

Corporate Strategy Briefing

FY2022 (FY Ended March 31, 2023)

DOWA HOLDINGS CO.,LTD.

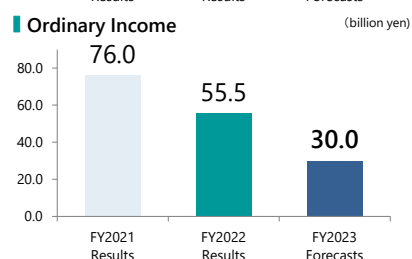
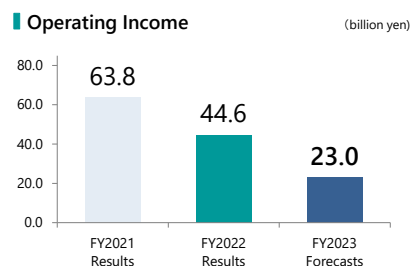
May 19, 2023

Thank you for attending our Corporate Strategy Briefing today.
My name is SEKIGUCHI Akira. I am president and representative director of DOWA HOLDINGS.
Without further ado, I'd like to move on to the briefing using these materials.

FY2022 Results, FY2023 Forecasts

In FY2022, profits reached at a high level, although being impacted by falling metal prices and rising energy costs and material prices. In FY2023, sales and profits are expected to be decline, reflecting uncertainty over the future of the global economy, combined with the impact of falling metal prices, further rises in electricity costs and other costs, and increased depreciation and research and development expenses due to upfront investment for future growth.

Billion yen	FY2021	FY2022	FY2023	
	Results	Results	Year-on-Year	Forecasts
Net Sales	831.7	780.0	(51.7)	680.0
Operating Income	63.8	44.6	(19.2)	23.0
Ordinary Income	76.0	55.5	(20.5)	30.0
By Segment	Environmental Management & Recycling	13.6	11.9	10.0
	Nonferrous Metals	42.7	33.1	10.0
	Electronic Materials	6.5	4.5	2.3
	Metal Processing	6.8	5.5	4.5
	Heat Treatment	3.0	1.8	3.0
	Other/ Eliminations	3.2	(1.5)	0.2
Profit attributable to owners of parent	51.0	25.0	20.0	



© 2023 DOWA HOLDINGS CO., LTD.

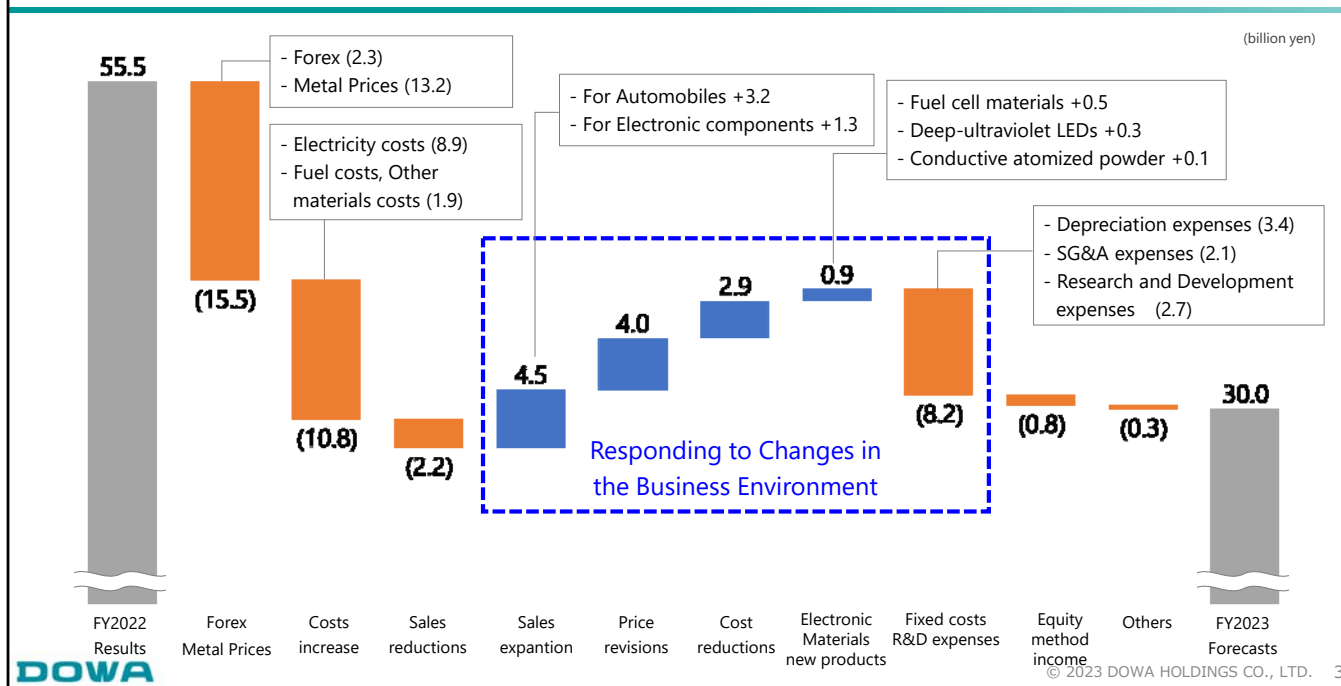
2

These are the full year results for FY2022 that were announced recently, and our full year forecasts for FY2023.

From FY2021, when profits reached a record high, to FY2023, profits have been declining. A major factor behind this is rising energy costs, mainly electricity. Our cost burden has risen by about 10 billion yen each year.

For FY2022, the increasingly weak yen had a positive impact, but various costs including electricity rates rose by around 10 billion yen. Another factor was a decline in equity method income following a temporary increase in the previous fiscal year, which increased the negative factors. In FY2023, costs will continue to rise and we expect a market downturn. Given those effects, we expect ordinary income to decline by about 25.5 billion yen compared with FY2022.

FY2023 Forecasts Factor Analysis of Ordinary Income (Year-on-Year)



This graph gives a detailed analysis of the factors behind the change in ordinary income. Forex and metal prices account for 15.5 billion yen of the decline, and rising costs, mainly for electricity, account for a further 10.8 billion yen of the decline. The decline in sales of 2.2 billion yen includes things like silver powder in the Electronic Materials Business. The measures we are taking in response to the situation are enclosed in the blue dotted line. The 4.5 billion yen increase in sales reflects our expectation that demand for automotive and telecom products will recover from the second half of the year in the Electronic Materials Business, Metal Processing Business and Heat Treatment Business. The price revisions of plus-4.0 billion yen are planned for items with a high likelihood of revisions, mainly for the automotive sector. As DOWA is a manufacturing company, we are continuing to reduce costs each year. We plan to achieve a 2.9 billion yen increase as a result of those reductions. The 900 million yen increase for new products of the Electronic Materials Business incorporates our projections of increased sales for fuel cell materials, deep-UV LEDs and conductive atomized powder, which are products we want to significantly develop as core businesses in the future. Regarding the 8.2 billion yen decline due to fixed costs, including depreciation expenses, as well as R&D expenses, as we launch new products on the market in FY2024 and beyond, we will need to continue making upfront investments including capital investments. I will go over the details of these factors in the following pages.

Responding to Changes in the Business Environment: Details of Measures and Their Monetary Impact (YoY) (1)

The business environment in FY2023 is expected to be more tough, due to a weakening metals prices and further increases in energy costs, particularly electricity costs. In addition to advancing short-term measures to improve profitability, while steadily implementing actions set forth in the Midterm Plan 2024 towards further strengthen each business.

Sales expansion

+4.5 billion yen

- Demand for automotives and telecommunications-related products and services are expected to be recovered from the second half onward, taking actions to capture that rebounding demand.

Price revisions

+4.0 billion yen

- Implement timely and appropriate price revisions for each product and service in light of soaring global energy costs and other prices.

Cost reductions

+2.9 billion yen

- Step up initiatives for appropriate costs and cost reductions Groupwide.
- Implement optimum operation based on demand trends in the Zinc smelting business.

The sales expansion of plus-4.5 billion yen is due to our expectation that demand for automotive and telecommunications-related products and services will recover from the second half of the year. We think that the difficult conditions will continue in the first half, but that the first half of FY2023 will represent the lowest point, with a turnaround developing in the second half.

Our aim is to implement price revisions as much as possible within this fiscal year. However, for the Nonferrous Metals Business, as metals are traded based on LME prices, we have not been able to implement price revisions that cover the increase in costs. Despite that, we have incorporated price increases for things like by-products.

The plus-2.9 billion yen in cost reductions will be achieved by developing various ideas at each site while building upon the effects of higher profit.

Responding to Changes in the Business Environment: Details of Measures and Their Monetary Impact (YoY) (2)

With the aim of having new products and services contribute to revenue at an early stage, accelerating various measures in R&D, manufacturing and sales, while steadily working on the investments and R&D activities needed for future growth.

Increase Revenue from New Products

+0.9 billion yen

(New products contribution in the Electronic Materials Segment)

- Steadily progress the sample provision and preparations for mass production of products expected to generate expanded revenue in the future, including fuel cell materials, deep-ultraviolet LEDs and conductive atomized powder.

Increase in Depreciation

(3.4) billion yen

- Continue to investment in equipment maintenance and business infrastructure that is essential for the sustainable continuation of business.

- Accelerate and improve the sophistication of data utilization (DX) by launching operation of a common Group cloud infrastructure.

- Make systematically investments that are essential for future growth, including expanding collection capacity of spent catalysts, and augmenting capacity of semiconductor manufacturing facilities and copper rolled product manufacturing facilities.

Increase R&D expenses

(2.7) billion yen

- Drive development of short-wavelength infrared LEDs and photo diodes (PDs) for next-generation devices and silver powder for the high-end market.

- Strengthen exploration activities in the Palmer Project to stably secure zinc concentrates.

DOWA

© 2023 DOWA HOLDINGS CO., LTD. 5

The 900 million yen in increased revenue from new products includes gains from fuel cell materials, deep-UV LEDs and conductive atomized powder. We are also distributing manufacturing samples of other new candidate products and making preparations for mass production, and plan to increase shipment volume at a time.

The minus-3.4 billion yen due to depreciation reflects ongoing capital investment to deal with aging equipment in our existing businesses and increased production of new products, and this will be implemented based on our midterm plan.

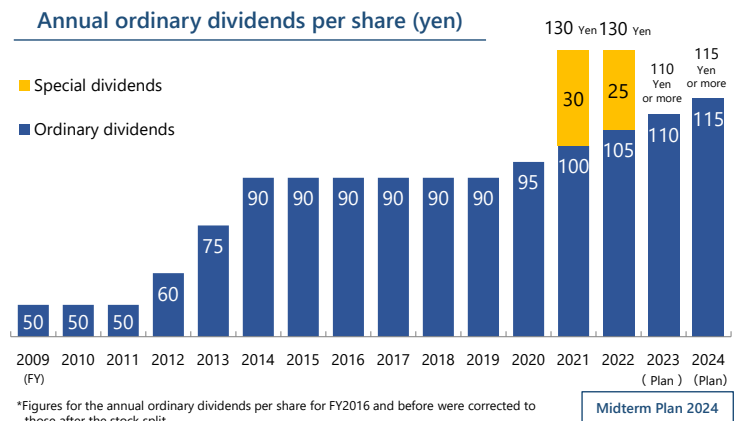
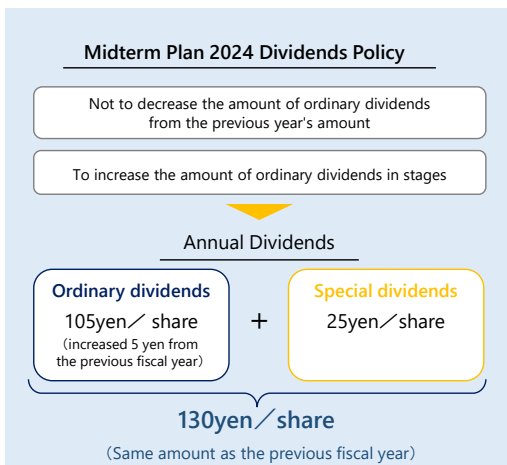
The minus-2.7 billion yen for R&D expenses reflects the need to continue development to launch new products on the market, and is an activity we will continue to pursue without letting up. Note that these R&D expenses also include the costs of exploration activities for the zinc mine in Alaska, which is something we are enthusiastic about continuing.

To summarize, despite profit being on a downward trend, our plan is to ensure that the measures formulated in Midterm Plan 2024 are followed through on, with the exception of silver powder for which the market structure has changed significantly.

Dividends

Based on the Dividends policy under the Midterm Plan 2024, the Company has decided, taking into consideration future growth investments and our financial position at the end of fiscal year, to add special dividends of 25 yen per share in addition to the ordinary dividends of 105 yen per share, which increased 5 yen from the previous fiscal year, since our business performance for the year ended March 2023, was the second highest on record.

As a result, the total annual dividends per share for the year ended March 2023 is 130 yen (ordinary dividends 105 yen + special dividends 25 yen).



DOWA

© 2023 DOWA HOLDINGS CO., LTD.

6

Regarding dividends for FY2022, we issued a total of 130 yen per share, the same level as the previous year. For FY2023, the Board of Directors will discuss dividends in light of trends in our business performance and the results produced. However, we will hold firm to the dividend policy we declared in Midterm Plan 2024, which is to increase the amount of ordinary dividends in stages.



Midterm Plan 2024 Strategies in Each Business

© 2023 DOWA HOLDINGS CO., LTD. 7

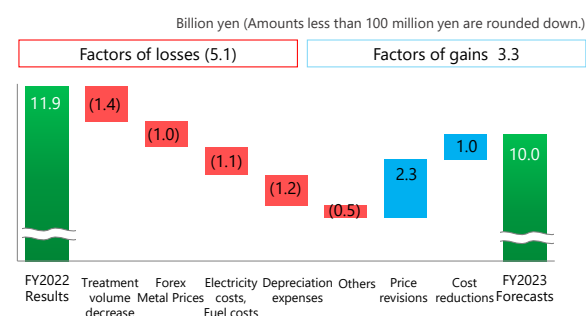
In the following pages I will give detailed explanations about each business.

Business Overview

Business Environment (FY2023)

- Waste processing business: Orders will be firm both in Japan and Southeast Asia. The treatment volume in melting and recycling business will rise.
- Recycling business: The collection volume of materials for recycling and number of used home appliances processed will remain flat.

Ordinary income (Year-on-Year)



《Major Product Trends》

	FY2022		FY2023		FY2024
	H1	H2	H1	H2	
Volume of treated waste in Japan	100	99	105	102	101
Treatment volume in Melting and recycling business	100	104	111	123	128
Waste treatment orders received in Southeast Asia	100	116	116	122	131
Volume of recycled used home electronics appliances	100	97	103	98	108

Outlook for FY2023

- Orders for waste treatment and recycling will remain firm in Japan and Southeast Asia, but orders for PCB waste and noncombustible waste are expected to decline.
- Due to a decline in the metal market, sales revenue from scrap metal is projected to fall.
- Electricity costs, fuel costs and the costs of secondary materials will continue to rise.
- We will strive to maintain or improve profitability through price revisions and cost reductions.

In the Environmental Management & Recycling Business, we expect to see very strong market conditions in FY2023. The volume of waste generated and our volume of orders received will both be strong, and we expect a slight increase in treatment volume for the melting and recycling business. We also expect to maintain last year's high levels in the volume of materials for recycling collected and number of used home appliances processed.

Next, let's look in terms of volume. The intermediate treatment volume for waste in Japan partially fell due to torrential rains that struck Akita Prefecture in the second half of the previous year, but we will aim to increase volume in FY2023.

Melting and recycling is one of the businesses we are focused on, and we plan to expand treatment volume in FY2023.

For waste treatment in Southeast Asia, we have made progress in developing new options and expanding services, and have incorporated those effects in our projections. We also expect the volume of used home appliances recycled to remain firm.

In the Environmental Management & Recycling Business we believe we have made steady progress toward the targets set out in Midterm Plan 2024 on a volume basis.

Our outlook for FY2023 is for orders to remain firm in Japan and Southeast Asia. However, as the disposal deadline for PCB is approaching, we have incorporated a decline in orders received in our projections. Additionally, sales revenue from collected metal products, which is a major source of income for the recycling business, is expected to decline due to falling market prices.

Costs for electricity, fuel and secondary materials will continue to rise, but we believe we can maintain profit levels on par with the previous fiscal year through price revisions. The effect of price revisions will be nearly double that of increased costs such as electricity and fuel. This is to counter the increase in electricity rates that has been ongoing since FY2021.

Environmental Management & Recycling (2)		Progress of Key Measures in Midterm Plan				Finished	Preparatory stage	Business contribution
Waste treatment	Expanding treatment of hazardous waste	Expanding treatment of fluorocarbons and other hazardous waste						
	Driving the business of treating spent lithium-ion batteries	Expanding recycling capacity	Increasing the volume of recycling			Commercialization		
Soil remediation	Expanding the dismantling, shredding, and sorting businesses	Full operations	Maintaining a high operating rate in the business of recycling non-burnable waste					
	Driving the expansion of landfill facilities (Green Fill Kosaka)	Preparations for construction	Construction work			Start of operation		
Recycling	Increasing the collection of materials for recycling	Expanding the area for collection and establishing a new collection base				Increasing the collection		
	Enhancing the capacity of the used home appliance recycling business and waste plastic recycling business	Akita	Changes to plant layout, expansion of facilities		Trial operation	Full operation		
Southeast Asia	Enhancing treatment of hazardous waste	Thailand	Obtaining new license	Increasing treatment options			Enhancing treatment	
	Indonesia	Facility construction	Expansion of incineration and detoxifying treatment					
	establishing a new treatment facility in East Java (Indonesia)	Construction work		Increasing the collection	Full operation			
		FY2021	FY2022	FY2023	FY2024	FY2025 onward		



Next, I will go over the progress of key measures in Midterm Plan 2024.

Handling volume has gradually increased in the recycling of used lithium-ion batteries, and in FY2023 we expect volume to double year on year. This is not yet on a commercial basis, but we have verified the effectiveness of recovery technologies and processes, and in light of what part it will play in battery recycling loop, we have pursued collaboration with outside resources and the associated technological developments, and hope to operate this business on a commercial basis from FY2025 onward.

We are also considering the recycling of solar panels as a future business. We have produced a test unit in Akita and are currently engaged in research and technical development to determine what we can recover and at what cost.

We have made steady progress on the expansion of the Green Fill Kosaka landfill site, and expect to be able to start operation from FY2025.

On the recycling front, particularly the recycling of home appliances, since both the Akita and Kumamoto plants have come up against capacity limitations, we are considering the construction of a new plant with the aim of improving productivity and enhancing the quality of recycled products.

In Indonesia, a new treatment site (DESI) was completed in East Java in January 2023, and successfully began operating. We will steadily expand collection volume going forward, and plan to fully enter the investment recovery phase from FY2024 onward.

Growth Strategy for the Indonesia Business

The waste treatment market in Indonesia is expected to expand further, due to the country having one of the world's largest populations and a high economic growth rate.

(1) Expanding Scale of Operations

- DESI began operations in January 2023.
- Expanded and enhanced collection of waste from East Java and outside Java.

2023: Strengthened sales activities to expand waste collection volume.

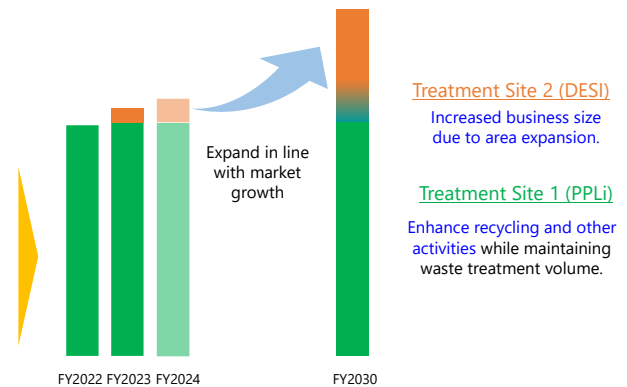
→ Aim to achieve profitability on a single month-basis within the year.

2024: Aim to contribute to revenue due to full-scale operation.

(2) Increasing Competitiveness

- Due to market expansion, competition is expected to intensify, resulting in falling unit prices for waste treatment.
- We will maintain and improve competitiveness by offering an expanded menu of recycling options and strengthening local treatment services (oil and gas industry, etc.).

Expansion of waste treatment volume



We will work to further enhance the value of the Indonesia business by upgrading and expanding our comprehensive waste management service.

Regarding the Indonesia business, as we expect that the waste treatment market will expand further, we will pursue initiatives to expand the menu of services available at existing sites, with a focus on expanding the scale of DESI.

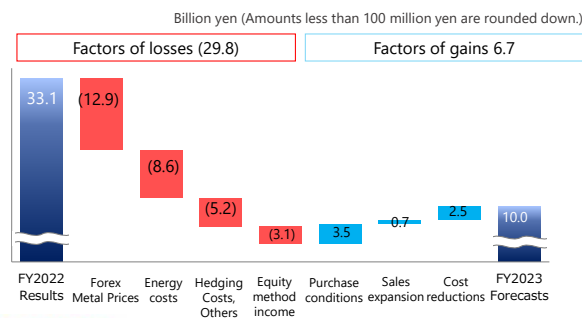
I personally attended the opening ceremony of DESI and got a sense from authorities that there were high expectations for Japanese technology. To make good on those expectations, we will work to expand the range of recycling options and strengthen local treatment services, with the aim of further expanding the business.

Business Overview

Business Environment (FY2023)

- Demand for zinc will be sluggish in the construction materials market, although is expected to gradually recover in the automotive market.
- Due to falling PGM prices, spent catalysts will be on the decline from the market, but are expected to recover in the future.

Ordinary income (Year-on-Year)



《Major Product Trends》

	FY2022		FY2023 (FY2022/H1 = 100)		FY2024
	H1	H2	H1	H2	
Volume of gold produced (Kosaka)	100	94	85	102	109
Volume of zinc produced (Akita)	100	121	99	116	116
Volume of collected spent catalysts	100	100	114	120	120
(Ref.) Volume of collected recycling materials	100	103	105	99	110

Outlook for FY2023

- Metal prices, for both base metals and precious metals, are expected to be at a lower level than the previous year.
- The yen is expected to be stronger against the dollar compared with the previous year.
- Electricity costs and other energy costs will remain at a high level
- Purchase conditions for zinc raw materials will improve.
- We will strengthen the collection of spent catalysts, focusing on North America and Europe.
- We will strive to improve profitability through sales expansion and cost reductions.

In terms of environmental changes, the Nonferrous Metals Business faces the most difficult conditions.

Demand for zinc has been sluggish, and demand for zinc-plated steel sheets for automobiles has bottomed out. However, there is still an impression of a lack of strength. In addition, market prices for metal are declining overall, particularly for precious metals, with concerns over the outlook for Chinese and Western economies being a major factor. For this reason, we expect that negative impacts from falling metal prices and a stronger yen will exceed the impact of rising energy costs in FY2023.

On the production front, production volume at Kosaka Smelting & Refining will be strong. We plan to increase the collection volume of spent exhaust gas purifying catalysts. Nippon PGM is planning to upgrade its electric furnace. This is not a simple update, and improvements to increase treatment capacity are also planned. The effects of increased processing volume are expected to materialize around the beginning of the year, and since raw material collection will be brought forward to accommodate that, we will try to increase collection volume in the second half of FY2023. However, in terms of the higher processing volume contributing to profits, as there will be a time lag between the collection of spent catalysts and recovery/sales of PGM metals, we expect to see effects from FY2024 and beyond.

The collection of raw materials for recycling has been steady.

Regarding zinc production, we will cease spot exports of low-margin electrolytic zinc and plan to reduce production for the full year compared to FY2022, aiming for the minimum production system necessary to maintain the functions of the combined mining, smelting and recycling complex. Accordingly, compared to FY2022, we plan to reduce production for the full year.

We expect a slight improvement in revenue due to terminating the tolling contract with Onahama Smelting and Refining.

Nonferrous Metals (2)		Progress of Key Measures in Midterm Plan				Finished	Preparatory stage	Business contribution
Precious metals and copper smelting	Treating more materials for recycling by handling impurities		Introduction of test facilities	Tests and development	Start of operation			
	Increasing the production volume and yield rate of tin	Increasing the yield rate	Technology development to further increase yield rate	Process optimization	Start of operation			
	Business infrastructure development	Ongoing investment to develop business infrastructure and enhance functions in the Kosaka District						
PGM	Increasing spent catalysts collection by expanding overseas bases	Europe Korea	Start of operation	Collecting more spent catalysts				
		North America	Strengthening system for increased processing through site relocation and expansion	Start of operation				
	Increasing the treatment capacity of Nippon PGM		Preparations for construction	Large-scale electric furnace repair	Increase processing volume			
Zinc	Establishing a structure for annual production of 220,000 tons at Akita Zinc	Process improvement	Stable production	Optimum production based on demand trends and electricity costs situation				
Mine development	Increasing production at Los Gatos Mine (Mexico)	Enhancing facilities for handling impurities		Expanded supply of low-impurity refined ore to Akita Zinc				
		Driving mineral exploration at owned mining areas						
	Driving the Palmer Zinc and Copper Project (Alaska)	Mineral exploration activities and acquisition of various permissions and authorizations		Mineral exploration, feasibility study activities				
		FY2021	FY2022	FY2023	FY2024	FY2025 onward		



This page shows the progress of key measures in the Nonferrous Metals Business.

Strengthening recycling and smelting is the most important measure of Midterm Plan 2024. We will utilize the Environmental Management & Recycling Business and in some cases external resources, including for pre-processing, and continue to develop technologies in pursuit of new recycling models.

In the PGM business, to date we have focused on North America in expanding collection, but as we expect to face capacity shortages at our existing facilities, from FY2023 we began construction on a new sampling site. We will make full use of sites in Spain and South Korea that have already begun operating, while pursuing measures to steadily increase raw material collection.

For the mid- to long-term, Akita Zinc will maintain its target of running its facilities at full capacity to manufacture 220,000 tons of zinc annually, but for FY2023, in light of recent increases in energy, we want to take on the challenge of developing an operating structure that will maximize revenue. Mining-related operations are proceeding steadily. We also plan to move forward with mineral exploration activities in Alaska.

Improved Profitability and Strengthening of the Zinc Business

Although electricity costs will remain at a high level and the zinc business will be heavily impacted due to the large amount of electricity it consumes, we will strive to improve profitability and strengthen business in order to maintain and expand complex functions that form the basis of the Nonferrous Metals Business.

(1) Initiatives to Improve Profitability

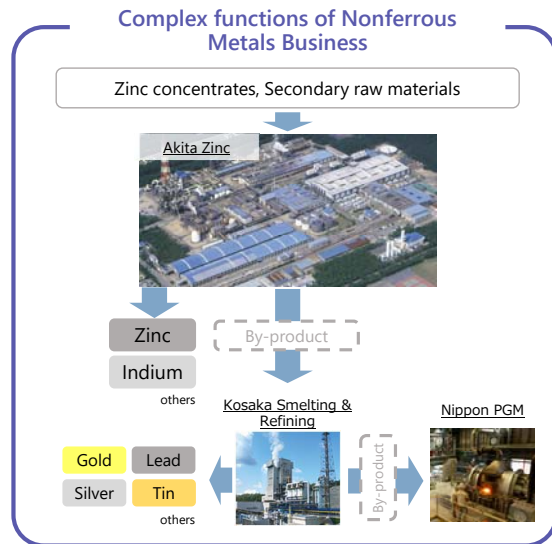
We will work to improve profitability by reducing costs and reviewing the sales mix of zinc products.

- Cost reductions at Akita Zinc [through management of operations on an hourly basis](#).
- Reduction of the sale of low-margin products by [reviewing the sales mix](#) of zinc products.

(2) Initiatives to Strengthen the Business Operations

Boost earnings capabilities in terms of both manufacturing and sales to strengthen the operating structure.

- [Improve quality at the Los Gatos Zinc Mine](#) due to the installation of equipment to remove impurities, and [improved productivity at Akita Zinc](#).
- [Increase recovery of valuable metals](#) by volume through higher productivity and the promotion of by-product processing.
- Expand sales in Southeast Asia due to [the start of increased production at the Thailand site](#).



Improving revenue in the zinc business is an extremely difficult challenge as it involves eliminating cost increases on the level of around 20 billion yen over two years, and we will use every means available to improve productivity.

There are very difficult aspects if we only consider zinc production, but the precious metals, copper and lead that are contained in zinc raw materials are realized as profits of Kosaka Smelting & Refining through the process at Akita Zinc. For that reason, Akita Zinc plays an important part in the mining, smelting and recycling complex. In terms of the Nonferrous Metals Business in general, we will consider conditions such as the volume to be handled that will produce the best margins for the complex overall as we formulate operational plans. Therefore, rather than looking at Akita Zinc on its own, pursuing the best structure that includes operations at Kosaka Smelting & Refining is something we think should be given particular attention over these two years.

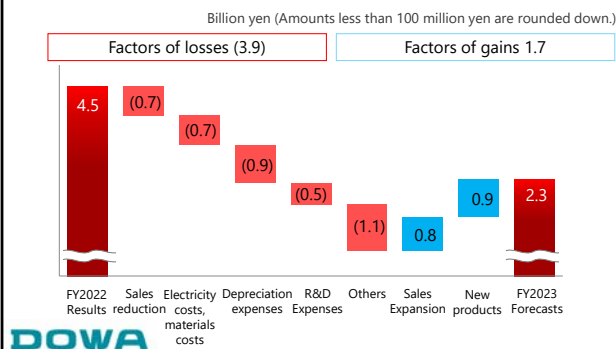
At the same time, the impurities contained in the ore concentrates that is the raw material for zinc have been steadily increasing. As the current facilities at Akita Zinc are aging, the raw material input process will become rate-limiting unless the capacity to deal with impurities is increased. Despite a severe business environment, we will continue to make these necessary investments. One attractive area for the zinc market is Southeast Asia. As DOWA is the only Japanese zinc producer to have established a processing plant in Thailand, we aim to use this plant as a starting point for increasing supply not only inside Thailand but to Indonesia, India and other countries as well. We have completed the capital investments and acquisition of permits associated with this increase in production, and we will continue to look at the market situation while aiming to develop a system capable of fully increasing production and sales from around the second half of FY2023.

Business Overview

Business Environment (FY2023)

- The telecommunication equipment and semiconductor market is expected to recover from the second half of the year.
- Sales volume of wearable devices will enter an adjustment phase.
- Volume of solar panel installations will increase, reflecting increased demand for new energy, and the switch to high-end products will make progress.

Ordinary income (Year-on-Year)



《Major Product Trends》

(FY2022/H1 = 100)

	FY2022		FY2023		FY2024
	H1	H2	H1	H2	
Volume of sales of LEDs	100	64	80	88	113
Volume of sales of silver powder	100	77	69	81	Under review
Income from new products (e.g. evaluation sample incomes)	100	127	152	174	185

Outlook for FY2023

- Demand for Short-wavelength infrared LEDs and photo diodes (PDs) will recover gradually.
- We will aim to increase sales of silver powder from the second half of the year in response to the adoption of high efficiency solar panels for the high-end market.
- We will make steady progress on the development of new products and the provision of evaluation samples, focusing on fuel cell materials and deep ultraviolet LEDs.
- Demand for conductive atomized powder will rebound from the second half of the year.

© 2023 DOWA HOLDINGS CO., LTD. 14

Next, I would like to go over the Electronic Materials Business.

In this business, demand related to telecommunications and semiconductors has been very difficult. As with automotive applications, demand for these products is expected to recover from the second half of FY2023.

We got off to a strong start with the LEDs and PDs for wearable devices that were newly launched on the market in the previous year, but final demand has now leveled off. In part due to sales of wearable devices doing poorly, demand for our LEDs and PDs used in them are in an adjustment phase. However, as we have fielded inquiries about components for next-generation products and our status as a top vendor remains unchanged, if final demand picks up, we believe that orders for our products will return.

In the Electronic Materials Business, silver powder has been the most damaging. We have lost considerable market share to Chinese made silver powder in applications for solar panels.

The pursuit of panel performance is ongoing in the overall market, and there are some fields where performance cannot be obtained unless our high-performance silver powder is used. Although the market size for high functionality panels is not that large, it is gradually growing. To suppose these high functionality panels we have pursued the development of new products, and their evaluation by customer is also underway. As high functionality panels are an area where our silver powder is recognized as superior performance-wise, we want to continue to pursue this sector.

Under Midterm Plan 2024, we have projected that the number of solar panels installed will increase each year, and we envisioned the sales volume of silver powder following suit. Even in our midterm plan we projected that the market share of Chinese made silver powder would increase for general purpose panels, but we had not expected that our own market share would decline at such a rapid pace. We need to revise our approach in response to this, and are in the process of exploring new targets, including capital investment and production systems.

To date, silver powder has supported revenue in this business, but in addition to LEDs and PDs, we have come out with some specific new products that have attracted strong inquiries, and we will concentrate on making gains with them. As we are still at the stage of providing evaluation samples, these are not expected to make significant contributions to profit, but this is the time for patience, and we will continue to pursue upfront investment.

Electronic Metals (2)		Progress of Key Measures in Midterm Plan				Finished	Preparatory stage	Business contribution
Semiconductors	Increasing production capacity of short-wavelength-infrared LEDs and photo diodes (PDs) for wearable devices	Start mass production	Construction work for increasing production		Increase production in response to expanded demand			
		Development and sample provision of products for next-generation wearable devices				Mass production preparations	Start mass production	
Electronic materials	Developing silver powder in line with the progress in the development of high- efficiency solar panels	Developing differentiating technologies	Provide evaluation samples for the high-end market		Start mass production	Further expansion of sales for the high-end market		
	Improving the performance and increasing the production of conductive atomized powder	Start mass production	Development for achieving higher performance, Provide evaluation samples		Construction work for increasing production	Start increasing production		
Advanced fine materials	Establishing a structure for the mass production of fuel cell materials	Launch		Construction work for increasing production	Start mass production	construction for increasing production in response to demand		
		Customer development		Mass production preparations				
New development	Developing next-generation recording materials and establishing a structure for mass production	Material development and provision of samples			Process optimization	Construction and launch	Start of operation	
		Mass production Construction	Launch and process optimization		Mass production preparations	Start mass production		
		FY2021	FY2022	FY2023	FY2024	FY2025 onward		



This page lists our progress on key measures, with a focus on new products. I will explain about areas other than LEDs, PDs and silver powder which I just mentioned.

Regarding conductive atomized powder, which is mainly for multi-layered ceramic condensers (MLCCs), our products have already been adopted by customers, so we are at the stage of awaiting a rebound in demand for MLCCs.

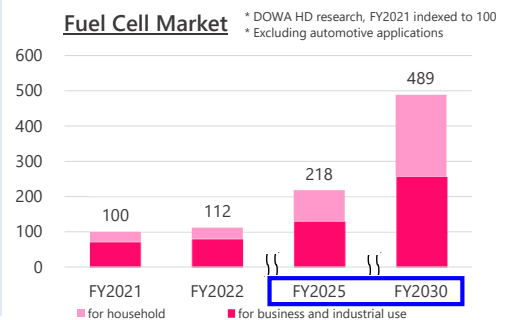
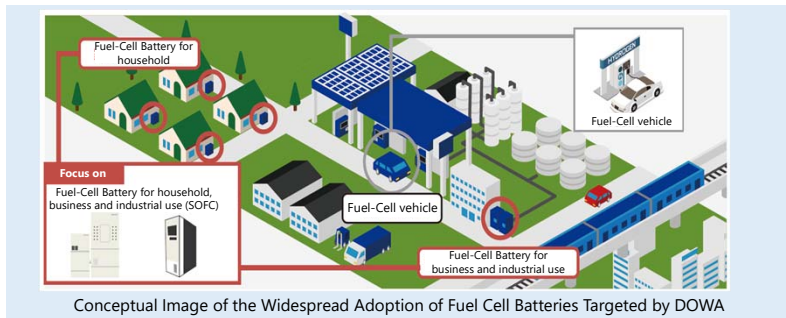
Fuel cell materials are a key example of new items and preparations for mass production are being made.

Regarding recording materials for magnetic tape, it appears that the recovery in demand is taking longer than we projected in our midterm plan. Effects of the semiconductor shortage have spilled over into delayed data center launches, delaying the market launch of magnetic tape for next-generation application. The development of tapes that in the future will surpass the recording capacity of HDDs is in the works, and we may enter a phase in which the market share previously surrendered to HDDs is taken back by magnetic tape. We are pursuing the development of new magnetic powders in anticipation of that time.

We are still at the development stages with regard to the material for all-solid-state batteries. As this is most surely a market with promising future potential, we will continue to invest in development.

Commercialization of Fuel Cell Materials

- The market for fuel cell batteries which react hydrogen (or ammonia) with oxygen to generate electricity will expand in an effort to achieve worldwide carbon neutrality.
 - In addition to practical utilization in cars, demand will also expand as a stationary energy source for household, business and industrial use.
 - DOWA's fuel cell materials powder is used as a cathode material for stationary fuel cell batteries, and has been high evaluated thanks to our proprietary powder control technologies.
- Fuel cell battery manufacturers are planning to invest in increased production in North America, Europe and Asia.
 - Evaluation samples of our products have also shifted to the initial mass production stage, and we will promote construction investment to acquire certification and start full-scale mass production during the second half of FY2023.



We will position the product as a core business in our next Midterm Plan, and demand is expected to expand further due to accelerating carbon neutrality efforts.

Of the items we plan to launch in the future, we have made the most progress with the practical implementation of fuel cell materials.

We are constructing mass production facilities at our Okayama Plant and our target is stationary fuel cells for household and industrial use. These will not be for automotive installation. While there are no prospects for a market launch in Japan, overseas in areas such as Europe, North America and South Korea, we expect the market to expand while taking advantage of policy-level support. We have received extremely positive evaluations on our products from all our customers in Europe, North America and South Korea, respectively. If we can obtain final certification, omnidirectional diplomacy in the area of fuel cell materials will be complete. We have great hopes for the future growth of this item.

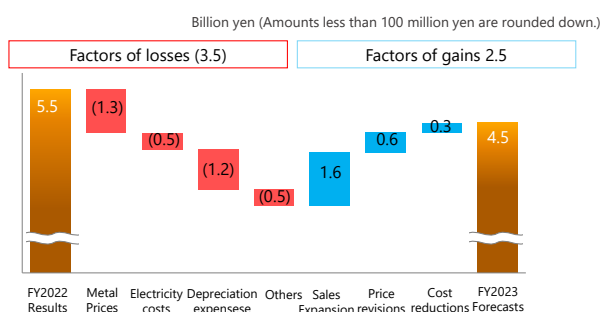
However, as we will make upfront investments to prepare for the start of mass production, it will be difficult to contribute to revenue in FY2023, and we expect to see contributions from FY2024 and beyond.

Business Overview

Business Environment (FY2023)

- With the shift to electrified and more intelligent automobiles, the number of automobiles production is expected to gradually rebound.
- While telecommunications equipment will continue to offer greater functionality and faster speeds, demand will recover from the second half of the year.

Ordinary income (Year-on-Year)



《Major Product Trends》

(FY2022/H1 = 100)

	FY2022		FY2023		FY2024
	H1	H2	H1	H2	
Volume of sales of copper rolled products (for automobiles)	100	102	105	104	113
Volume of sales of copper rolled products (For information and communication equipment)	100	64	75	92	108

Outlook for FY2023

- Sales of copper rolled products for automobiles will increase due to expansion for products for EVs.
- Precious metal plating for automobiles will gradually recover.
- Copper rolled products for telecommunications equipment and semiconductors will recover in demand from the second half.
- Strong sales of metal-ceramic substrates will continue, particularly for the industrial segment.
- We will strive to improve earnings capabilities by increasing sales, implementing price revisions and cutting costs.



The Metal Processing Business and Heat Treatment Business are heavily weight toward automotive applications, and are significantly affected by the trends of automotive and component manufacturers. However, as we cannot afford to be left behind in the shifts to more sophisticated information technology and electrification in automobiles, we are actively pursuing the development of new alloys.

We expect that the full-scale rebound in demand will not be seen until the second half of FY2023. While auto manufacturers have announced plans to increase production volume compared to last year, our customers, which are the component manufacturers, have not been that bullish. Our sales plans are prepared based on the information we have obtained directly from customers. Meanwhile, demand in applications for telecommunications equipment fell considerably in the second half of the previous fiscal year. We expect this to rebound from the second half of FY2023, but we do not believe this will increase to the strong levels of demand we saw in late FY2021 or early FY2022. We will keep an even more cautious eye on market trends.

Metal Processing (2)		Progress of Key Measures in Midterm Plan				Finished	Preparatory stage	Business contribution
Copper rolled products	Development of new products and expanded sales tailored to customer needs in the automotive sector	Development of new alloys and process optimization	Sales expansion to high-voltage terminals for automotive use					
		Development of new plating technologies and provision of evaluation samples	Mass production preparations	Start mass production				
	Strengthening of sales to the telecommunications sector	Construction for increasing production (rolling machines)	Launch	Start of operation, Improved support for thin copper rolled products				
		Sales expansion of connector materials for smartphones						
	Entry into new markets and strengthening of sales		Sales expansion to terminals for industrial machinery		Expansion into peripheral applications			
Expanding the Asia business	China	Sales expansion to local manufacturers	Construction work for increasing production	Start of operation				
	Thailand	Sales expansion to local manufacturers	Construction work for increasing production	Start of operation				
Electroplating	Expanding sales of electroplated products for high-voltage terminals	Japan	Tapping new demand and expanding sales to cater to customers' development needs	Mass production preparations	Mass production preparations			
		Thailand		Constructing production lines	Start of operation			
Metal-ceramic substrates	Increasing capacity by eliminating and consolidating production lines and increasing production at facilities in Japan	Electroplating lines Preparing for elimination and consolidation	New building construction	Constructing, eliminating, consolidating production lines	Start of operation			
		Expanding sales and increasing production capacity of metal-ceramic substrates for industrial machinery and railways	Preparations for construction	New building construction		Launch	Start of operation	
				Launch	Start of operation			
		FY2021	FY2022	FY2023	FY2024	FY2025 onward		



In the Metal Processing Business we are continuing to launch new items and development products.

The new plating technologies shown in the second row from the top refers to silver-graphite composite plating (SiIC plating), which is described on the next page. Our end goal is automotive installation, but for the meantime we will launch this product with a focus on power tools and other consumer applications, and we will also verify performance while gauging the market response. As this is our unique product, we want to make progress expanding sales.

Strengthening sales to the telecommunications sector is a measure being pursued at DOWA Metanix. As the installation of new copper rolling equipment is complete, we will steadily ramp up production. The main aim is to improve productivity at DOWA Metanix, but in addition to that, several years ago we had the experience of DOWA Metal and DOWA Metanix being unable to fully accommodate demand using existing production facilities when there was a rebound in demand, and one solution to that is the concept of both companies using one another's facilities for production as needed. The installation of new copper rolling equipment is effective in achieving that, and although current demand is weak, we will make this investment without delay, looking ahead to the future.

Regarding our new sites in China and Thailand, although demand is still weak in China, since it has started to recover to some extent in Southeast Asia, we will expand ahead of time to ensure we can capture the demand from local customers.

In the area of plating we are constructing a new plant to deal with new products such as silver plating for high-voltage terminals, as well as to improve the productivity of existing products and thoroughly ensure quality control. The new plant will be completed within FY2023, after which we will reorganize our production processes including new production lines. The new plant is expected to contribute to revenue in FY2024 and beyond.

We have made relatively steady progress in expanding sales and strengthening production

capacity of metal-ceramic substrates.

Growth Strategy for the Metal Processing Business

Automotive Applications

- The components are equipped in new cars due to model changes that occur every few years.
 - With the growth of electrification and the switch to EVs, demand has expanded for high-performance high voltage terminals, compact terminals and communications equipment.

[Copper rolled products]

- We will pursue the development of materials that cater to the needs of next-generation models and expand sales with the use of products that combine **high-performance copper alloys**, **Sn reflow plating** and **silver-graphite composite plating (SiIC plating®)**.

[Plating]

- **High performance Ag plating for high voltage terminals is under development**, with evaluation samples being provided for their use in next-generation models.
- Plant construction aimed at structural improvements through **the upgrading and reorganization of domestic production lines** is proceeding smoothly.

Telecommunications Applications

- Demand for semiconductors will expand with the introduction of new smartphone models and growth in the data server sector.
 - Demand for thin copper rolled products will expand due to the miniaturization and densification of components.

[Copper rolled products]

- **The response to the demand for thin copper rolled products** will be further enhanced due to extensive variations including titanium copper, corson and nickel-based alloys, and **the new rolling equipment** scheduled to launch in the first half of FY2023.



Conceptual image of the completed DOWA Hightech Plating Plant building in Saitama Prefecture



Nickel-based alloys (42%Ni-Fe)

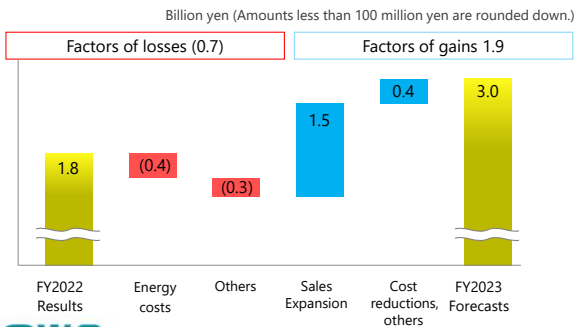
As I mentioned a moment ago, construction of a new plating plant is underway in the Metal Processing Business. We have completed the development of proprietary technologies for high performance Ag plating, and we will steadily roll out this technology in the market. We also plan to implement a market launch of a new product, silver-graphite composite plating (SiIC plating).

Business Overview

Business Environment (FY2023)

- The impact of reduced automotive production due to semiconductor and component shortages will ease into the second half of the year, and heat treatment demand will also experience a moderate recovery.
- Due to the advance of EV adoption, electrification-compatible vehicles as a percentage of total production will increase.
- There will be changes to the type and composition of components that require heat treatment.

Ordinary income (Year-on-Year)



DOWA

《Major Product Trends》

(FY2022/H1 = 100)

	FY2022		FY2023		FY2024
	H1	H2	H1	H2	
Heat Treatment Sales Amount	100	109	112	121	116
Industrial Furnaces Sales Amount	100	171	113	173	177

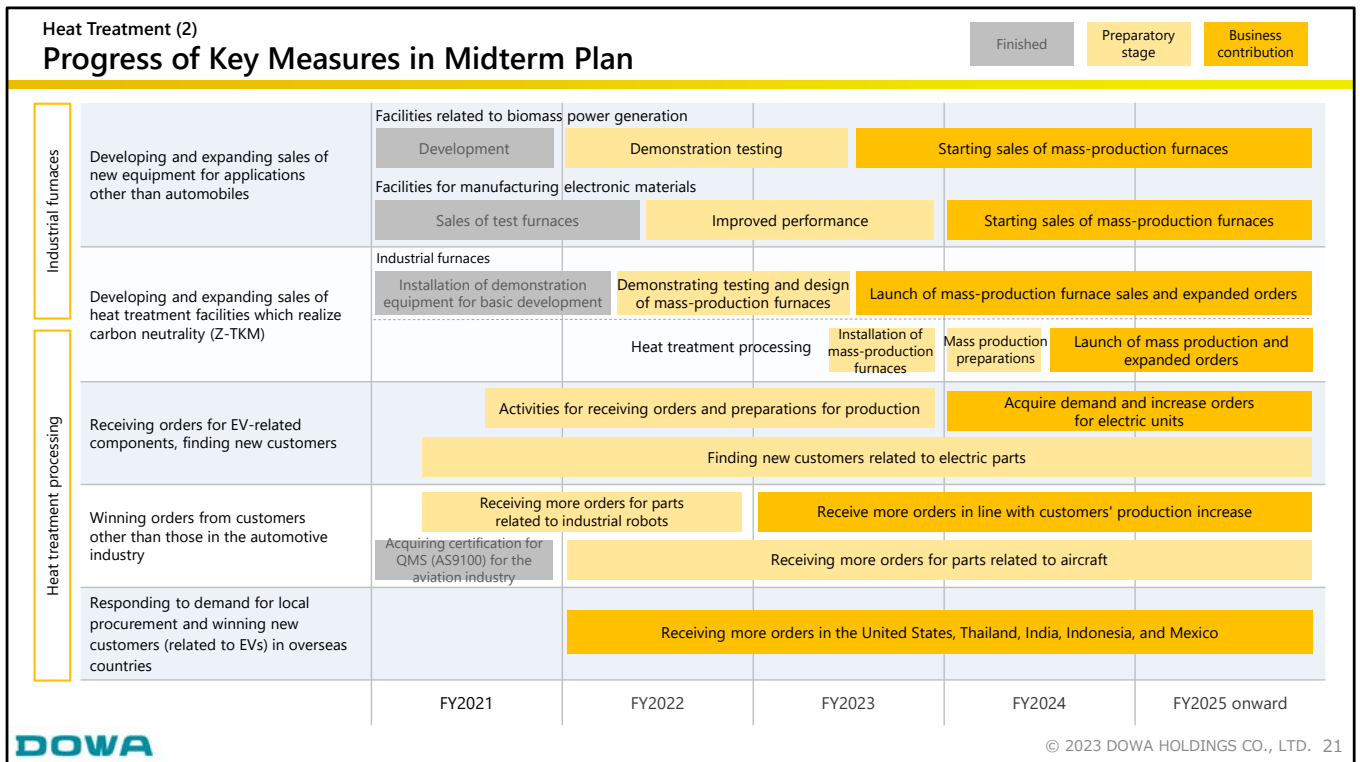
Outlook for FY2023

- Demand for heat treatment processing will gradually rebound from the second half of the year.
- Price revisions and cost reductions measures will continue in response to higher energy unit prices and other rising costs, and we will endeavor to secure earnings capabilities.
- In the industrial furnaces business, we will seek expanded orders by developing and launching new products that reflect decarbonization and other customer needs.

© 2023 DOWA HOLDINGS CO., LTD. 20

The Heat Treatment Business is the division most directly related to actual demand from automotive manufacturers. For that reason, our plans call for a year-on-year increase in profits by capturing demand that tracks with a rebound in the number of vehicles produced by automotive manufacturers. Similarly here, we expect the recovery in demand to begin in the second half of FY2023, with difficult conditions persisting in the first half.

We are also pursuing development of a new product (Z-TKM) that can be introduced with decarbonization as the keyword. We will go over this in the following pages, but for now, note that we will conduct extensive demonstration testing and accumulate data by installing this at our own heat treatment plant. As this product can contribute to lower operating costs in addition to reducing CO2 emissions, we are collecting operating data to be used for PR activities aimed at customers next year.



The new equipment that is able to reduce CO2 emissions which I just mentioned is called Z-TKM. We plan to make various preparations for demonstration testing and volume sales of this product in FY2023.

We have started sales activities to develop its application aimed at other industries such as robotics in addition to the auto industry. As a result, we are receiving steady orders and expect this will lead to markets for new applications.

Despite a delayed shift to profitability at heat treatment plants such as in Mexico, we have finally seen an upward trend. While these operations have not become major sources of revenue like India, we hope to steadily capture the upswing in demand.

Utilization of Z-TKM to capture growing market



- CO₂ emissions from the heat treatment process are reduced to around 40% compared with conventional furnaces.
- If green energy is utilized, reductions of more than 90% are possible.
- The lead time taken for treatment is shortened to roughly 60% compared with conventional furnaces.
- The same size as a conventional furnace, making it easy for customers to replace.

Z-TKM Development and Market Launch Plan

FY2022: Installation of demonstration unit, accumulation of operational data
Start of heat treatment prototyping using customer products.

FY2023: Further cost improvements, establishment of mass production furnace specifications.

- Launch of external sales of mass production furnaces (second half).
- Installation of mass production furnaces at in-house heat treatment plant.

FY2024: Launch of consignment heat treatment processing.

We will cultivate Z-TKM to be a core product of the Heat Treatment Business, and broadly roll out the product to areas expected to experience high rates of growth, such as the automotive sector.

Automotive



Industrial robots



Construction equipment



This is a picture of a Z-TKM demonstration unit. We can actually place components in the unit to perform heat treatment.

This product is able to reduce CO₂ emissions to about 40% compared with conventional furnaces. In addition, if green energy is utilized, this equipment enables production with almost no CO₂ emissions at all. As the structure also shortens lead times and reduces heat loss, it can significantly contribute to improved productivity and lower costs from reduced gas consumption.

In FY2023 we will continue to accumulate data, and begin external sales from the second half of FY2023.

That completes the briefing on each business segment.



Progress of Midterm plan 2024 Strengthening Sustainability Management

© 2023 DOWA HOLDINGS CO., LTD. 23

Now, I would like to describe our progress in relation to strengthening sustainability management, which is one of the initiatives of Midterm Plan 2024.

Initiatives to Strengthen Sustainability Management

We are steadily driving initiatives planned in the Midterm Plan 2024 in each area of sustainability to achieve our Mission and Vision.

	目標	2022										2023				
		Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	
System for promotion	Sustainability Subcommittee	Meet monthly	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Sustainability Committee	Meet biannually	→										●	●	●	
	Reporting to the Board of Directors	Twice per year	→										●	●		
	Reporting on the status of dialogue with shareholders to the Board of Directors	Twice per year	→										●	●		
E	Publication of a TCFD report	Within FY2022	●													
	Publication of Reduction Roadmap and Contribution Targets	Within H1 FY2023	●	Organize issues, consideration roadmap and contribution targets										● (Plan)		
S	Publication of the human resource development policy	Within FY2022									●					
	Certified as Outstanding Health & Productivity Management Organization 2023	Within FY2022												●		
	Obtaining DX Certification	Within FY2022				●										
G	Reassessment of risks and reflection to the 2023 action plan	Within FY2022												●	●	
	Strengthening of Quality Assurance System	Within FY2022	●	Rebuilding Quality Assurance System, promote company-wide activities										●	●	



The Sustainability Subcommittee has met monthly to discuss specific themes for each material issue. Important themes and themes that have progressed significantly are deliberated over during biannual meetings of the Sustainability Committee, the upper body of the subcommittee, with key matters being reported to the Board of Directors.

In addition, past questionnaires on the effectiveness of the Board of Directors indicated that reporting and discussion on the status of dialogue with shareholders to the Board of Directors was lacking compared with other items. In response, we have adopted a system where the status of activities in the General Affairs & Legal Dept. and Public Relations & Investor Relations Sec. are reported to the Board twice a year.

In May 2022, we published a TCFD report on our response to climate change. Before and after that, we have been organizing the issues we face in taking action on climate change and discussing what kind of roadmap to draw up. This process is finally complete, and will be announced on May 25. We are proud that this roadmap showcases the characteristics of the DOWA Group front and center.

On the human resources front, we revised our previous human resource development policy and managed to be certified as an Outstanding Health & Productivity Management Organization for 2023. We also obtained DX certification.

In terms of risk management, we have adopted a holding company system and established a multi-level organizational structures with operating companies under the holding company, with operating subsidiaries under them. We are pursuing initiatives to build an effective risk management system that suits this operating structure.

In FY2023, we adopted new risk management methods, identified several important risks at each operating company and operating subsidiary, and summarized measures to deal with those risks. We are currently at the stage of implementing those measures.

In terms of our quality assurance framework, we have revised our quality assurance systems to

enable activities that are unified across the company, and to coincide with Quality Month in November we held various events aimed at reenergizing quality assurance activities Groupwide. At the same time, we have increased the number of personnel in the holding company's Quality Assurance Dept. to enhance its structure.

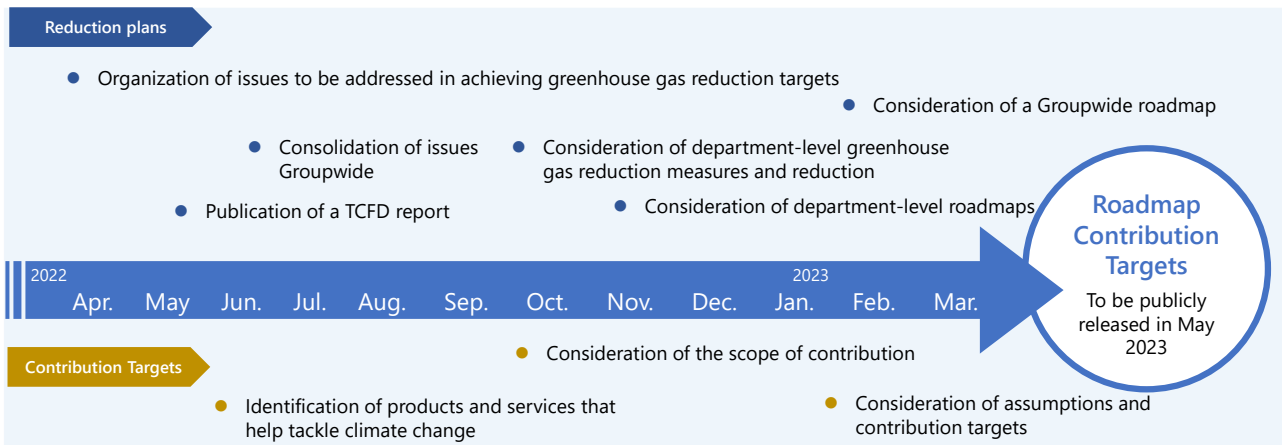
Materiality 3

Responding to Climate Change

The following are [scheduled for public release in May 2023](#) based on the two perspectives (risks and opportunities) of the TCFD recommendations.

- [Roadmap](#) for achieving carbon neutrality in 2050 and meeting interim targets for greenhouse gas reductions in FY2030.
- [New contribution targets](#) for products and services that help tackle climate change.

Details of Activities in FY2022



I would like to share several pieces of news about the materiality initiatives that were set in Midterm Plan 2024.

First is about our response to climate change. We have been engaging in Groupwide discussions on our response to climate change on a monthly basis. As a result, on May 25 we plan to announce our roadmap on climate change action.

This release has a two-tiered structure to not only show the initiatives the DOWA Group is pursuing to reduce greenhouse gas emissions, but also summarize and publicize the products and services that make it clear that our business contributes to climate change action in society and among our customers. Please stay tuned for its imminent release on May 25.

Materiality 6

Increasing organizational power (including promotion of diversity, work-life balance, and human resources development)

Drive initiatives to enhance human capital with key initiatives of developing human resources who make changes happen and securing diverse human resources and workstyles.

Promotion of Diversity

- Increase the percentage of newly hired employees who are women (at HD) (target: 30%).
 - Among new employees hired in April 2023, 32% were women.
 - Began to develop environments and facilities that enable the full participation of women at each plant.
- Introduce an extension of mandatory retirement age (target: introduction at all domestic Group companies by FY2024).
 - Introduced at 32 of 53 companies. We aim to complete introduction at all companies during FY2023.

Building working environment to continue to work (work-life balance)

- Strengthen support for employees balancing childcare and family care responsibilities with work.
 - Introduced a work-from-home system, enhanced the shorter working hours and limited district working system, upgraded the childcare and family care leave systems.
- Have conducted an employee satisfaction survey since FY2022 with the aim of reducing employee turnover.

Human Resource Development

- In June 2022 we published our Human Resource Development Policy and Initiatives to Develop an Environment to Cultivate Human Resources.
- We will revamp our internal training systems and equally provide employees motivated to learn with learning opportunities.

The percentage of newly hired employees who are women (at HD)



© 2023 DOWA HOLDINGS CO., LTD. 26

DOWA

Next, I would like to talk about our efforts to increase organizational power.

In promoting the active participation of women in the workplace, public attention has focused on the percentage of managerial roles filled by women, and the percentage of company officers who are women. However, we do not intend to give preferential treatment to women for promotion to managerial positions simply on the basis of gender. Our basic approach is to provide equal opportunities regardless of gender, and to properly reward those who produce results and improve their skills.

However, since it is difficult to promote women due to a shortage in the total number of women, which represent the denominator when calculating these ratios, to gain a foothold we have set the continuous target of ensuring that at least 30 percent of newly hired employees at the holding company are women. For the current fiscal year we achieved this target, with women representing 32% of new hires.

Of the 53 domestic Group companies, 32 have introduced extended mandatory retirement ages. This involves extending the mandatory retirement age to 65, and we aim to extend this to all domestic Group companies within FY2023. Five or six years ago, the holding company and operating companies worked in advance to introduce a system to extend the mandatory retirement age in a way that does not lower wage levels. These advance cases will be rolled out as models for Group companies in Japan.

In addition, to strengthen support for employees balancing childcare and family care responsibilities with work, we have left our work-from-home scheme in place despite recently eliminating guidance for employees to work from home in connection with the COVID-19 pandemic. We have adopted a scheme that, contingent on communication between an employee and their supervisor, enables an employee to work from home if it is expected to enhance their productivity when faced with childcare or family care responsibilities or recuperating from illness, or in cases where use of the scheme would aid in employee retention.

We have also introduced systems for shortened working hours and exempting job transfers that involve relocation based on employee circumstances such as childcare and family care. By utilizing these systems, we hope to improve employee satisfaction and raise retention rates.

Materiality 9

Driving Digital Transformation (DX)

We will steadily implement initiatives that are key to the promotion of our DX business strategy, namely the development of IT infrastructure, strengthened digital security and the cultivation of DX-oriented human resources, and further promote DX on a Groupwide basis.

Midterm Plan 2024			FY2022 Results	Targets for FY2023
Measures	Indications	Targets for FY2022 to FY2024		
Building IT infrastructure	Operating a common Group cloud infrastructure	Operational launch in FY2023/H2	Progress as planned	Operational launch in FY2023/H2
Human Resource Training for Digital Transformations	Number of human resources trained	Cumulative number: 80	67 (plan 27)	38 (105 total)

Development of DX-oriented Human Resources

- We have started efforts to cultivate human resources capable of utilizing AI to drive DX, and engineers with specialized skills. In FY2022, we achieved progress in excess of the planned personnel.
 - In the latter half of FY2023, we will launch operation of a common Group cloud infrastructure and accelerate the utilization of data by DX-oriented human resources.

Companywide Promotion of DX

- Utilizing support company sites in our major districts in Japan (Akita, Kanto, Chubu, Okayama), we will strengthen the promotion of DX at each business site.
 - Through the introduction of AI-driven production technologies and the building of cloud-based systems, [business and revenue contributions will start in some areas.](#)

Examples of DX

- Improved metal value utilizing data science at smelting and refining site
- Improved productivity and lower costs with the introduction of AI in the development of process plans at metal processing site
- Reduced accident risks using AI-based image analysis at recycling site



Regarding DX, we have started by working on human resources development. We originally aimed to develop 80 such employees over three years by FY2024, but in response to the large number of requests from employees wishing to undergo this training, in FY2022 67 employees took part in the training, almost 3 times the target of 27. We have also started to see cases of DX actually being implemented at several production sites. For example, at Kosaka Smelting & Refining, there was an example of data science being employed to further improve operational conditions, and at a site used by the Metal Processing Business, it is now possible to create speedy and effective plans using AI when formulating process plans. While these initiatives have not yet been fully rolled out in the actual operation, we will continue with further demonstration testing and expect to be able to incorporate these advancements as specific effects from FY2024 and beyond.

(Appendix) Assumptions and Sensitivities

Sensitivity (Operating Income / FY2023)			Million yen
	Assumptions	Fluctuation	Sensitivity
Exchange rate	132.0 ¥/\$	±1 ¥/\$	610
Copper	8,500 \$/ton	±100 \$/ton	40
Zinc	2,800 \$/ton	±100 \$/ton	470

* Exchange rate sensitivity; Nonferrous Metals 500 million yen and Electronic Materials 110 million yen.

Exchange Rate and Metal Prices

	FY2022			FY2023			Midterm Plan 2024
	H1	H2	Full-year	H1 assumptions	H2 assumptions	Full-year assumptions	
Exchange Rate: (¥/\$)	134.0	137.0	135.5	132.0	132.0	132.0	120.0
Copper: (\$/t)	8,634	8,468	8,551	8,500	8,500	8,500	10,000
Zinc: (\$/t)	3,597	3,067	3,332	2,800	2,800	2,800	3,800

DOWA

© 2022 DOWA HOLDINGS CO., LTD.

I will skip this page, as it contains supplemental information.

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.

© 2023 DOWA HOLDINGS CO., LTD. 29

This concludes the briefing. Thank you very much.