	110	<b>101</b>

### Overview of Second Half of FY2019 (comparison with previous forecasts)

- The treatment volume and unit price of complex hazardous waste remain unchanged.
- The treatment volume and unit price of low-contaminated PCB waste decrease slightly.
- Orders for high-margin soil remediation projects decrease.
- Although the value of waste treatment in Southeast Asia increases year on year, it falls below the previous forecasts.

# Expansion of Waste Treatment Business in Southeast Asia

## Thailand

Midterm Plan 2020: The business domain is extended to hazardous waste treatment.

Progress in FY2019

- July: Obtained approval to increase the volume of hazardous waste treatment.
- Second half of FY2019:
  - Planning to increase hazardous waste treatment.
  - Start recycling HV/EV waste batteries.

Incineration Plant in Thailand



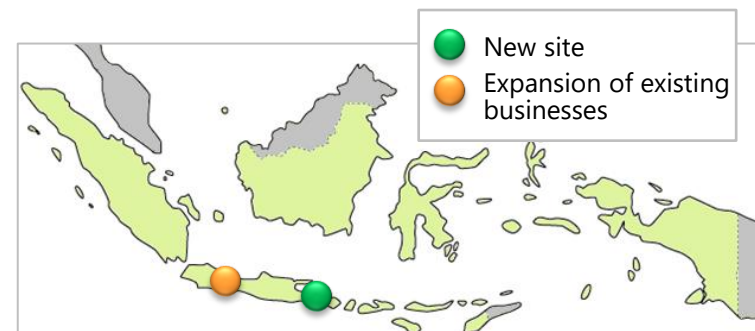
## Indonesia

Midterm Plan 2020: Second landfill site opens and waste incineration business starts.

Progress in FY2019

- Second landfill site: Environmental impact assessment is expected to be completed before the end of 2019.
  - Construction is scheduled to start before the end of FY2019.
- Incinerator: Permission for incinerator construction is obtained and construction is scheduled to start before the end of the current fiscal year.

Business Expansion in Indonesia



- The second landfill site is scheduled to open at the end of FY2020.
- Incinerator: Operation is scheduled to start in the second half of FY2021.

# Progress of Key Measures in Japan

## Expansion of the melting / recycling business

Ash from incinerated municipal waste is recycled into construction materials, and some metals contained in the ash are recovered.

=> Resource recovery from waste and life extension of public landfill facilities

- Expand the amount of waste treatment based on the two-site network in Tochigi and Fukushima, Japan.
- Strengthen the pre-treatment process for the further expansion of the amount of waste treatment.

## Build new landfill site / expand existing landfill site

- ECO-SYSTEM HANAOKA CO., LTD.: A new landfill site is under construction in an area adjacent to the existing landfill site. It is scheduled to open in April 2021.
- GREEN FILL KOSAKA CO., LTD.: The environmental impact assessment was commenced for expansion of the landfill site.

## Launch of the biomass power station

Entered the business of biomass power generation derived from food waste, which is difficult to recycle into feed and fertilizers. It is scheduled to commence operation in April 2021.

Amount of waste treatment in terms of melting and recycling (2020 = 100)

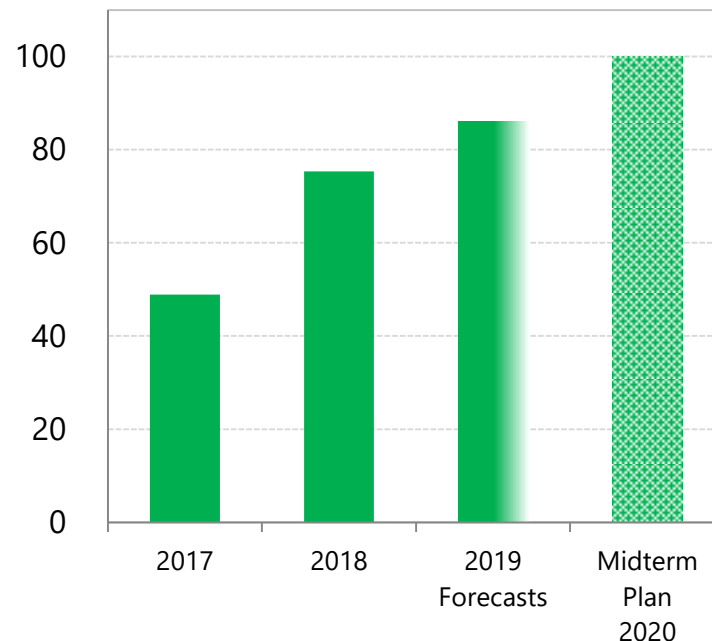


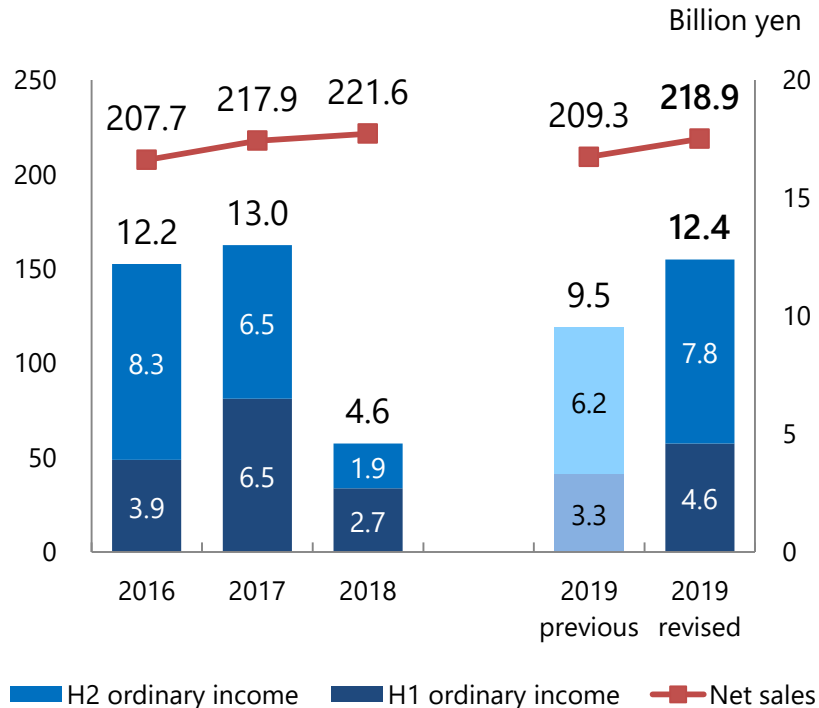
Image of the biomass power station



## Business Environment

- Metal prices are affected by the global trade friction. The prices of base metals are weak, and those of precious metals including platinum-group metals are increasing.
- Demand for copper and zinc among ingots is slowing down slightly.

## Net Sales & Ordinary Income



## 《Major Product Trends》

(FY2018 H1 = 100)

	FY2018		FY2019	
	H1	H2	H1	H2
Copper Production (Kosaka・Onahama)	100	97	98	<b>102</b>
Gold Production (Kosaka)	100	102	102	<b>108</b>
Zinc Production (Akita)	100	113	99	<b>109</b>

## Overview of Second Half of FY2019

(comparison with previous forecasts)

- The effect of improving the purchasing conditions for zinc material continues.
- The business of recovery platinum-group metals from used automotive exhaust gas purification catalysts is expected to see an increase in collection volume.
- Construction at Los Gatos Mine was completed in July 2019 as planned and is in preparation. Full-scale operation will commence in January 2020.

# Deepening of the Recycling and Smelting Complex Function

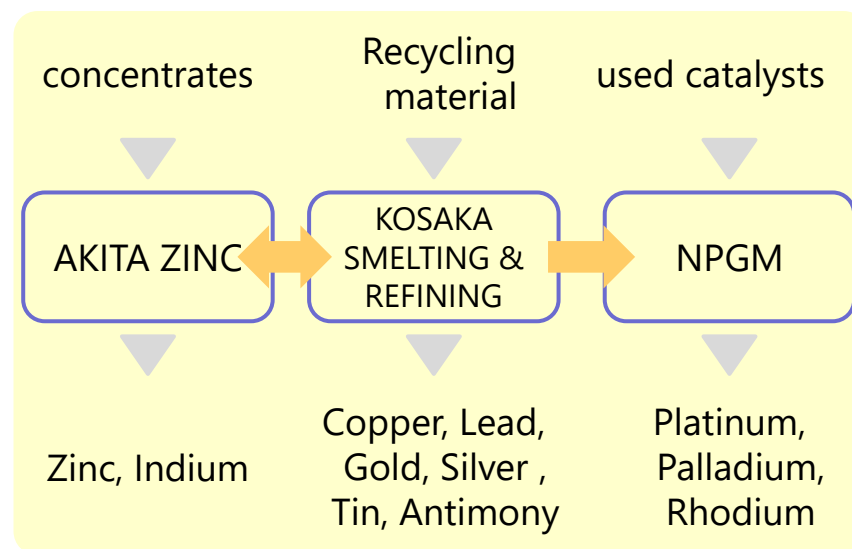
## Features of the recycling and smelting complex

Approx. 20 types of valuable metals are collected by combining multiple smelting processes.

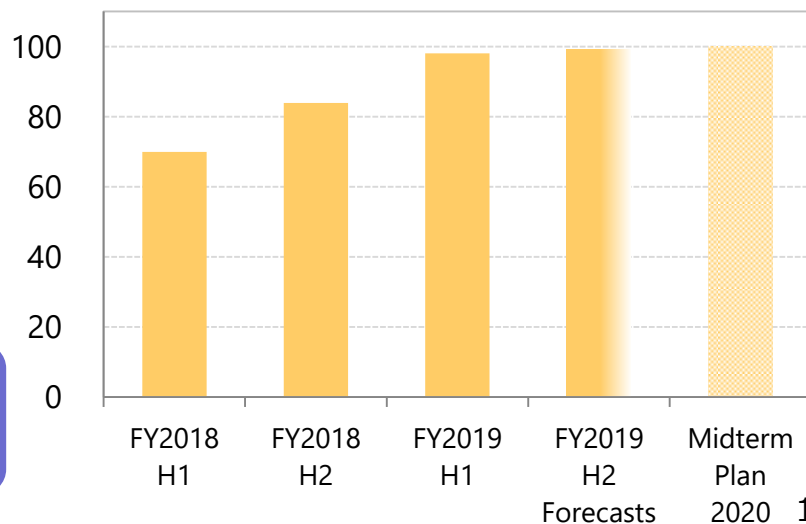
## Key Measures in Midterm Plan

- Expand production capacity (AKITA ZINC CO., LTD., NPGM)
- Expand the facilities that remove impurities contained in raw materials (AKITA ZINC CO., LTD., KOSAKA SMELTING & REFINING CO., LTD.)
- Strengthen the recovery of byproduct metals (KOSAKA SMELTING & REFINING CO., LTD.)
- Expand the collection of used automotive exhaust gas purification catalysts (NPGM)
- Procurement of concentrates suitable for the recycling and smelting complex (Los Gatos Project)

the recycling and smelting complex



Amount of waste treatment in terms of used automotive exhaust gas purification catalysts (2020 = 100)



Strengthen the unique business composition that does not depend on profit from a certain metal



# Zinc Mine Development

## ■ Start of operation at Los Gatos Mine

- Planning to increase the operation rate and commence full production at the beginning of 2020.
- Concentrate production: zinc: approx. 50,000 tons/year, lead: approx. 30,000 tons/year
- [Expected to start to contribute to profit in FY2020](#)
- \* Ownership interest (as of November 2019)  
DOWA holds 48.5% and SSMRC holds 51.5%.
- The percentage of procurement from its own mines will be around 40% due to the start of production at Los Gatos Mine.



Milling Machines



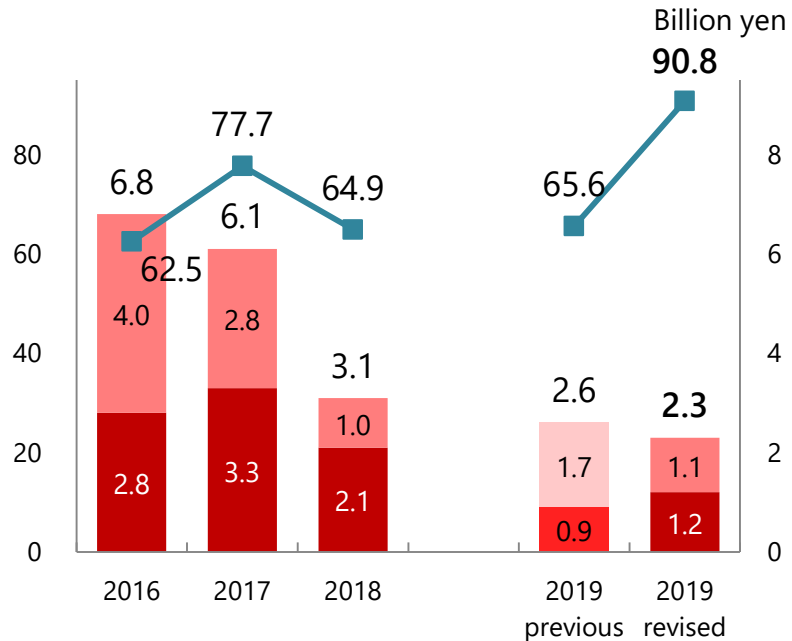
Overview of Process Plant and Stockpile Dome

# Overview of FY2019

## Business Environment

- The number of solar panels installed is increasing. The ratio of new panels with higher power generation efficiency is rising.
- The semiconductor market is sluggish due to the impact of the global trade friction.

## Net Sales & Ordinary Income



## 《Major Product Trends》

(FY2018 H1 = 100)

	FY2018		FY2019	
	H1	H2	H1	H2
LED Sales Volume	100	63	64	<b>61</b>
Silver Powder Sales Volume	100	98	117	<b>113</b>
Income from new products (e.g. evaluation sample incomes)	100	82	125	<b>140</b>

## Overview of Second Half of FY2019 (comparison with previous forecasts)

- The quality advantage that enables the thinning of cell wiring is used to meet demand for silver powder for new panels.
- The start of new products such as short-wavelength Infrared LEDs is delayed due to the sluggish market of smartphone-related products.

# Sales Growth of Complex Oxide Powder for Fuel Cells

## Product Overview

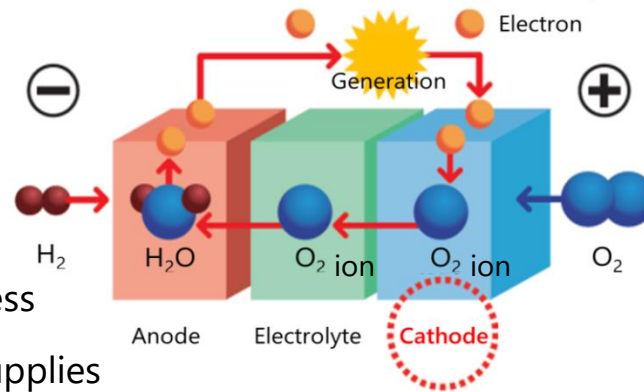
- Materials for fuel cell cathodes.
- Takes oxygen from the air and ionizes it.

## Business Environment

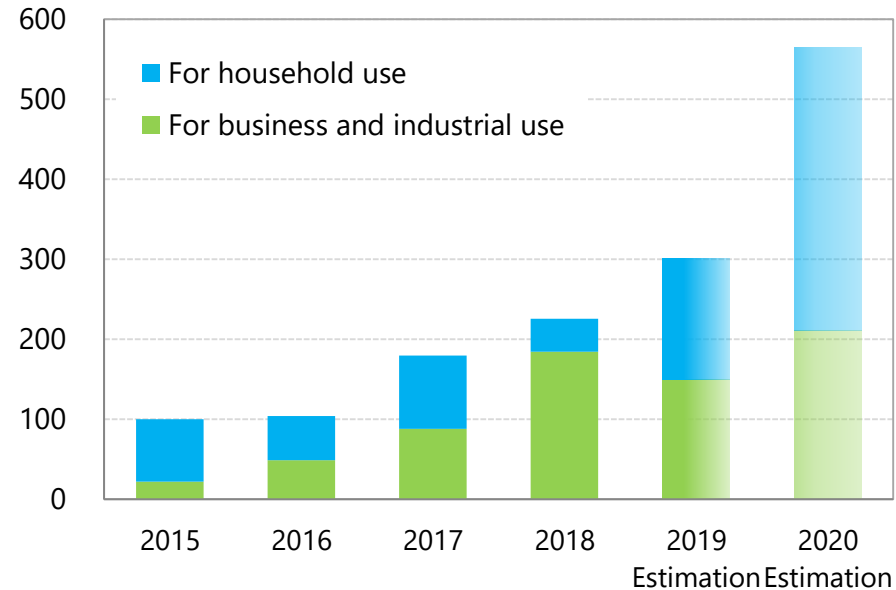
- In recent years, demand for fuel cells for business and industrial use such as emergency power supplies in hospitals and hotels has grown as fuel cells for household use increase.
- Development into large private power generation facilities at office buildings and factories is expected in the future.

## Future Plans

- Improve the quality to meet the requirements for large private power generation facilities and steadily increase the number of units sold.
- Expected to start turning a profit in FY2019.



Number of units of complex oxide powder sold (2015 = 100)





# Expansion of Use of Silver Nano Powder

## Use of Silver Nano Powder

- Joint material for precision electronic components such as semiconductor devices.
- Shielding material that prevents the malfunction of electronic components due to electromagnetic waves.

## Characteristics in Use as a Shielding Material

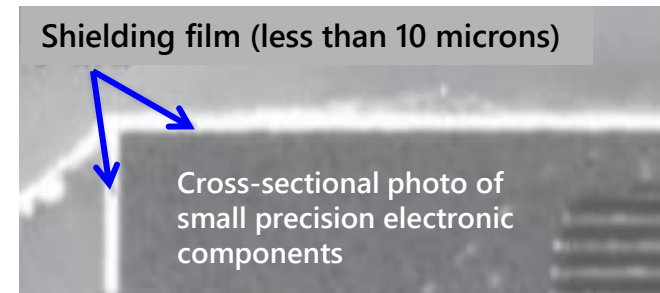
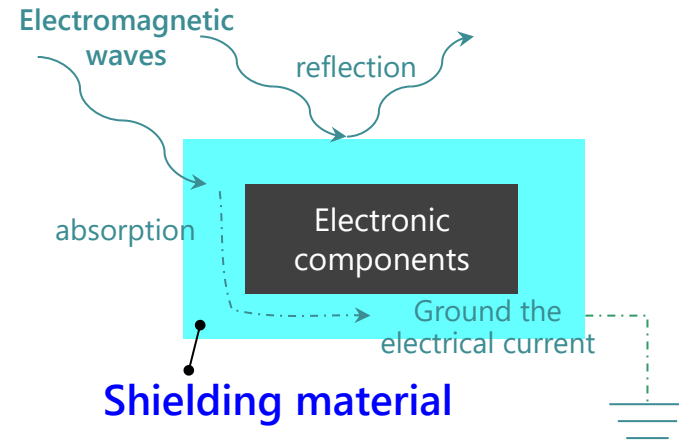
Able to form an ultra-thin shielding film on the surface of a small precision electronic component using the spraying method.



Contributes to significant cost reductions for the customers by eliminating the need for a high-cost sputtering device.

## Future Outlook

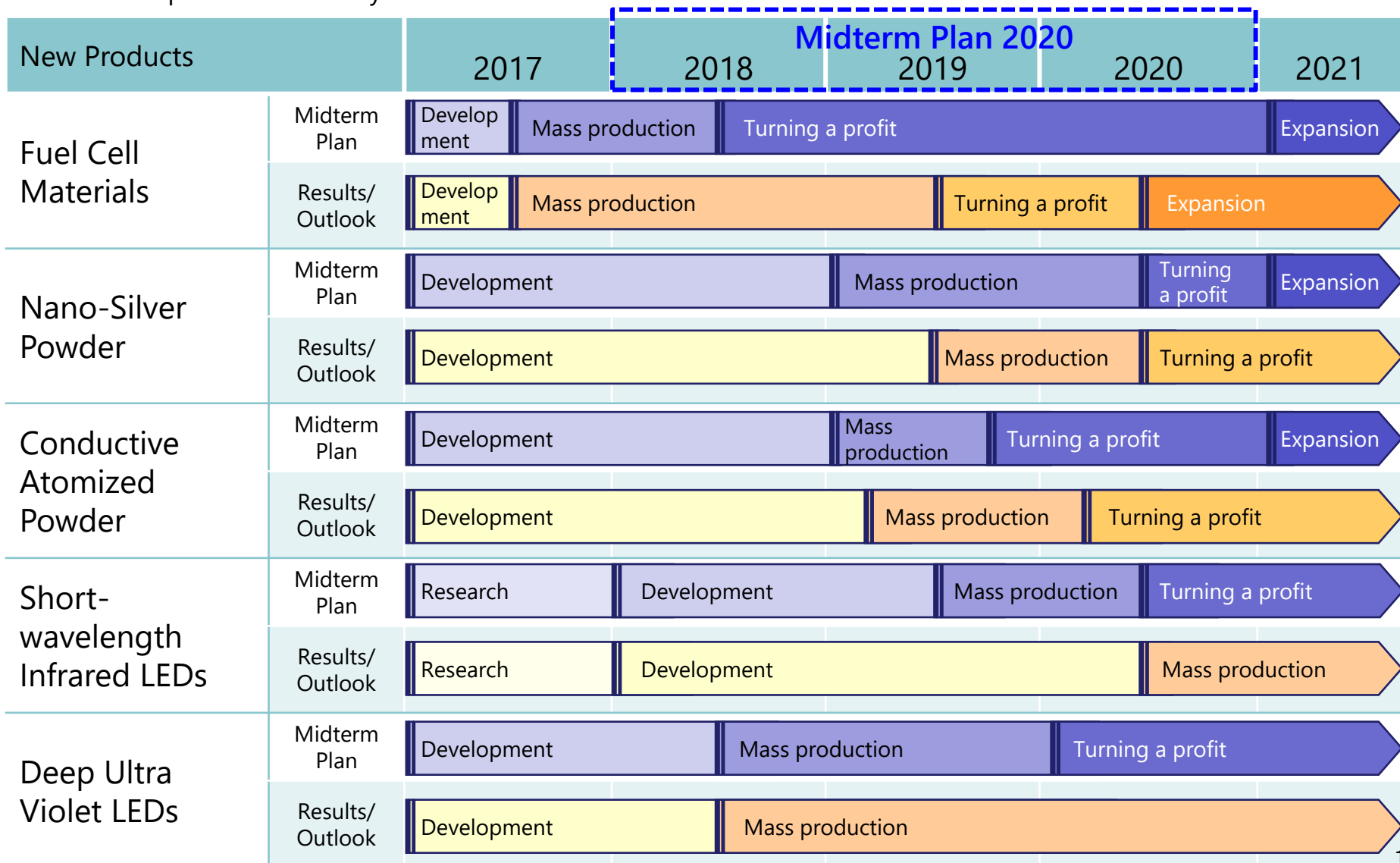
Increase sales for use as a shielding material together with use as a joint material, which is already being increasingly introduced, and aim to turn a profit in FY2020.



Process	Sputtering	Spraying
Quality	○	○
Cost	×	◎
Productivity	×	○

# Progress in Status of New Products

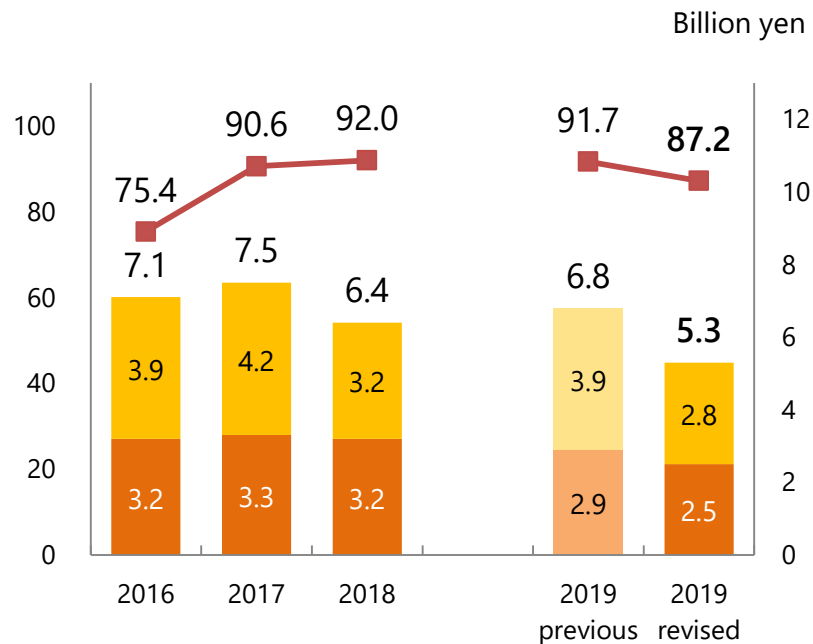
- The progress of fuel cell materials, nano-silver powder, and conductive atomized powder is generally in line with the targets in Midterm Plan 2020.
- Market formation and the start of the Company's products for short-wavelength Infrared LEDs and deep ultraviolet LEDs are expected to be delayed.



## Business Environment

- Global automobile production is sluggish.
- The adjustment phase in the semiconductor market continues.
- The development of electrified, intelligent automobiles and multi-functional, high-speed information and communication equipment continues.

## Net Sales & Ordinary Income



■ H2 ordinary income ■ H1 ordinary income ■ Net sales

## 《Major Product Trends》

(FY2018 H1 = 100)

	FY2018		FY2019	
	H1	H2	H1	H2
Copper Alloy Sales Volume (For Automobile)	100	106	97	<b>103</b>
Copper Alloy Sales Volume (For information and communication equipment)	100	91	79	<b>91</b>

## Overview of Second Half of FY2019 (comparison with previous forecasts)

- The copper rolled product and electroplating segments will focus on increasing productivity and reducing costs, and will respond to changes in the market.
- Sales of metal-ceramics substrates are strong.
- Steadily implement facility improvement at major bases to respond to medium- to long-term growth in demand.

# Progress of Expansion of Capacity and Sites

## ■ Copper rolled products

- Increase of production and sales expansion in view of the medium- to long-term growth in demand  
Each of the two sites in Japan is investing heavily to expand the production capacity of high-performance copper alloys
- Strengthen overseas processing sites  
China, Nantong: The second tin-plating site in China  
Construction is expected to be completed by the end of 2019  
Capture new demand in China from 2020 onward



## ■ Electroplating

- Establish the business in Mexico  
Make efforts to expand sales to U.S. and European customers
- Optimize the lines at the sites in Japan  
Improve productivity by responding to changes in the demand trends through scrapping and building the production lines

## ■ Metal-ceramics substrates

- Continue investing to expand the production capacity (dissolution of bottleneck process)
- Increasing sales of products for trains and automobiles and development of new products in addition to industrial machinery

# Expansion of Metal-ceramics Substrate Business

## Market Trends

- Demand for the in-vehicle power module, a key component for electrification, increases due to the growth of the eco-friendly automobile market.
- The need for metal-ceramics substrates, which are lightweight and have high insulation and heat radiation effects, increases

## Strategies in Midterm Plan

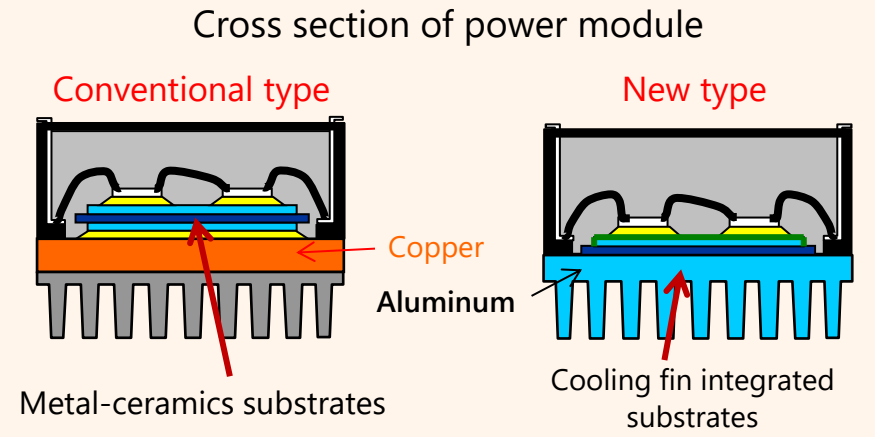
- FY2015 - FY2017: Increased development and production capacity for **cooling fin integrated substrates**
- FY2018 - FY2020: Increase sales of products for eco-friendly automobiles.

## Realizing the Optimal Portfolio

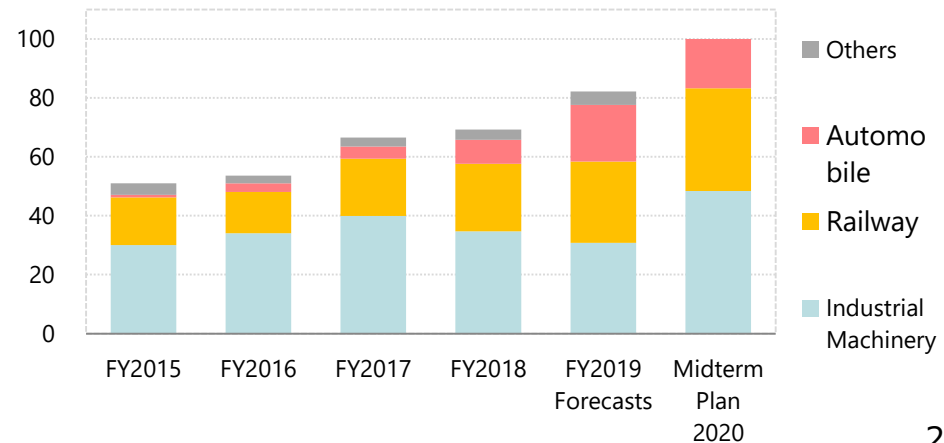
Achieve balanced sales composition that is not affected by economic fluctuations by increasing sales of products for trains and automobiles in addition to mainstay industrial machinery.

### What is a cooling fin integrated substrate?

A new metal-ceramics substrate **integrated with a cooling fin**. A substrate and an aluminum cooling fin are joined directly without using a copper base plate to reduce the customer's process and power module weight.



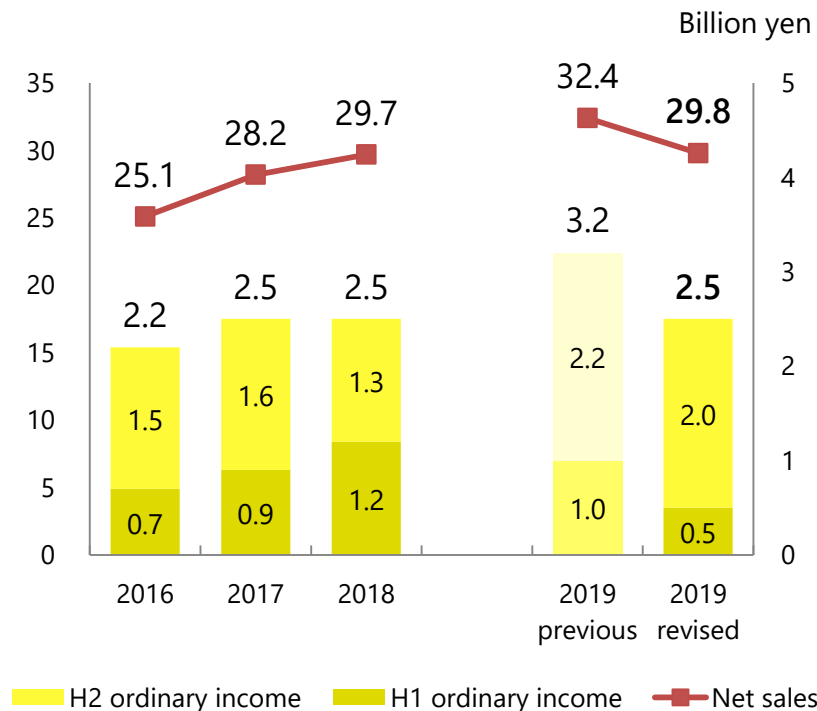
Changes in net sales of metal-ceramics substrates (2020 = 100)



## Business Environment

- Global automobile production is sluggish. Poor sales are prolonged, particularly in China and India.
- The automobile production volume will increase in the medium to long term.

## Net Sales & Ordinary Income



## 《Major Product Trends》

(FY2018 H1 = 100)

	FY2018		FY2019	
	H1	H2	H1	H2
Heat Treatment Sales Amount	100	99	94	<b>105</b>
Industrial Furnaces Sales Amount	100	149	113	<b>137</b>

## Overview of Second Half of FY2019 (comparison with previous forecasts)

- Demand for heat treatment is generally sluggish. Will acquire more new projects.
- The number of new orders for industrial furnaces and the number of maintenance construction projects are expected to fall short of the previous forecasts.
- Take measures in line with medium- to long-term trends such as growth in overseas production and vehicles with better environmental performance.

# Taking Measures in View of Medium- to Long-Term Trends

## Medium- to Long-term Trends in Automobile Production

Increase in overseas automobile production and further acceleration of local procurement of components

=> The need for customers to increase facilities will increase

(expansion overseas and reduction and reorganization in Japan)

Increase in production ratio of vehicles with strong environmental performance such as eco-friendly automobiles

=> Increase in new inquiries for heat treatment and business opportunities

Meet demand in the businesses of heat treatment and facility sales and maintenance services

## Development of High-efficiency Heat Treatment Facilities

Develop **Cell Type Vacuum Carburizing Furnaces** capable of small lot production.

Auto makers have started introducing the facilities.

Implement step-by-step sales expansion.

## Increase in Overseas Production Capacity

Step-by-step increase in production capacity such as the establishment of new Indian factories.

Plan for facility investment in view of further growth in demand.

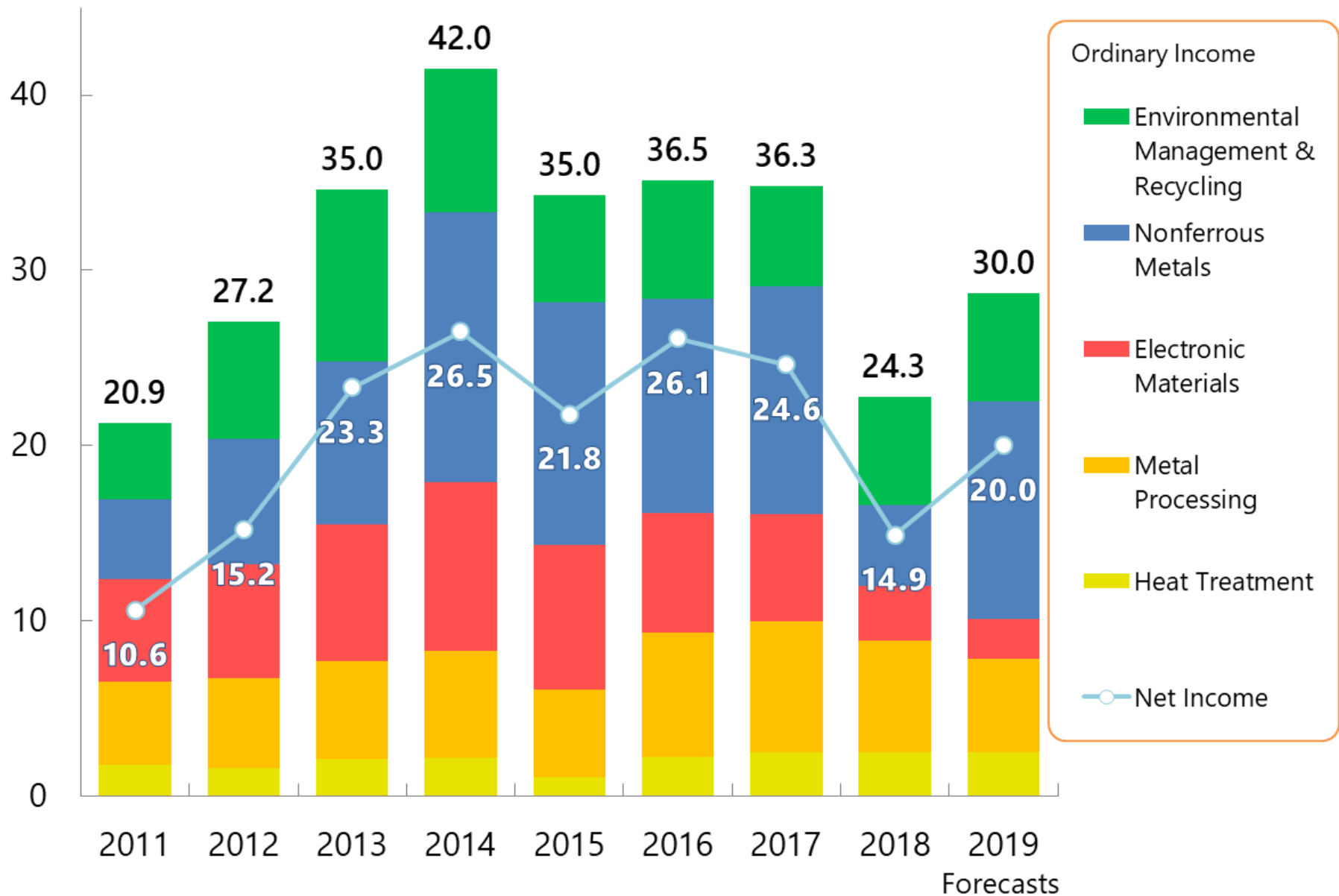


Cell Type Vacuum Carburizing Furnace

Take accurate measures in view of trends in the automobile industry

# Transition of Ordinary Income

(Billion yen)

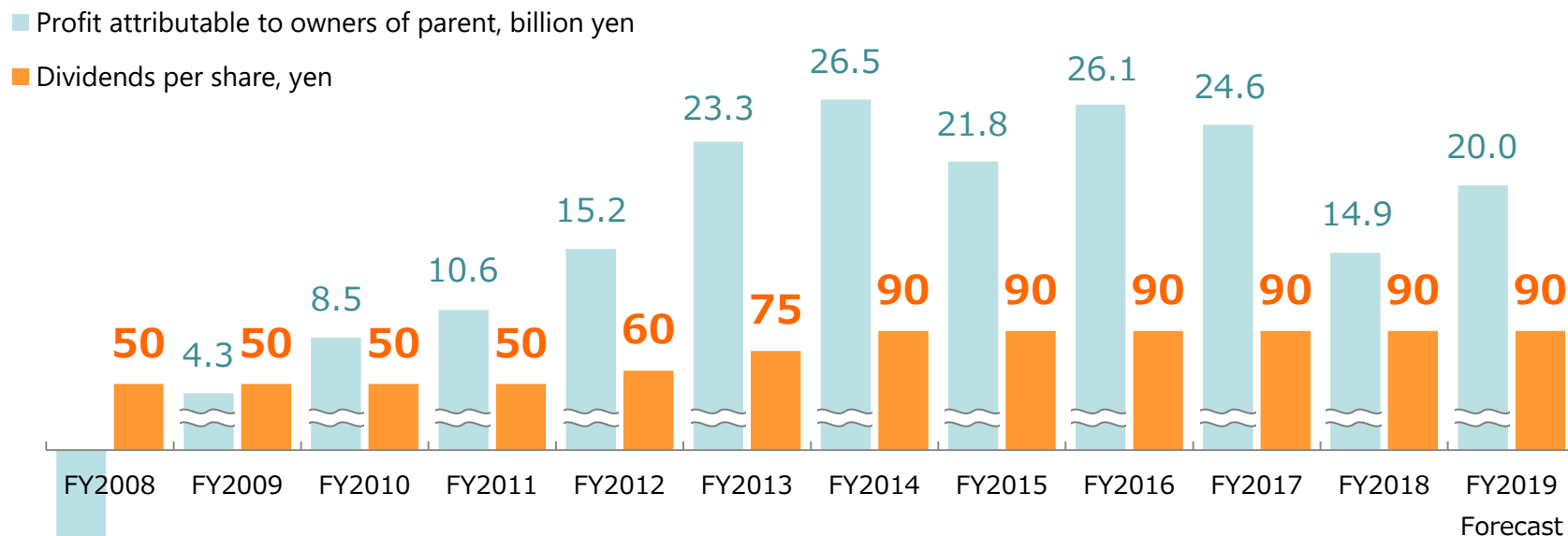




# Returns to Shareholders

DOWA regards the payment of dividends to shareholders as one of its top management priorities. The Company sets out a policy of increasing dividends as performance allows, while ensuring sufficient internal reserves for bolstering the corporate structure and expanding business in the future in line with the basic principle of maintaining stable dividends.

During the Midterm Plan 2020 (FY2018 to FY2020), DOWA aims to increase the dividend commensurate with the level of profitability, while maintaining a stable annual dividend of 90 yen per share.



Note: The annual dividend per share between FY2008 and FY2016 has been adjusted to the amount after the consolidation of shares.

(28.1)

# DOWA

\* Forward-looking statements made in this document, such as business forecast, are based on the information available at this time and on certain premises that the Company assumes to be reasonable. Actual performance may differ materially from such forecasts due to a variety of factors.